

Hearing Conservation

An **Expert Guide**

Hearing Loss Statistics
Detection
Ear Muffs

Managing Noise Risks
Ear Plugs
Validation

Personal Hearing
Protection
High Noise
Communication Solutions





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Arco is the UK’s leading supplier of personal protective equipment, workwear and workplace safety products offering a world-class range of over 170,000 products.

As Experts in Safety we are widely recognised as a provider of specialist advice through our branch network and this is further supported by our training and consultancy division. We reach our customers through an extensive product catalogue, interactive website and 40 strong local Sales Office and Trade Counter network. We pride ourselves on providing customers with great availability, performance and price.

Founded in 1884 Arco has a heritage spanning four generations. With traditional family values at the heart of the business we pride ourselves on our core values; respect, hard work, enterprise and excellence in reputation. We fully subscribe to the ETI’s Nine Principles Base code and have fully incorporated the internationally recognised code of labour practice into our own ethical policy. In 2007 Arco was the first distributor in our industry to become a member of the Ethical Trading Initiative (ETI) and in 2010 we became a member of Sedex, the Supplier Ethical Data Exchange. We continually support local communities and charities donating in excess of 1% of pre tax profits annually.

As we are members of the BSIF Registered Safety Suppliers Scheme you can be confident that we will supply safety equipment which is genuine and compliant with the relevant standards and regulations. The BSIF monitor and regulate members of the scheme by conducting regular standards audits.



Ethical Trading Initiative



Our Service

As part of our commitment to safety this Expert Guide is designed to provide guidance on identifying, managing and preventing hearing loss in the workplace environment.

Not only do we supply a comprehensive range of hearing protection products, Arco also has a selection of detection and validation tools ensuring you are compliant with the Control of Noise at Work Regulations 2005.

The Control of Noise at Work Regulations 2005 are designed to protect against risks to both health and safety from exposure to noise and in April 2008 the regulations were adapted to include the music and entertainment industry.

The regulations state that anyone working in an environment where noise levels exceed 80dB is at risk of hearing damage and must be provided with suitable hearing protection.

If the noise level exceeds 85dB then the provision and wearing of hearing protection is mandatory. The protected maximum exposure limit of 87dB must not be exceeded even when wearing protection.

Personal hearing protection should only be used where there is a risk to health and safety for which a solution cannot be achieved through other noise-control measures. It is crucial that anyone using hearing protection understands why they require the equipment, when it should be used, how to care for their device, when to replace, is it the correct size and is it worn correctly.

All of Arco’s hearing protection conforms to all European Standards and carries the CE mark, complying with the requirements of the Personal Protection Equipment Regulations 2002. The CE marking signifies that the protection satisfies certain essential requirements and in some cases will have been tested and certified by an independent body.

Hearing Protection Standards:

- EN 352-1 – Ear Muffs – Headband
- EN 352-2 – Ear Plugs
- EN 352-3 – Helmet Mounted Ear Muffs
- EN 352-4 – Level-Dependent Ear Muffs
- EN 352-5 – Active-Noise Reduction Ear Muffs
- EN 352-6 – Ear Muffs with Electrical Audio Input
- EN 352-7 – Level-Dependent Ear Plugs

Arco Training and Consultancy

The Control of Noise at Work Regulations 2005 require each employer to carry out a noise risk assessment where any employee is likely to be exposed to noise. Arco Training and Consultancy is the specialist arm of Arco that is dedicated to helping customers achieve and maintain, full health, safety and environmental compliance.

Arco Training and Consultancy can provide a range of occupational hygiene services to help identify health hazards and appropriate control measures in the working environment with noise surveys and personal dosimetry.

Sound Seekers

Arco is proud to announce that we will be donating 1% of the sales of the Arco range of hearing protection products to Sound Seekers. The work that Sound Seekers does within the Commonwealth Nations is commendable and we are proud to be able to help them raise vital funds in this way. Sound Seekers is a UK registered charity which works to improve the lives of deaf children and children suffering from ear disease in developing countries of the Commonwealth of Nations. They provide specialist equipment, training and support in some of the poorest countries in the world, where people may otherwise not receive the help they so desperately need.



Hearing Loss Statistics

How many people in the UK have some form of hearing loss?

There are more than 10 million people in the UK with some form of hearing loss, or one in six of the population. From the total figure, around 6.4 million are of retirement age (65+) and about 3.7 million are of working age (16 – 64). From the total number of ten million, more than 800,000 people are severely or profoundly deaf. *Facts and figures on deafness and tinnitus. Action on Hearing Loss Information, July 2011 4.*

Due to the ageing population of the UK, there will be an estimated 14.5 million people with hearing loss by 2031. The World Health Organisation predicts that by 2030 adult onset hearing loss will be in the top ten disease burdens in the UK, above diabetes and cataracts. *Action on Hearing Loss Information, July 2011.*

Noise Induced Hearing Loss

Approximately 30% of workers are exposed to hazardous levels of noise at some time during their working day and over 10% are exposed at all times.

Noise induced hearing loss (NIHL) is one of the biggest occupational health problems facing us today. Whilst NIHL is permanent and irreversible, it is also preventable. NIHL is a gradual process and often by the time we are aware of the problem it is too late. It can take 10-20 years for long-term damage to become apparent.

Some 170,000 people in Great Britain suffer deafness, tinnitus or other ear conditions from exposure to harmful levels of noise at work. *Health and Safety Executive.*

The industries with the largest number of new cases of hearing loss are: manufacturing, construction and extraction, energy and water supply. *Health and Safety Executive.*

Noise Induced Hearing Loss:

- Causes no pain
- Has no visible trauma
- Leaves no visible scars
- Is unnoticeable in its infancy stage
- Accumulates with every over exposure
- Takes time to develop
- Is permanent and 100% preventable

Control of Noise at Work Regulations 2005

Hearing damage caused by exposure to noise at work is permanent and incurable. Research estimates that over 2 million people are exposed to noise levels at work that may be harmful.

Hearing loss usually develops from long-lasting exposure to noise and progresses over time. Hearing damage can also be caused by sudden, extremely loud noises. Tinnitus and muffled hearing is also a sign of hearing damage from exposure to noise.

Employers are duty bound by the Control of Noise at Work Regulations 2005 to remove or reduce risks to health and safety from noise at work.

If any employee is likely to be exposed to noise at or above an upper exposure action value, the employer must reduce exposure to as a low level as is reasonably practicable by establishing and implementing a programme of organisational and technical measures, excluding the provision of personal hearing protectors, which is appropriate to the activity.

Under the Control of Noise at Work Regulations 2005, actions and a risk assessment need to be taken if any of the following apply:

- The noise is intrusive for most of the working day, examples of this are a busy road or a vacuum cleaner
- Raised voice when having a conversation with someone who is 2 metres away for at least part of the day
- Noisy power tools or machinery for more than half an hour a day
- Working in noisy industries such as construction, road repair, engineering, manufacturing or entertainment
- Noise from impact, for instance hammering, drop forging, pneumatic impact tools, etc
- Noise from explosive sources, such as cartridge-operated tools, detonators or guns

The Action Levels

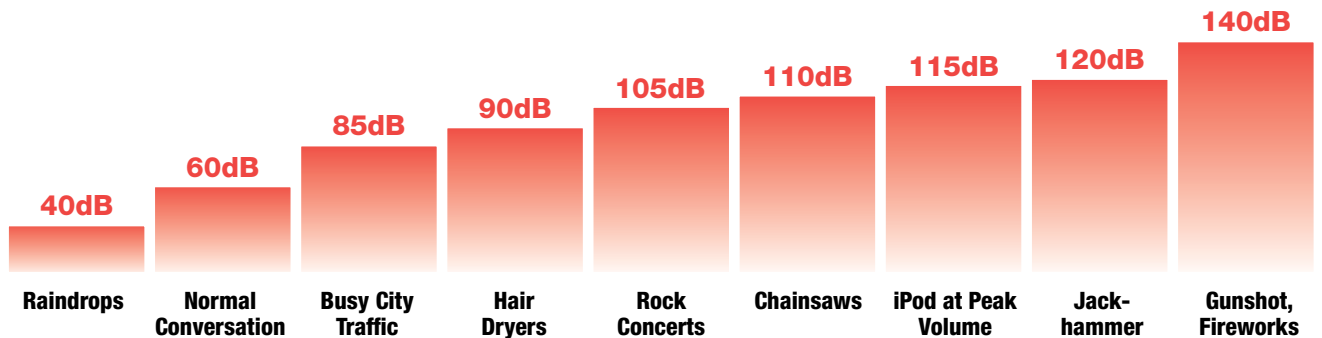
As an employer you are required to make a reliable and representative estimate of your workers daily personal noise exposure. If the noise level exceeds 85dB then the provision and wearing of hearing protection is mandatory. The protected maximum exposure limit of 87dB must not be exceeded even when wearing protection. However if an employee requests hearing protectors and their exposure is between the lower and upper exposure action levels then hearing protection must be provided.

