

ZONE

HEARING PROTECTION RANGE



MAKING IT EASY TO SELECT APPROPRIATE PROTECTION



Hearing damage is irreversible but entirely avoidable. The Zone range of high performance ear defenders; simplifies selection and encourages the use of an appropriate level of hearing protection for people exposed to hazardous noise. Instant recognition and selection for both employees and employers is assured due to the Zone colour system and straight forward numbering used to identify attenuation performance.

- **INTUITIVE SELECTION**

- Instantly recognisable Yellow, Orange and Red colour scheme
- 3 distinct levels of noise blocking performance
- Promotes appropriate selection without under or over protecting

- **OUTSTANDING COMFORT**

- Optimised cushion pressure for long term use
- Low profile, lightweight design
- Supple cushion materials
- Easy slide size adjustment mechanism
- Concaved acoustic foam fits a wide range of ear sizes and shapes.

- **RELIABLE PROTECTION**

- Range of effective attenuation levels
- Twin stirrup ear cup attachment maintains stability and protection
- Work without geographic barriers - CE, ANSI, AUZ/NZ, GOST approved
- Full integration with other forms of PPE
- Dielectric non conductive design
- Durable impact resistant ear cup material

- **STYLISH DESIGN**

- Stylish dual surface finish promotes wearer acceptance
- Application suitable colours - Industrial, Forestry & Amenity and High Visibility

AS EASY AS 1,2,3...



ZONE 1
For lower
noise levels



ZONE 2
For medium
noise levels



ZONE 3
For higher
noise levels

3 STYLES TO SUIT ALL APPLICATIONS



HEADBAND

Headband models are well suited to a wide variety of industrial or DIY applications and can be easily converted into a Visor Muff Combination (VMC) for added face protection. Headband models feature a comfortable over the head design, optimised clamping force and durable glass filled nylon construction for a consistent attenuation performance.

HELMET MOUNTED

Helmet mounted models offer perfect integration with safety helmets and enable the creation of a total head protection combination. Scott Safety has a full range of safety helmets and helmet mounted face protection, which integrate seamlessly with Zone ear defenders; whilst featuring positive engagement, easy size adjustment and low profile airing/park positions.

NECKBAND

Neckband models are ideally suited for use in combination with headwear or bump protection caps, or for use with head mounted face or welding shields. The over the neck style alters the weight distribution slightly, providing a convenient rest position and feeling of comfort that is preferred by some workers to headband ear defenders.

ZONE 1

INDUSTRIAL

Zone 1 industrial models are easily identifiable by their durable and practical black coloured ear cup with clearly visible yellow insert and spacer. Zone 1 offers a lightweight and comfortable solution for use in low to medium noise level work environments, such as general industry, DIY, grass/bush cutting and food processing.

A consistent all round performer at all frequencies, Zone 1 is suitable for long term use in low noise level environments or shorter term use in medium level noise environments and enables workers to remain aware of their external environment without over protecting.



HEADBAND

Product Features:

- Lightweight, comfortable design
- Stylish dual finish black ear cup with yellow insert and spacer
- Full integration with other PPE
- Globally approved (CE, GOST, ANSI, AUS/NZ)

ZONE 1 - AVAILABLE IN THE FOLLOWING STYLES:



HELMET MOUNTED



NECKBAND



VMC COMBINATION

PERFORMANCE DATA

	H	M	L
ZONE 1 HEADBAND - EN 352-1:2002			
	31	27	18
ZONE 1 HELMET MOUNTED- EN 352-3:2002			
	30	25	16
ZONE 1 NECKBAND - EN 352-1:2002			
	30	26	19

SNR
HEADBAND
29
HELMET MOUNTED
27
NECKBAND
28

* For full attenuation data see page 18

ZONE 2

INDUSTRIAL



HEADBAND

Zone 2 industrial models are easily identifiable by their durable and practical black coloured ear cup with clearly visible orange insert and spacer. Zone 2 offers an effective and comfortable solution for use in more demanding noise level environments, particularly medium to high noise level work, such as wood working, operating lathing machines and power tools, asphaltting or general construction.

A consistent all round performer most effective at mid to high level frequencies, Zone 2 is suitable for long term use in medium noise level environments or shorter term use in high level noise environments.