For guidance on the exposure levels, review our Action Level selection chart.

Lower Exposure Level	Upper Exposure Level	Exposure Limit
Action to take: 1. A range of hearing protectors must be made available to workers exposed to noise. Usage is voluntary. 2. Training provided on safe working, detecting hearing damage, risks of noise exposure and the correct use and fitting of hearing protectors. 3. Audiometric screening should be made available to those at risk of NIHL.	Action to take: 1. A range of hearing protectors must be made available to workers exposed to noise. Usage must be enforced. 2. Noisy areas must be clearly identified with warning signs. 3. Exposed workers should have audiometric evaluation made available.	Action to take: 1. Maximum level allowed that must not be exceeded. 2. Where exposure to noise varies markedly from day to day the weekly exposure level should be measured and used in place of daily noise exposure.
Exposure Levels: Daily 8hr 80dBA Peak 135dBC	Exposure Levels: Daily 8hr 85dBA Peak 137dBC	Exposure Levels: Daily 8hr 87dBA Peak 140dBC

Noise Level Examples

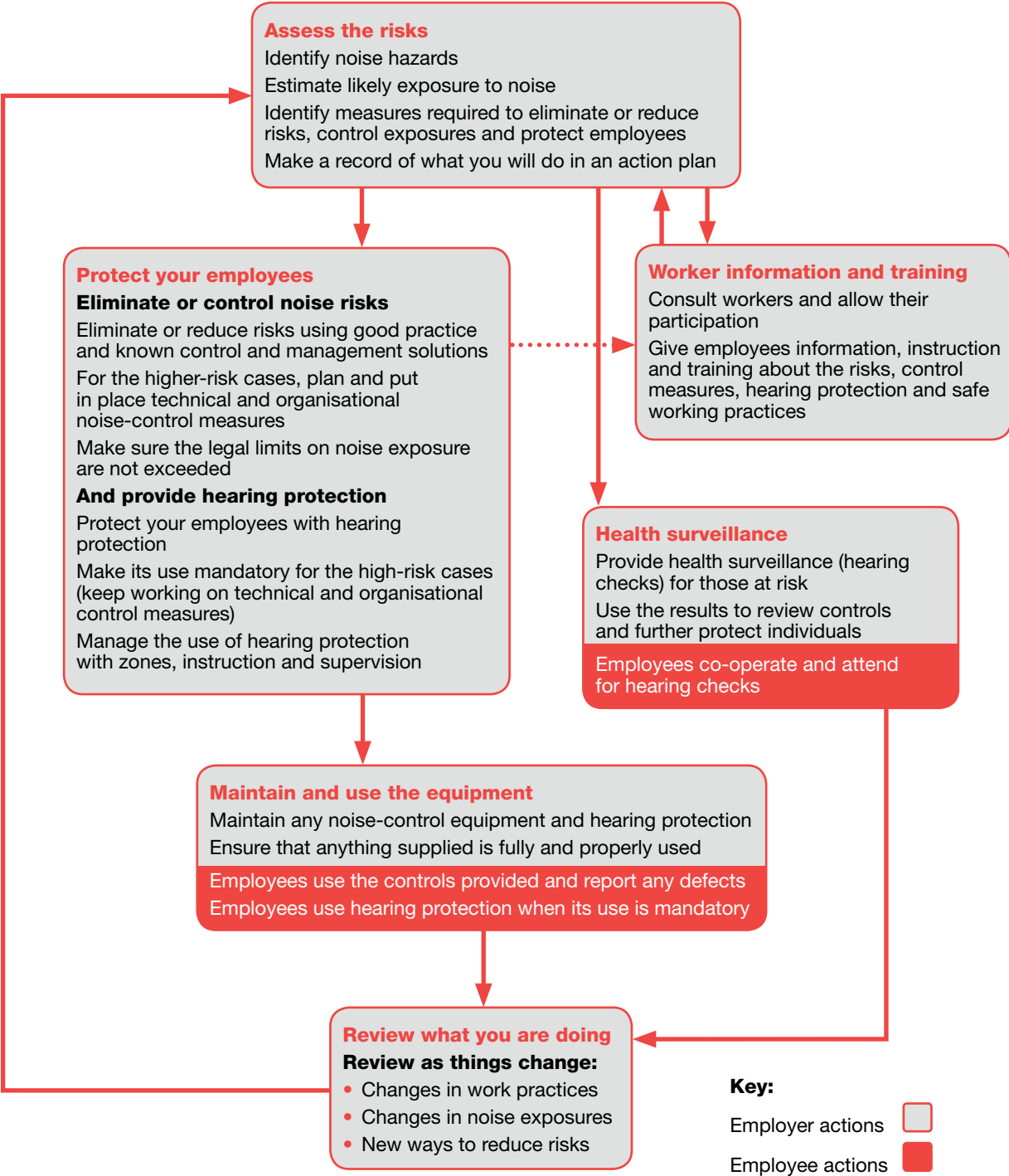
The chart below provides examples of common place noises.



Sources: dangerousdecibels.org: WSJ research
Health and Safety Executive: The Control of Noise at Work Regulations 2005. Guidance on Regulations.
Facts and figures on deafness and tinnitus, Action on Hearing Loss Information, July 2011.
Health and Safety Executive: Is your workplace noisy?
Health and Safety Executive: Noise-Induced Hearing Loss (NIHL) in Great Britain.

Managing Noise Risk

The below managing noise risk diagram, provides guidance on how to conform to the Control of Noise at Work Regulations and highlights how to implement noise reduction in the working environment.



Source: Health and Safety Executive: The Control of Noise at Work Regulations 2005

Personal Hearing Protection

Personal hearing protection should only be issued to employees once the risk has been identified and when noise control measures through technical or organisational means cannot be achieved.

You should not use hearing protection as an alternative to controlling noise. The Control of Noise at Work Regulations 2005 requires the following:

Where personal hearing protection is required it is important that employees are provided with the right type of protection, are trained to use the device correctly, understand how to maintain and when to replace their protection. It is the employer's duty to provide hearing protection to employees that request them, if their noise exposure is between the lower and upper exposure action values. Hearing protection zones are areas of the workplace where access is restricted and where hearing protection is compulsory.

Hearing protection considerations:

When selecting hearing protection the following needs to be considered:

- Types of protector, and suitability for the work being carried out
- Noise reduction (attenuation) offered by the protection
- Compatibility with other safety equipment, for instance hard hats, masks and eye protection
- Pattern of the noise exposure
- The need to communicate and hear warning sounds
- Environmental factors such as heat, humidity, dust and dirt
- Cost of maintenance or replacement
- Comfort and user preference
- Medical disorders suffered by the wearer

Over Protection

The HSE state protection, which reduces the level at the ear to below 70dB should be avoided, since this over-protection may cause difficulties with communication and hearing warning signals.

Over protection can also lead to employees feeling isolated from their environment, leading to potential safety risks and the tendency to remove their hearing protection in situations where it is required.

The table below gives an indication of the protector factor that is likely to be suitable for different levels of noise (the noise level during a particular work task, not the daily personal noise exposure). It is based on the single number rating (SNR) value provided with a hearing protection device. The information is intended as a guide rather than a substitute for using one of the standardised methods for calculating hearing protection performance, and in particular will not be appropriate if there are significant low-frequency components to the noise in question. *Health and Safety Executive*

Indication of protector factors

A-weighted noise level (dB)	Select a protector with an SNR of...
85-90	20 or less
90-95	20-30
95-100	25-35
100-105	30 or more

Source: Health and Safety Executive: www.hse.gov.uk/noise/

Ear Plug Fitting

Guide to the correct fitting of ear plugs

- Always read and follow the manufacturers ear plug instructions for fitting, hygiene and maintenance.
- Inspect ear plugs before fitting, check for dirt and damage, if any of these apply discard and replace.

Disposable
3M Classic Soft EAR
Plug



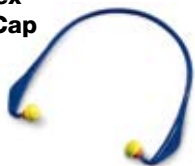
Disposable
Howard Leight
Max



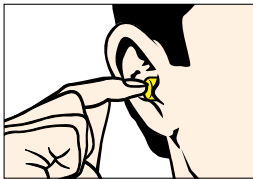
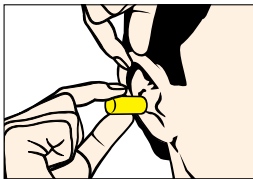
Reusable
Howard Leight
SmartFit



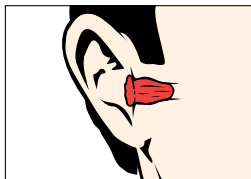
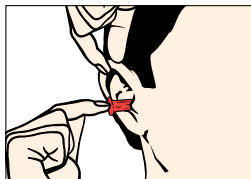
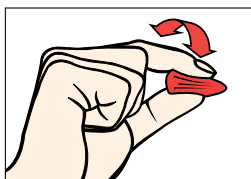
Banded
Uvex
X-Cap



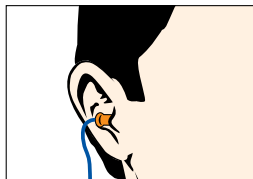
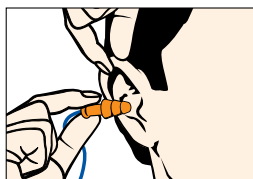
Step 1 Insertion



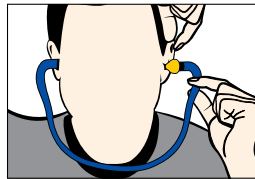
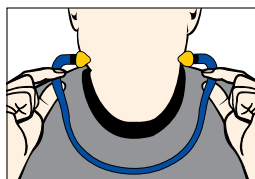
Pull ear up and back, and insert, allow to expand.



Roll the ear plug into a tube. Pull ear up and back, and insert, allow to expand.

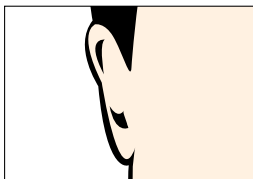


Pull ear up and back, ensuring all flanges are inserted.

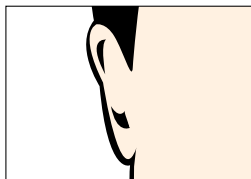


Position band under the chin. Pull ear up and back and insert.

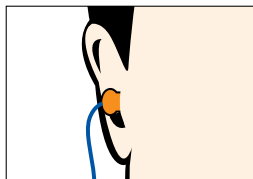
Step 2 Fit



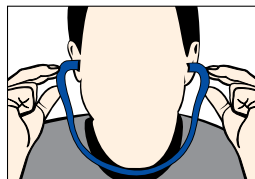
Ear plugs should not be visible head on.



Ear plugs should not be visible head on.



Tip of ear plug should be visible head on.



Ensure correct fitting for maximum protection.

Ear Muff Fitting

Guide to the correct fitting of ear muffs

- Always read and follow the manufacturers ear muff instructions for fitting, hygiene and maintenance.
- Inspect ear muffs before fitting, check for dirt and damage, if any of these apply discard and replace.
- Remove all hair and jewellery from the cushions for maximum protection.

Headband
3M Peltor Optime
Range



Folding
Howard Leight
Leightning



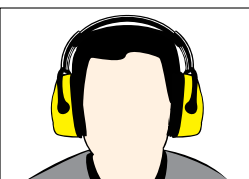
Neckband
Howard Leight
Leightning



Cap – Mounted
Sensear SM

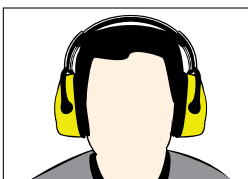


Step 1 Position



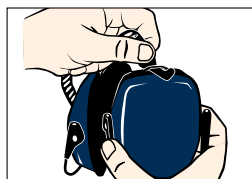
Place and position ear muffs.

Position



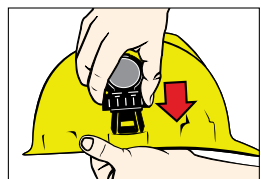
Fold out, place and position ear muffs.

Adjust



Adjust strap for a secure fit.

Position



Attach adapters and slide ear muff into the housing unit.

Step 2 Adjust



Adjust the headband for a secure fit. Ensure a tight fitting seal.

Adjust



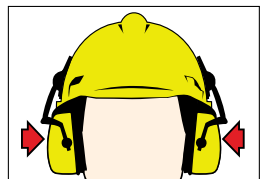
Adjust the headband for a secure fit. Ensure a tight fitting seal.

Position



Place and position ear muffs. Ensure a tight fitting seal.

Adjust



Place the hard hat on the head, adjust the ear muffs for a secure and tight fitting seal.

Step 1: Detection

Measuring noise levels in the workplace to ensure employees noise exposure is kept to a minimum is an important part of any hearing conservation programme. Noise measurement helps to identify areas where noise is a problem and employees who may be affected. It also helps to ensure the protection levels are maintained, at Arco we recommend this be tested to make sure you are compliant with the Noise at Work Regulations 2005.



Understanding Noise and Noise Measurement Equipment

Noise Assessment and Principles of Application Course

Arco Training & Consultancy in partnership with Cirrus Research PLC run a 3 day course specifically designed for people who have responsibility for undertaking noise surveys and / or are considering buying noise measurement equipment.

On completing the course delegates will:

- Have an understanding of the issues related to noise in the workplace
- Understand the law applicable to the control of noise at work
- Understand the physical affects of noise on human hearing
- Understand transmission paths and factors to take into consideration during a noise survey
- Be able to plan and undertake a noise survey
- Produce a professionally laid out report
- Analyse findings and readings from noise equipment

3M™ Optime™ Alert System

3M™ Optime™ Alert App is available for iOS and Android phones FREE of charge

It uses the phone microphone to measure the noise in the environment in a pre-set time. The noise level recorded is displayed and then the products available for the specific noise level are listed with a short description of the legal obligation of the employer when that noise level is presented in the work environment. The user can select any of the listed products and find out more about their features and benefits to decide which hearing protection is preferred.

The time intervals for noise measurements can be selected from the settings tab and the product overview lists all the noise bands.

Please Note: Measurements made using this app are based on standard metrics and may not be an accurate representation of the workplace sound levels which may fluctuate.