Product Features:

- Lightweight, comfortable design
- Stylish dual finish black ear cup with orange insert and spacer
- Full integration with other PPE
- Globally approved (CE, GOST, ANSI, AUS/NZ)

ZONE 2 - AVAILABLE IN THE FOLLOWING STYLES:



HELMET MOUNTED



NECKBAND

PERFORMANCE DATA

	H	M	L
ZONE 2 HEADBAND - EN 352-1:2002			
	34	29	20
ZONE 2 HELMET MOUNTED- EN 352-3:2002			
	32	27	18
ZONE 2 NECKBAND - EN 352-1:2002			
	33	29	21

SNR
HEADBAND
31
HELMET MOUNTED
29
NECKBAND
31

* For full attenuation data see page 18

ZONE 3

INDUSTRIAL

Zone 3 industrial models are easily identifiable by their durable and practical black coloured ear cup with clearly visible red insert and spacer. Zone 3 offers an effective and comfortable solution for use in extreme noise level environments, such as, using pneumatic tools, compressors, working close to diesel or jet engines or concrete drilling applications found in mining, oil & gas, energy, utilities, aviation, rail transportation and general heavy industry.

Zone 3 offers the highest level of protection and can be trusted to effectively attenuate at all frequencies, even low frequencies, which are particularly challenging to attenuate.

Product Features:

- Lightweight, comfortable design
- Stylish dual finish black ear cup with red insert and spacer
- Full integration with other PPE
- Globally approved (CE, GOST, ANSI, AUS/NZ)



HEADBAND

ZONE 3 - AVAILABLE IN THE FOLLOWING STYLES:



HELMET MOUNTED



NECKBAND

PERFORMANCE DATA

	H	M	L
ZONE 3 HEADBAND - EN 352-1:2002			
	36	32	23
ZONE 3 HELMET MOUNTED- EN 352-3:2002			
	34	30	21
ZONE 3 NECKBAND - EN 352-1:2002			
	35	30	22

SNR
HEADBAND
34
HELMET MOUNTED
32
NECKBAND
33

* For full attenuation data see page 18

ZONE 2

HIGH VISIBILITY



HEADBAND

Zone 2 high visibility models break away from the traditional Zone range yellow, orange, red colour scheme. Easily identifiable with a high visibility lime green ear cup they provide an effective solution for applications where high visibility is a mandatory or desired requirement.

A consistent all round performer most effective at mid to high level frequencies, Zone 2 High Visibility models offer an effective and comfortable solution for use at medium to high noise levels in applications, such as, aviation ground staff or construction/civil engineering workers.

Product Features:

- Lightweight, comfortable design
- Bright highly visible design compliments high visibility clothing
- Full integration with other PPE
- Globally approved (CE, GOST, ANSI, AUS/NZ)

ZONE 2 HV - AVAILABLE IN THE FOLLOWING STYLES:



HELMET MOUNTED

PERFORMANCE DATA

	H	M	L
ZONE HIGH VISIBILITY HEADBAND - EN 352-1:2002			
	34	29	20
ZONE HIGH VISIBILITY HELMET MOUNTED- EN 352-3:2002			
	32	27	18

SNR
HEADBAND
31
HELMET MOUNTED
29

* For full attenuation data see page 18

ZONE 1 & 2

FORESTRY & AMENITY

Zone 1 & 2 Forestry & Amenity models are easily identifiable by the bright yellow or orange coloured ear cups that are the required colours for these industries. The Forestry and Amenity range is available in 2 levels of attenuation, Zone 1 & 2 offering protection against low to medium and medium to high noise levels.

Zone 1 & 2 are consistent all round performers effective at most frequency levels and suitable for all forestry and amenity applications, including chain sawing, chipping, brush and hedge cutting and mowing. Helmet mounted models feature a low profile rest and airing position, which helps avoid snagging in dense undergrowth.



HEADBAND

Product Features:

- Lightweight, comfortable design
- Full yellow or Orange ear cup design suitable for Forestry & Amenity environments
- Full integration with other PPE
- Globally approved (CE, GOST, ANSI, AUS/NZ)

ZONE 1 & 2 AVAILABLE IN THE FOLLOWING STYLES:



HELMET MOUNTED



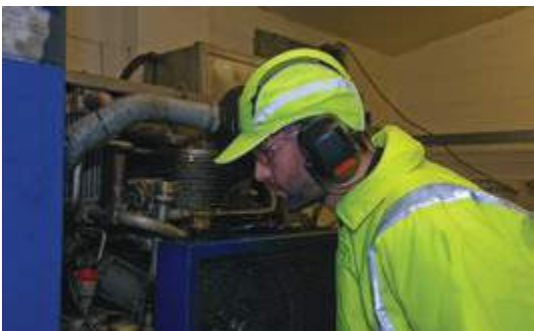
VMC COMBINATION

PERFORMANCE DATA

	H	M	L
ZONE 1 HEADBAND - EN 352-1:2002			
	31	27	18
ZONE 2 HEADBAND - EN352-1:2002			
	34	29	20
ZONE 1 HELMET MOUNTED- EN 352-3:2002			
	30	25	16
ZONE 2 HELMET MOUNTED - EN352-3:2002			
	32	27	18

SNR
HEADBAND
29
HELMET MOUNTED
31
HELMET MOUNTED
27
HELMET MOUNTED
29

* For full attenuation data see page 18



ELECTRONIC HEARING PROTECTION



Noise blocking ear defenders are a simple and effective method to prevent hearing damage, but appropriate hearing protection is worn constantly during the whole time the noise occurs.