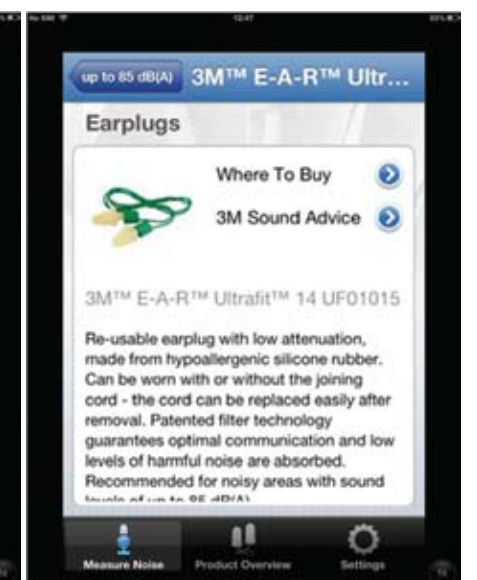
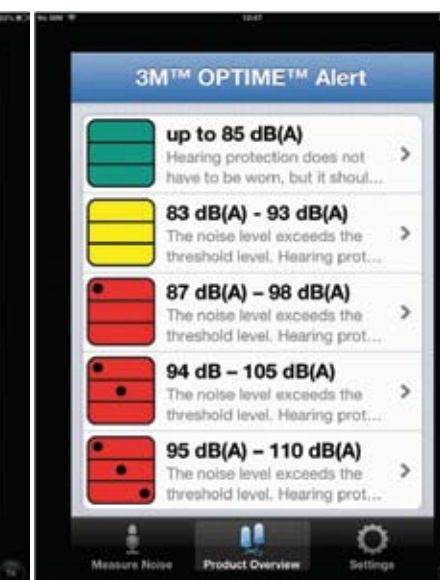
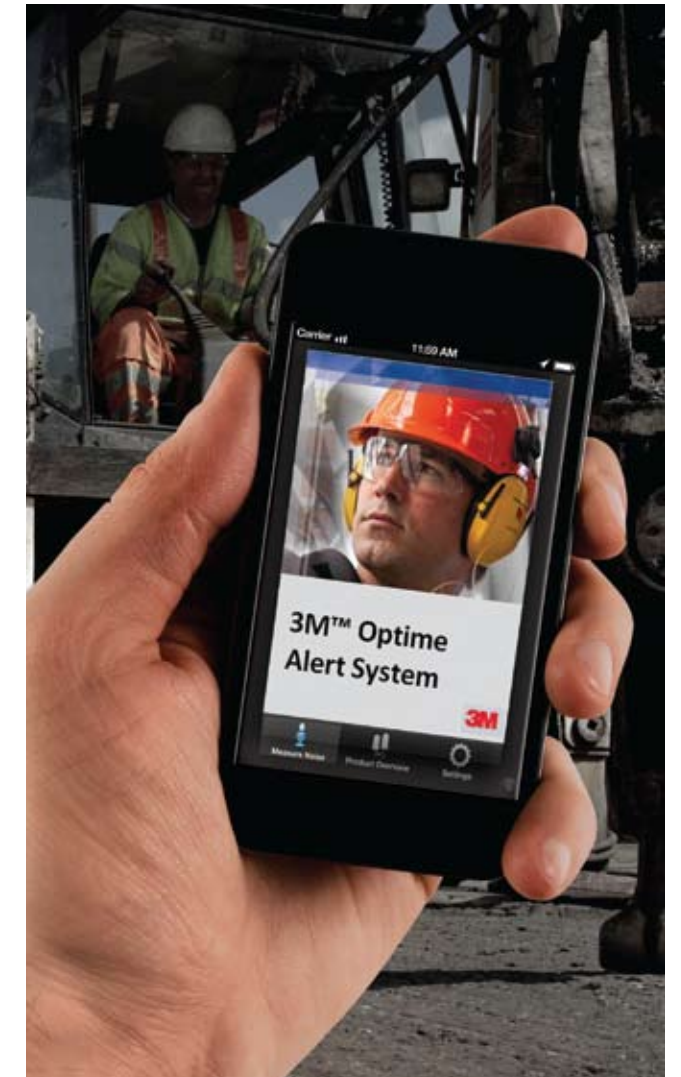
The accuracy of the measurement of the sound level using a built-in microphone of the mobile phone hand set is not appropriate for the purpose of carrying out risk assessment in accordance with the Physical Agents (Noise) Directive 2003/10/EC. For such requirements you should seek professional advice from a competent safety professional.



iPhone



Android



Sound Level Meters

We offer a range of noise detection equipment ranging from sound check meters which give you a snapshot of the noise, right through to personal dosimeters and workplace monitoring.



UK-based Cirrus Research PLC specialises in noise measurement instrumentation. Arco provides an extensive range of solutions for monitoring, measuring and analysing occupational and environmental noise.

Calibration

Prior to each use your instrument should be calibrated using an acoustic calibrator. In addition an annual service and calibration is recommended to ensure your instrument is accurate to meet the requirements of the Noise at Work Regulations 2005.

PERSONAL

Cirrus CK110A/2 Personal Noise doseBadge Kit

The doseBadge is a small, lightweight personal noise dosimeter that is ideal for measuring the noise exposure of workers.

- Logs noise levels over a complete shift to give an accurate assessment of exposure.
- Calculates Leq, LEP,d and Peak(C) for the Noise at Work Regulations.
- Lightweight with a rechargeable battery.
- Robust metal case with no cables, controls or displays prevents tampering during a measurement.
- Complete kit with two doseBadges, software, carrying case and all of the accessories needed to make effective measurements.
- Additional doseBadges can be added to extend the capability of your equipment.

Ref: 280940 – Kit
Ref: 280950 – Calibrator



Extended Warranty

Cirrus will offer an additional 12 month warranty, free of charge, for up to 11 years if you have your instrument calibrated each year.

WORKPLACE

Cirrus CK262+A Integrating Sound Level Meter Kit

The CK262A Integrating Sound Level Meter is the ideal instrument for most industrial workplace noise measurements and for compliance with the Noise at Work Regulations.

- Meter provides the parameters needed to carry out a noise survey including Leq in dB(A) and Peak(C), and should be used with an acoustic calibrator to ensure accurate measurements.
- Includes CR262A Sound Level Meter, an acoustic calibrator, windshield, carrying case and certificates of calibration.
- Includes data logging software worth £349.

Ref: 280970 – Kit
Ref: 280910 – Calibrator



3M™ SD-200 Sound Detector

Basic sound level meter that links to the Optime Alert system. Ideal for quick, simple noise checks.

- Calculates the average sound pressure level.
- Range of measurements – Leq, Max, Min, Run Time, OL and UR, fast and slow response, A/C weighting.
- Rechargeable battery via USB.

Ref: 233400 – Sound Detector
Ref: 234100 – AC300 Calibrator

WORKPLACE



3M™ Soundpro Sound Level Meter

Ideal for most workplace noise measurement requirements as well as supporting hearing conservation programmes and enabling compliance with the Noise at Work regulations.

- Wide range of measurements including – SPL, Leq, Max, Min, Peak, Sel, TWA, DOSE, PDOSE, C-A.
- 1:1 Octave Band analysis.
- Programmable and level triggered start/stop.
- SD memory card slot for data logging.
- Timed data logging with 1-second to 60-minute intervals.
- Two “virtual” sound level meter running simultaneous feature.
- Fast, slow, impulse and peak time weightings.
- Kit includes Soundpro unit, calibrator, windshield, SD card and storage case.
- Complete with DMS Software for data analysis.

Ref: 233300 – Sound Level Meter
Ref: 234100 – AC300 Calibrator

WORKPLACE



3M™ Edge EG-5 ATEX Dosimeter

A small, lightweight kit designed to measure personal noise exposure in one simple, easy-to-use unit.

- 40-hour battery life.
- Data logging over full shift.
- Range of measurements – SPL, Leq, TWA, Max, Min, Peak, Exposure, Dose, P-Dose Run Time, SEL, CL, Date, UL.
- Kit includes EG-5 unit, calibrator, software, windshield, docking station and charger.
- Complete with DMS Software for data analysis.

ATEX-approved

Ref: 233600 – Dosimeter Starter Kit
Ref: 233800 – Dosimeter Unit

PERSONAL

**BEST FOR
HAZARDOUS
ENVIRONMENTS**



Step 2: Hearing Protection Ear Plugs



Ear plugs fit into the ear or cover the ear canal to form a seal. Ear plugs are suited for use with safety glasses and other forms of personal protective equipment. It is paramount that ear plugs are fitted precisely; the manufacturer’s guidelines will identify the correct way for insertion. If the ear plugs are supplied by an employer, then the employer must provide training on fitting and ensure employees are adhering to the compliance stipulated.

Arco Custom Moulded Ear Plugs
Designed to provide a perfect fit to the individual and a level of protection matched to the working environment.

The service
The Arco Custom Moulded Ear Plug Service involves an on-site visit by one of our trained technicians to assess the protection required, check wearer suitability and take impressions of the wearer’s ear to allow the creation of their personal hearing protectors. The finished product will usually be dispatched within 7 working days.

- Supplied complete with a storage pouch
- Alpine Filter Technology ensures effective noise protection matched to the noise level while allowing you to hear conversational speech
- Ideal for virtually any industrial application
- Approved to EN 352

Benefits of the product

- No moving parts to wear out or injure the ear
- Can be worn under headphones or helmets
- Can be comfortably worn with spectacles and safety glasses
- Virtually indestructible (with reasonable care)
- Washable
- Life expectancy up to 5 years – cost effective and environmentally friendly reducing landfill waste
- Cannot be pushed further in to the ear by impact
- The wearer can still hear normal conversation levels, alarms, horns and warning sirens
- Interchangeable filters for differing environments
- Variety of colours available, including hi-vis

“

We were very happy with the service provided by Cluistrom, they were very flexible about the times we required them to be on site and were quite prepared to return to cover the noon and night shifts. The representative was very knowledgeable and happy to answer any question from our people.

The completed plugs were delivered in a timely manner and any issues are dealt with in a professional manner.

The whole system runs very smoothly, and a representative is in regular contact with me to see how we are getting on or if there is anything else we require.”

Janet Wilkinson
Occupational Health
at BAE Radway Green.



Ref: 2S3200 – 10 – 100 pairs
Ref: 2S3300 – 100+ pairs

Alpine Noise Filters
Arco Custom Moulded Ear Plugs have a sound bore through each mould where an inline filter is then fitted. This filter permits reception of conversational speech, aeration and changes in air pressure in the user’s ear canal. A choice of filter, depending upon need, acts to attenuate the noise by varying degrees of frequency. The filters are interchangeable and colour coded for each attenuation level.



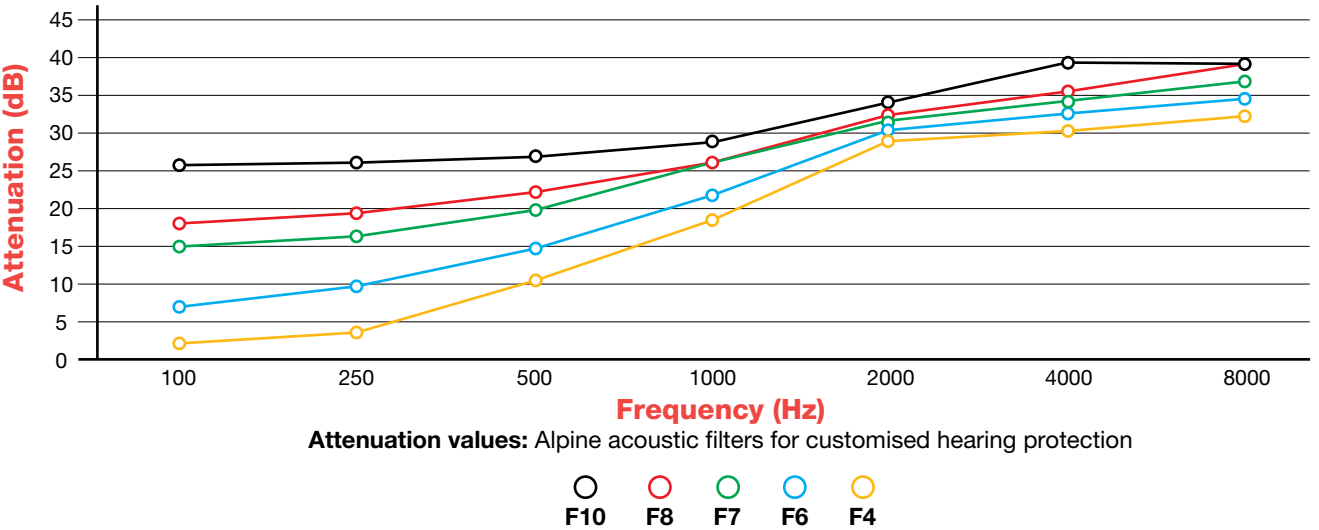
- F10 filter (white)**
Attenuates noise levels from pile driving, shooting, high pressure cleaners and is suitable for studying.

F8 filter (red)
Attenuates noise levels from heavy industry, metal processing, snoring and is suitable for sleeping peacefully.

F7 filter (green)
Attenuates noise levels from timber industry, construction work, DIY, motorcycling (wind noise).

F6 filter (blue)
Attenuates noise levels from light industry, transport industry, music (party/concerts) and lawn mowing.

F4 filter (yellow)
Attenuates noise levels from printing works.



Frequency Hz	Attenuation per filter in dB				
	F4	F6	F7	F8	F10
125	2.1	6.8	15.1	17.8	25.8
250	3.9	9.7	16.9	19.7	26.2
500	10.5	14.9	20.2	22.2	26.9
1000	18.5	21.7	26.2	26.0	28.8
2000	29.4	30.5	31.6	32.8	34.0
4000	30.1	32.7	32.8	35.4	39.3
8000	32.4	34.4	36.8	39.1	39.0

Disposable Ear Plugs

uvex Xact-Fit SNR26

These innovative ear plugs adapt perfectly to the shape of the ear and feature a revolutionary design which imitates the anatomy of each ear. This noticeably reduces the pressure in the ear canal, even when worn for longer periods.

- Oval, tapered plug shape fits the natural shape of the ear canal for easy comfortable fitting.
- Ergonomic stem marked left and right with thumb indentations for easy fitting.
- Left and right ensures correct insertion and optimum fit.
- Adjustable neck cord for increased security and optimum wearer fit.
- Low pressure sealed PU foam reduces potential contamination for increased hygiene.
- Environmentally friendly and economical.

Approved to EN 352-2

- Ref:** 2U5400 – 1 Corded pair
Ref: 2U5300 – 5 Pairs replacement pods
Ref: 2U3000 – 400 Pairs replacement pod dispenser refill



uvex Hi-Com Ear Plugs SNR24

Low-attenuating and scientifically designed to absorb more inner-ear sounds which can be experienced when wearing hearing protection in quieter areas.

- Reduced risk of over protection.
- Allows for excellent speech and warning signal recognition.
- Tapered shape is designed to fit the natural shape of the ear canal, reducing pressure.

Approved to EN 352-2

- Ref:** 2U0004 – 200 Pairs
Ref: 2U0005 – 100 Corded pairs
Ref: 2U2000 – 300 Pairs dispenser refill



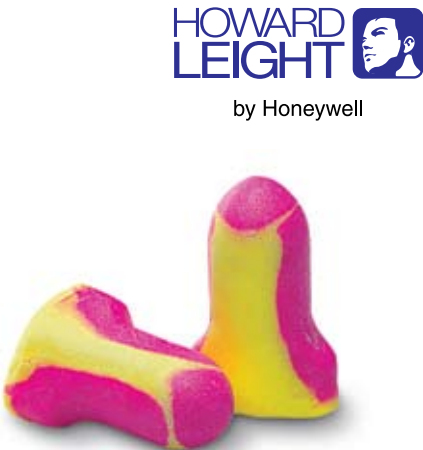
Howard Leight Laser-Lite Disposable Foam Ear Plugs SNR35

Self-adjusting foam expands to fit virtually every wearer.

- Contoured T-shape for easy insertion and comfortable wear.
- Vibrant colours make it easy to ensure protection is being worn.
- Corded version available.

Approved to EN 352-2

- Ref:** 281300 – 200 Pairs
Ref: 281700 – 100 Corded pairs
Ref: 282900 – 500 Pairs, LS500 dispenser refill
Ref: 28D200 – 200 Pairs, LS400 dispenser refill



Howard Leight Max Disposable Foam Ear Plugs SNR37

Polyurethane ear plug designed with a smooth skin for maximum comfort, also prevents build-up of dirt.

- Bell shape makes fitting and removal easier.
- Shape also offers more secure fit.

Approved to EN 352-2

- Ref:** 288300 – 200 Pairs
Ref: 288500 – 100 Corded pairs
Ref: 282600 – 500 Pairs, LS500 dispenser refill
Ref: 28D100 – 200 Pairs, LS500 dispenser refill



HOWARD
LEIGHT 
by Honeywell

E.A.Rsoft™ Yellow Neon Ear Plugs SNR36

Slowly expanding polyurethane foam ear plug which evenly distributes pressure providing excellent levels of comfort.

- Tapered finish makes fitting easier and helps form a comfortable fit.
- Corded version available.

Approved to EN 352-2

- Ref:** 232300 – 250 Pairs
Ref: 232800 – 200 Corded pairs
Ref: 244600 – 500 Pairs, dispenser refill



E.A.Rsoft™ FX Ear Plugs SNR39

The highest protecting ear plug available on the market.

- Smooth, tapered finish makes fitting easier and helps form a comfortable fit.
- Shape guarantees plug is easy to fit.

Approved to EN 352-2

- Ref:** 233100 – 200 Pairs



Reusable Ear Plugs

uvex Whisper Reusable Ear Plugs SNR23

Reusable ear plug offers an excellent level of speech recognition, allowing good communication in noisy environments.

- Pre-shaped and formed – no need to roll the plug.
- Reduced risk of infection – you only touch the part that doesn't go into the ear.
- Excellent speech recognition for improved communication.
- Ideal when moving in and out of noisy areas.
- Corded for increased security.
- Washable for repeated and hygienic use.