In some applications where harmful noise is intermittent and unpredictable or the use of hearing protection is required for extended durations, noise blocking performance alone is often not enough to prevent short term removal of hearing protection.

In the constant quest for 100% appropriate hearing protection the development of Zone active listening and AM/FM radio ear defenders means there is no longer a reason for the temporary, potentially damaging short term removal of ear defenders.

The benefits of electronic protection are clear, a safe, motivated workforce with improved moral and productivity without compromising safety.

- **KEY FEATURES (ADDITIONAL TO PASSIVE)**

- Easy to operate controls
- Hi-Fi sound quality and speech amplification
- Active enables user to communicate effectively and hear vital warning signals
- Helps improve productivity & morale
- Reduces feelings of isolation
- Protects against damaging and unexpected impulse noise
- Long duration use from standard alkaline batteries

ALERT ZONE

Active Listening



Alert Zone “active listening” ear defenders with intelligent Electronic Protection System (EPS), safeguards users against the dangers of short-term removal by preventing feelings of isolation, enabling the user to remain fully aware and alert to their surroundings. Vital warning signals can be heard and optimum speech clarity is received from verbal communication, without compromising protection.

Product Features:

- Active listening microphones – provide directional hearing and spatial awareness
- Sound amplification up to 8dB(A) – delivering optimum speech clarity
- Electronic Protection System (EPS) – limits speaker sound level to 82 dB(A)
- Easy connection to MP3 or listen only com-radio and mobile phone

PERFORMANCE DATA

	H	M	L
ALERT ZONE 1 HEADBAND - EN352-1:2002			
	33	26	18
ALERT ZONE 1 HELMET MOUNTED - EN352-3:2002			
	31	21	13

SNR
HEADBAND
29
HELMET MOUNTED
25

* For full attenuation data see page 18

FOCUS ZONE

AM / FM Radio



Focus Zone has been designed to counteract feelings of isolation in continuous noise environments. Focus Zone helps mitigate the risk of short term removal by enabling the wearer to listen to a preferred radio station or to connect an external device including, mp3-players, mobile phones or com-radios, without compromising protection.

Product Features:

- Integrated AM/Fm stereo radio
- Easy Connection to MP3 or listen only com-radio and mobile phone
- Ergonomic one handed operation
- Electronic Protection System limits speaker sound level to 82 dB(A)

PERFORMANCE DATA

	H	M	L
FOCUS ZONE 2 HEADBAND - EN352-1:2002			
	34	28	19
FOCUS ZONE 2 HELMET MOUNTED - EN352-3:2002			
	33	24	15

SNR
HEADBAND
31
HELMET MOUNTED
27

* For full attenuation data see page 18

ZONE ACCESSORIES

It only takes a couple of minutes every 6 months to protect your investment in hearing protection, by maintaining the effectiveness of the seal to keep it working like new. Maintenance of your hearing protection is crucial to maintain the attenuation performance and to ensure you benefit from low through life costs.

Scott Safety offers a range of accessories including replacement cushions and first stage interior ear cup foam to maintain performance and hygiene when hearing protection is shared by multiple users.



VISOR MUFF COMBINATION (VMC)

Zone headband versions can be specified or easily converted into visor muff combinations (VMC)

VMC CONVERSION KIT

Supplied with a choice of either Polycarbonate or Nylon Mesh visor

ANTIBACTERIAL HYGIENE PADS

Sweat absorbing self-adhesive antibacterial hygiene pads make the hearing protector more comfortable and hygienic to wear



AERIAL AND SIGNAL AMPLIFIER

Some buildings with lots of concrete and/or steel can sometimes block out FM signals, leading to poor radio reception. An aerial and signal amplifier is available to compliment Focus Zone providing maximum amplification of the FM range 88 - 108 MHz. Each slave aerial covers a radius from the vertical antenna of approximately 20-50 meters, depending on the premises. A total of 3 slave aerals can be connected to each amplifier.

MAINTAINANCE KITS

New cushions and outer sound absorbent pads should be replaced at least every 6 months, standard for all Zone ear defenders.

ACCESSORY POSTS

30mm, 25mm and 15mm accessory posts are available to further integrate PPE to many helmet designs.