Approved to EN 352-2

Ref: 2U4200 – 50 Corded pairs



Howard Leight AirSoft Reusable Ear Plugs SNR30

Reusable ear plug featuring advanced flange design.

- Soft TPE (thermo plastic elastomer) material moulds to the ear canal providing an excellent fit.
- Firm stem aids fitting.
- Packaged in flip-top container for hygienic storage.
- Supplied with cord to prevent plug loss.

Approved to EN 352-2

Ref: 285300 – 100 Corded pairs



Howard Leight SmartFit Reusable Ear Plugs SNR30

Perfect-fitting TPE (thermo plastic elastomer) reusable ear plug.

- Provides excellent fit by moulding to the shape of the ear canal.
- Superior comfort.
- Packaged in clear flip-top container for hygienic storage.
- Supplied with cord to prevent plug loss.

Approved to EN 352-2

Ref: 280001 – 50 Corded pairs



Howard Leight Quiet Reusable Ear Plugs SNR28

Reusable ear plug featuring built-in foam stem for ease of insertion and removal.

- Contoured shape comfortably matches contours of the ear canal.
- Packaged in clear flip-top containers for hygienic storage.

Approved to EN 352-2

Ref: 283601 – 50 Pairs

Ref: 284301 – 50 Corded pairs



HOWARD
LEIGHT 
by Honeywell

E.A.R UltraFit 20 Corded Ear Plugs SNR20

Low-attenuating reusable ear plug allows background conversation and music to be heard whilst protecting against hearing loss.

- For noise levels up to 93dB(A).
- Triple flange design for comfortable and effective seal.
- Easy to clean.

Approved to EN 352-2

Ref: 245200 – 50 Corded pairs



E.A.R UltraFit 14 Corded Ear Plugs SNR14

Low-attenuating reusable ear plug, protects against low levels of harmful noise whilst allowing normal conversation.

- Hypoallergenic silicone rubber.
- Triple flange design for comfortable and effective seal.
- Easy to clean.

Approved to EN 352-2

Ref: 230003 – 50 Corded pairs



Banded Ear Plugs

uvex X-Cap Banded Ear Plugs SNR24

Reusable banded ear plugs with unique oval-shaped foam pods to match the shape of the ear canal entrance, ensuring a high degree of comfort and extremely stable fit.

- Two fins on the band make fitting and positioning easier.
- Band holds position to prevent irritating transmission of friction noise from clothing.
- Can be stored around the neck when not in use.
- Weighs only 8 grams.
- Supplied in zipped storage pouch for hygienic storage.

Approved to EN 352-2

Ref: 2U5100 – 10 Pairs

Ref: 2U0003 – 5 Replacement pods



uvex

Howard Leight QB3 HYG Hygiene Banded Ear Plugs SNR23

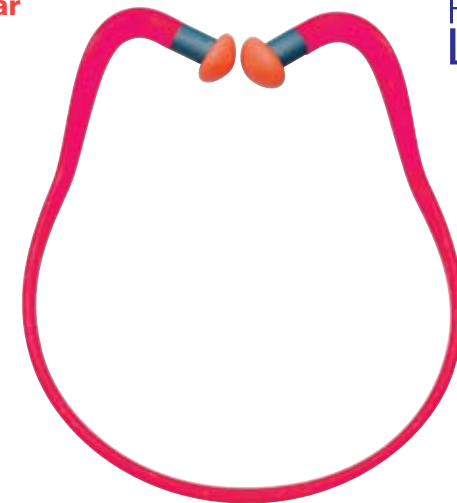
A wider ergonomically designed banded reusable ear plugs.

- Ideal for intermittent noise exposure.
- Super soft pods rest outside the ear for outstanding comfort.
- Can be stored around the neck when not in use.
- Design prevents pods from touching dirty or contaminated surfaces when laid down.

Approved to EN 352-2

Ref: 282300 – Individual pairs

Ref: 287200 – 50 Replacement pods



HOWARD
LEIGHT

by Honeywell

E.A.R Cap Banded Ear Plugs SNR23

One of the lightest banded hearing devices on the market, provides day-long comfort.

- Can be stored around the neck when not in use.
- Slow-recovery foam pods rest outside the ear, forming an excellent seal.

Approved to EN 352-2

Ref: 240300 – Individual pairs

Ref: 240500 – 50 Replacement pods



3M™ E-A-R

Detectable Ear Plugs Disposable

uvex X-Fit Detectable Disposable Foam Ear Plugs SNR37

Ergonomically shaped detectable disposable ear plug for use in areas where contamination of product must be avoided. High levels of sound absorption make it particularly suitable for loud environments.

- Non-ferrous detectable component – ideal for visual and automatic inspection systems.
- “x” emboss helps reduce pressure on the ear canal for increased comfort and aids grip when removing.
- Sealed surface reduces the potential for contamination.
- High levels of sound absorption make it particularly suitable for loud environments.
- Corded for increased security.

Approved to EN 352-2

Ref: 2U4600 –

100 Corded pairs



uvex

Howard Leight Laser-Trak Detectable Disposable Ear Plugs SNR35

Disposable metal-detectable ear plug for use in the food manufacturing industry, or where contamination needs to be considered.

- Non-ferrous metal is highly detectable.
- Bright colours easily detected by visual inspection.
- Individually packed in poly bags.

Approved to EN 352-2

Ref: 289100 – 100 Corded pairs



HOWARD
LEIGHT

by Honeywell

Reusable

uvex Whisper + Detectable Reusable Ear Plugs SNR27

Comfortable, corded reusable detectable ear plugs suitable for all-day protection, particularly suitable for use in areas where contamination of product must be avoided.

- Highly visible blue colour with non-ferrous detectable component – ideal for visual and automatic inspection systems.
- Pre-shaped and formed – no roll-down needed.
- Reduced risk of infection – touch only the part that doesn't go in the ear.
- Washable.
- Plug is PVC free. Please note the cord contains PVC.
- Corded for increased security.

Approved to EN 352-2

Ref: 2U4500 – 50 Corded pairs



uvex

Howard Leight SmartFit Detectable Reusable Ear Plugs SNR30

Perfectly fitting TPE (thermoplastic elastomer) detectable, reusable ear plugs for use in the food manufacturing industry, or where contamination of produce is a problem.

- The material moulds to the ear canal after a few minutes by reacting to the warmth, providing a product to fit almost every wearer.
- Offers superior comfort.
- Individually packaged in poly bags.

Approved to EN 352-2

Ref: 289700 – 50 Corded pairs



HOWARD
LEIGHT

by Honeywell

Ear Muffs

Ear muffs fit over and surround the ears with a cushioned seal. The inner surface of the cups provides the hearing protection with a sound absorbing material. It is vital that ear muffs are compatible with other personal protective equipment such as hard hats, masks and eye protection. Jewellery and long hair can also cause fitting problems and reduce protection. Training should be provided to ensure the correct usage of the product. The manufacturer guidelines on fitting and maintenance of the device should always be followed.

- Effective**
- High performance
 - Unique band design ensures constant pressure over long periods of wear
- CE Approved**
- Approved to EN 352-1 for overhead and EN 352-3 for behind head, helmet mounted and folding



- Comfortable**
- Generous cup size
 - Combination of liquid and foam offer optimum seal and low pressure
 - Fully adjustable
 - Even pressure distribution via two-point attachment
- Versatile**
- Range of options for all situations
 - Combines well with other PPE

OPTIME I

For high tones & high volume...

Style	Product Code	SNR
Headband	247000	27dB
Neckband	247100	26dB
Folding Headband	247200	28dB
Helmet Mounted – Champion & Concept	247300	26dB
Helmet Mounted – MSA & JSP	247500	26dB
Adaptor for MSA & JSP (required with ear muff)	4J5000	
Optime I Hygiene Kit	247400	

OPTIME II

For lower tones & higher volume ...

Style	Product Code	SNR
Headband	248000	31dB
Neckband	248100	31dB
Folding Headband	248200	31dB
Helmet Mounted – Champion & Concept	248300	30dB
Helmet Mounted – MSA & JSP	248500	30dB
Adaptor for MSA & JSP (required with ear muff)	4J5000	
Optime II Hygiene Kit	248400	

OPTIME III

For bass tones & very high volume...

Style	Product Code	SNR
Headband	249000	35dB
Headband - Hi-vis	249600	35dB
Neckband	249100	35dB
Helmet Mounted – Champion & Concept	249300	34dB
Helmet Mounted – MSA & JSP	249500	34dB
Adaptor for MSA & JSP (required with ear muff)	4J5000	
Optime III Hygiene Kit	249400	
Peltor HY100 Ear Muff Comfort Pads (Box 100prs)	261700	



by Honeywell

- Robust steel headbands for demanding use
- Padded foam headband and super-soft ear cushions deliver long-lasting comfort
- Choice of behind head, folding and overhead styles
- Range of SNRs to fit a wide variety of applications – L0, L1, L2 and L3
- Hi-vis option ideal for use in low-light conditions
- Maximum comfort and protection. Exclusive snap-in cushions make replacement fast and easy
- Smaller, lighter, more comfortable ear cups
- Telescopic height adjustment
- Airflow technology delivers optimum attenuation across all frequencies
- Patented base-plate produces excellent attenuation at low frequencies



L0

Ultra slim, lightweight design delivers a high degree of comfort and compatibility with other PPE including face shields and helmets (neckband option). Ideally suited for situations where compact ear muffs and reliable low to moderate noise-blocking protection is required.

Approved to EN 352-1

Ref: 210001 – Behind neck SNR22

Ref: 210002 – Folding Overhead SNR25



L1

Slim line lightweight ear cups, padded headband and comfort cushions make the L1 an ideal protector in moderate noise levels (SNR29/30) and for long-term use.

Approved to EN 352-1

Ref: 218100 – Overhead SNR30

Ref: 210003 – Behind neck SNR29



L2

Medium-duty ear cups, padded headband and comfort cushions provide comfort and protection from high noise levels (SNR32). Hi-Vis ear cups and reflective headband for visible safety, especially in low lighting and at night.

Approved to EN 352-1

Ref: 210004 – Hi-vis folding headband SNR32



L3

Heavy-duty ear muff for maximum protection (SNR34) especially in low frequency noise. Patented Airflow Control Technology enhances overall attenuation without an increase in size and weight to provide long term high performance protection.

Approved to EN 352-1

Ref: 218300 – Overhead SNR34

Ref: 210006 – Hi-vis overhead SNR34



Stereo ear muffs that provide hearing protection often sacrifice sound quality for attenuation. The Sync™ is a stereo ear muff that's in sync with proper levels of hearing protection, high fidelity sound and your ability to listen to portable audio devices safely at work.

Howard Leight Sync™ Stereo Ear Muff

Optimised ear muff design provides excellent protection from hazardous noise while delivering excellent sound quality on a par with high-end audio headphones.

- Patented acoustic chamber enhances bass sounds that are typically sacrificed in a stereo ear muff, eliminating the need to “crank up” the volume.
- 3.5mm audio input.
- Volume Management Technology limits sound output to 82dB making listening to music safer.
- Plug-in-and-play functionality with audio devices.
- Avoids isolation and boredom in the workplace.
- Sleek diamond pattern headband looks cool, easy to clean.
- Reinforced fork sides with handholds for easy adjustment and a comfortable fit.

Ref: 211002 – Ear muff



Howard Leight Sync™ AM/FM Radio Hi-Vis

Bright green hi-vis ear muff combining excellent protection from hazardous noise and a high quality AM/FM radio delivering excellent sound quality.

- Reflective headband for increased visibility.
- Digital AM/FM tuner with LCD display.
- High-Fidelity stereo sound.
- Automatic search for radio stations.
- 10 Pre-set stations.
- Volume limited to 82dBA for safer listening.
- Preferred volume memory meaning no need re-adjust.
- Requires 2 x AA batteries giving up to 111 usage.

Ref: 211000 – Ear muff



Arco® Folding Ear Muff Overhead SNR28

Compact ear muff designed to provide high levels of protection and outstanding value.

- Foldable design for easy storage.
- Large foam padded cups and headband for comfort.
- Fully adjustable to achieve a secure fit.
- Weight 247g.

Approved to EN 352-1

Ref: 297000 – Ear muff overhead



Arco® Ear Muff Overhead SNR28

High quality general purpose ear muff ideal for a wide number of industrial applications.

- Twin cup attachment points for maximum adjustability.
- Large foam padded cups and padded headband to increase comfort.
- Weight 255g.

Approved to EN 352-1

Ref: 299000 – Ear muff overhead

Select the correct hearing protection

It is essential that you provide the correct level of protection for your working environment. Too little will not keep employees safe or meet legal obligations. Over-protection can increase risks from other hazards in the workplace such as moving vehicles or safety sirens.

Arco can help you select the most appropriate solution from our extensive range of products. Either contact your local sales office for advice or use our hearing selector tool online at: www.arco.co.uk/hpcmobile



High Noise Communication Solutions

High noise working environments exhibit difficult challenges for communication and pose potential safety risks. Arco's range of high-noise communication systems enable the end user to hear speech and warning signals clearly with the added benefit of hearing protection at the same time.

Stay protected in high-noise environments

Speech Enhancement

Sensear's revolutionary speech enhancement technology isolates and enhances speech in real-time, enabling users to hear speech clearly and safely in environments that until now has been impossible. Sensear's speech enhancement technology is effective for mobile phone calls and two-way radio communication as it enhances the wearer's speech and lowers background noise for the call receiver.

Noise Suppression

Sensear's SENS® technology recognises the different properties of speech and background noise thereby allowing noise to be suppressed without distorting or blocking speech. The technology reduces background noise to comfortable levels while retaining the original sound characteristics of noise. This allows users to retain awareness of their surroundings for optimum safety.

SENS® Technology

Sensear's SENS® Technology simultaneously combines Speech Enhancement with Noise Suppression to deliver a total communication solution in high noise environments. Users can communicate face-to-face, at short distances and long distance via two way radio and Bluetooth® mobile phone in high noise environments. Now you can hear speech and stay protected in high noise environments no matter how you communicate.



“

This year the BLOODHOUND SSC Project has been doing key testing of the hybrid rocket system at Newquay. This involved testing the rocket, and its power unit – a Cosworth formula one engine. We were working in a very harsh noise environment – involving running the Cosworth engine at full revs – 18,000rpm, for the tests as well as for warm up. The nature of this testing meant we needed good communications within the building as well as externally over a range of up to 300 metres. – The Sensear Headsets worked extremely well within this aggressive environment. The highly experienced team (who have worked in F1 motorsport and aerospace) commented on the success of the headsets.

”

Annie Berrisford
Engineer – Operations and Sponsorship Procurement
Bloodhound SSC Project

- Rugged design for harsh environments
- Wireless Bluetooth® connection to mobile phones
- LED indicators for Bluetooth®, battery level and battery charge status
- Easy to use buttons even when wearing gloves
- Input for wired connection to two-way radio interface
- Approved to EN 352-1 for overhead and EN 352-3 for helmet mounted
- Intrinsically safe version available

- Short Range FM – up to approximately 50m communication between headsets
- Binaural functionality enables user to tell the direction of all sounds, including speech and alarms
- Extra-soft ear cushions for long wearing comfort
- Separation of electronics from ear muff mouldings ensures maximum attenuation
- Impact, tonal and continuous noise suppression
- Lithium polymer rechargeable battery provides 12 hrs+ continuous talk
- Noise-cancelling boom microphone

Face to face communication

Sensear SM Ear Muffs SNR29

- Ref: 2S0100 – Overhead
- Ref: 2S0200 – Helmet mounted
- Ref: 2S0300 – Behind neck



Face to face and two-way radio communication

Sensear SM1 Ear Muffs SNR29

- Ref: 2S0400 – Overhead
- Ref: 2S0500 – Helmet mounted
- Ref: 2S0600 – Behind neck



Face to face, two-way radio and Bluetooth® communications

Sensear SM1x Ear Muffs SNR29

- Ref: 2S0700 – Overhead
- Ref: 2S0800 – Helmet mounted
- Ref: 2S0900 – Behind neck



Face to face, two-way radio, Bluetooth® and between headset communications

Sensear SM1xSR Ear Muffs SNR29

- Ref: 2S1000 – Overhead
- Ref: 2S1100 – Helmet mounted
- Ref: 2S1200 – Behind neck



Intrinsically Safe SM1xSR Ear Muff SNR29

- Ref: 2S5000 – Overhead
- Ref: 2S5500 – Helmet mounted

Sensear SP2 Smartplug SNR34

- Face-to-face communication up to 95dB.
- Two-way radio and Bluetooth® mobile phone communication up to 110dB without the need for a boom mic.
- Suitable for use with respirators, face-masks and helmets.
- Durable and lightweight design. Simple adjustments.
- Protects against impact, intermittent and continuous noise.
- 360° awareness – speech and noise direction recognition.
- Connects to existing two-way radio system.
- Maximum noise exposure of 82dB.
- Built-in rechargeable battery delivers 12+ hours talk time.

- Ref: 2S2201 – Sensear SP2 Smartplug
- Ref: 2S2301 – Sensear SP2x Smartplug





Peltor™ Protac Headset Overhead SNR32

An active hearing protector for long hours of use, soft sounds are amplified whilst harmful ambient and impulse noise is reduced to harmless levels.

- Extremely comfortable.
- Last setting stored when switched off.
- The two x 1.5 volt AA batteries, purchased separately, give 250 hours of service.
- Voice-driven menu.
- Automatic switch off after two hours of non-use.
- Weight 370g.

Approved to EN 352-1

Ref: 264200



Peltor™ WS Workstyle Headset SNR26

Control what you hear. Listen wirelessly to music or podcasts via stereo Bluetooth®. If a call is received, the music switches off and resumes at the end of the conversation.

- Tailor your sound profile with different volumes for surround sound, mobile calls and music.
- Dynamic, well-balanced stereo sound.
- Filters out noise, including sudden loud noises.
- Simple to operate.
- Distinguishes speech from noise at ultra-high speed.

Approved to EN 352-1

Ref: 2B0200



Peltor™ Lite-Com Basic Headset Overhead SNR31

Ideal for those who want an easy-to-use hearing protector combined with basic communication functions.

- Settings controlled with only three buttons.
- Allows adjustment without having to remove the set.
- Communicates on eight channels on the 446MHz frequency.
- Range up to 2km.
- Voice-driven menu.
- Allows individual communication among several users on the same channel.

Approved to EN 352-1

Ref: 262000



Peltor™ Lite-Com III Headset Overhead SNR31

The built in active volume function allows the user to hear ambient sounds – like conversation, machine noises and warning signals.

- Weak sounds can be amplified, 2 microphones capture the sound to indicate which direction it has come from.
- Sudden impulse noises are immediately attenuated electronically.
- The right shell has a control panel with a large LCD display that shows current settings.
- Allows adjustment without removing the set.
- Auto shut off after 2 hours if no buttons pressed.
- Communicates on 8 channels on the 446MHz band, up to 2km range.
- Voice driven menu.
- Compatible with short range business radios i.e. Motorola XTR446.

Approved to EN 352-1

Ref: 262100



3M™ Peltor™ Dect-Com II Wireless Intercom System Base/Portable unit

Duplex intercom system for simple and efficient wireless communication with up to 9 active users in full conference and additionally up to 40 listeners with the possibility to “break in” to the conference.

Due to low power output and high frequency it is a short range communication system. The nominal working range is approximately 250 metres outdoors in line of sight.

- Full duplex communication system.
- Ghost voice guided menu system.
- Up to three simultaneous talk groups.
- Volume boost.
- Noise gate (voice operated).
- All-call, between the channels (and synchronised systems).
- Wireless PTT button for external radio etc. available.
- Extended battery pack for longer usage time.
- Wide range of accessories available.



Price on application, contact your local branch for more information

Motorola XTNiD Radio c/w charger

Designed for everyday use and built to military specifications the XTNiD is the most rugged and robust radio in its class.

- Easy to use.
- 16 preset channels.
- 122 eliminator codes (reduces interference).
- Cast-metal chassis.
- Voice scrambling to limit eavesdropping.

Ref: 2R1100



MOTOROLA

A range of licensed and digital radios are also available, visit

www.arco.co.uk/hearing

Step 3: Validation



The validation process enables you to identify if your employees are receiving optimal protection from their hearing devices, if they require any additional training and also highlights if it is the right solution for them.

Honeywell VeriPRO

A personal approach to Hearing Conservation On-site verification has never been easier.

VeriPRO makes it easier to get an accurate, real-world picture of your employees' hearing protection. Find out whether your employees are receiving optimal protection, require additional training on how to fit their ear plugs, or need to try a different model. VeriPRO uses sophisticated software to find out the Personal Attenuation Rating (PAR) your employees are receiving from their ear plugs. By verifying ear plug effectiveness and providing an ideal opportunity for education, VeriPRO becomes an integral part of a successful Hearing Conservation Program.



E-A-RFit™ Validation system

Different ear canal shapes and fitting methods result in different protection levels for individual ear plug wearers. The E-A-Rfit™ Validation system by 3M will tell you the actual level of protection each individual wearer achieves with their chosen ear plug.

Innovative F-mire™ Process is quick, simple and accurate

Unlike less reliable tone response tests, E-A-RFit™ is an F-mire (field-microphone-in-real-ear) test system. Key features to this innovative system are:

- **Exclusive probed ear plugs**
Most 3M ear plugs can be tested with this system.
- **Dual Element Microphone**
Measures sound inside and outside the ear.
- **Advanced Algorithm**
Utilises transfer function measurement approach to acquire reliable data in less than eight seconds.
- **Proprietary and Patented Application Software**
Provides enhanced metrics for guidance in the application of the measured insertion loss values.



Real fit = real results

The E-A-RFit™ subject fits their own protector, the technician connects the microphone to the hearing protector, leaving the other microphone exposed so that noise levels are measured inside and outside the ear.

Personal Attenuation Rating (PAR) for each worker in minutes

It only takes 8 seconds to obtain data at seven standard (125Hz to 8000Hz) frequencies. You'll know exactly what level of protection each worker receives from each tested protector. No guesswork.

Data is documented for future use

Each worker's PAR results can be automatically documented and stored by the technician. This information is valuable for comparison during subsequent tests.

Test compatible with a variety of hearing protectors

Protection levels can be validated with many different hearing protectors. This selection includes specially-probed versions of 3M's most popular hearing products.

E-A-RFit™ Compatible Ear Plugs

Ultrafit 14™	Ultrafit 20™	Tracer 20™	Classic™	Classic Small™	Classic Corded™	E-A-Rsoft™	Push-Ins™	E-A-Rsoft FX™	Superfit 33™	Superfit 36™
14dB SNR	20dB SNR	20dB SNR	28dB SNR	26dB SNR	29dB SNR	36dB SNR	36dB SNR	35dB SNR	33dB SNR	36dB SNR



Benefits of Fit-Testing Hearing Protectors

About the author

Brad Witt, MA, CCC-A, Director of Hearing Conservation
Howard Leight® / Honeywell Safety Products
www.howardleight.com

Brad Witt is Director of Hearing Conservation for Howard Leight® / Honeywell Safety Products, www.howardleight.com, a leading global provider of passive and intelligent hearing protection solutions.

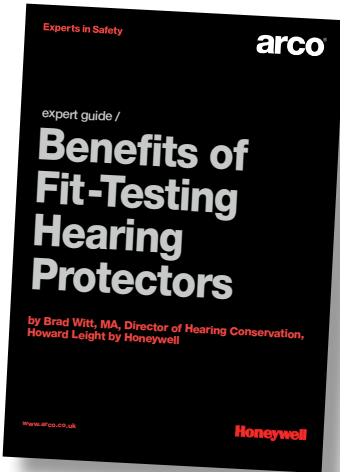
He holds a B.S. in Communication Disorders from Brigham Young University, and an M.A. in Audiology from Northwestern University. For fourteen years, he managed a hearing conservation practice in California, providing OSHA-standard services at 175 locations. He has served as President of the National Hearing Conservation Association (NHCA). He has presented more than 200 hearing conservation seminars on behalf of Honeywell Safety Products over the past six years in fifteen countries.

Contact Mr. Witt by email at brad.witt@honeywell.com

About the White Paper

Whilst many work environments supply hearing protection to their workers very few check that the protection provided is being worn correctly. Incorrect fitting of hearing protection, such as ear plugs or ear muffs can leave the wearer in a position where they are not receiving any protection at all, or in some cases are worse off.

To read more visit www.arco.co.uk/hearing



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