PERFORMANCE DATA & WEIGHTS

CE APPROVAL (SNR)

ANSI APPROVAL (NRR)

PASSIVE HEARING PROTECTION

		FREQUENCY HZ	63	125	250	500	1000	2000	3150	4000	6300	8000	H	M	L	SNR	WEIGHT		
HEADBAND	ZONE 1 HEADBAND EN 352-1:2002																		
	MEAN ATTENUATION	16.3	13.0	20.5	30.5	35.1	33.1	33.3	35.0	37.6	36.5								
	ST.DEV.	2.7	2.6	2.1	3.2	3.7	3.5	3.5	3.0	1.9	2.6	31	27	18	29			252g	
	APV	13.6	10.4	18.4	27.3	31.4	29.5	29.7	31.9	35.6	33.8								
	ZONE 2 HEADBAND EN 352-1:2002																		
	MEAN ATTENUATION	19.8	14.7	22.0	32.4	37.7	34.2	35.9	34.9	37.8	38.7								
	ST.DEV.	4.4	3.2	2.7	2.7	3.6	2.0	3.2	2.3	2.9	3.5	34	29	20	31				281g
	APV	15.4	11.6	19.3	29.7	34.1	32.2	32.7	32.7	34.9	35.2								
	ZONE 3 HEADBAND EN 352-1:2002																		
MEAN ATTENUATION	19.8	18.7	24.8	35.2	39.4	35.5	38.0	40.8	43.3	42.3									
ST.DEV.	5.1	3.1	2.2	3.5	1.9	2.6	4.1	2.5	3.1	2.3	36	32	23	34				346g	
APV	14.6	15.7	22.6	31.7	37.5	32.9	33.9	38.3	40.2	39.9									

		FREQUENCY HZ	125	250	500	1000	2000	3150	4000	6300	8000	NRR	WEIGHT
HEADBAND	ZONE 1 HEADBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	13.5	21.4	28.8	33.2	34.0	34.6	35.6	36.0	35.7	23		252g
	ST.DEV.	3.4	2.4	1.9	2.2	2.5	2.9	3.1	2.9	2.2			
	ZONE 2 HEADBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	16.5	24.3	32.2	37.8	34.8	35.8	36.5	37.3	38.1	26		281g
	ST.DEV.	2.6	2.2	3.2	2.8	2.5	2.9	3.1	3.4	2.1			
	ZONE 3 HEADBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	19.9	27.9	33.1	37.4	37.5	36.9	38.1	41.5	42.3	29		346g
	ST.DEV.	2.2	1.8	2.2	2.5	2.9	2.2	3.1	2.7	3.7			

		FREQUENCY HZ	63	125	250	500	1000	2000	3150	4000	6300	8000	H	M	L	SNR	WEIGHT		
HELMET MOUNTED	ZONE 1 HELMET MOUNTED EN 352-3:2002																		
	MEAN ATTENUATION	12.2	10.8	19.5	25.4	34.2	31.4	30.8	34.4	35.3	34.9								
	ST.DEV.	4.7	2.9	2.7	3.0	3.2	3.6	2.9	3.2	2.5	3.2	30	25	16	27			238g	
	APV	7.5	7.9	16.8	22.4	31.0	27.8	27.9	31.2	32.8	31.7								
	ZONE 2 HELMET MOUNTED - EN 352-3:2002																		
	MEAN ATTENUATION	13.2	12.7	22.3	28.6	34.2	32.5	33.1	35.5	39.2	38.6								
	ST.DEV.	4.8	3.2	3.0	3.1	3.4	3.2	2.8	2.4	2.5	3.7	32	27	18	29				259g
	APV	8.4	9.4	19.3	25.5	30.8	29.3	30.2	33.0	36.7	34.9								
	ZONE 3 HELMET MOUNTED - EN 352-3:2002																		
MEAN ATTENUATION	15.4	16.1	25.9	31.6	38.6	34.0	35.6	41.2	42.1	40.5									
ST.DEV.	4.2	3.1	3.2	3.5	3.5	3.2	3.2	3.2	3.7	3.8	34	30	21	32				302g	
APV	11.2	13.0	22.7	28.1	35.1	30.8	32.4	38.0	38.4	36.7									

		FREQUENCY HZ	125	250	500	1000	2000	3150	4000	6300	8000	NRR	WEIGHT
HELMET MOUNTED	ZONE 1 HELMET MOUNTED ANSI S-3.19-1974												
	MEAN ATTENUATION	14.2	20.8	27.2	32.5	31.4	33.0	35.0	36.4	36.0	22		238g
	ST.DEV.	3.3	3.1	2.3	3.3	3.2	2.4	2.6	2.9	3.5			
	ZONE 2 HELMET MOUNTED ANSI S-3.19-1974												
	MEAN ATTENUATION	16.5	23.8	29.6	34.4	33.6	33.9	34.0	37.5	36.1	25		259g
	ST.DEV.	2.8	2.4	2.9	2.5	2.0	2.6	2.4	3.4	4.1			
	ZONE 3 HELMET MOUNTED ANSI S-3.19-1974												
	MEAN ATTENUATION	19.4	25.4	30.3	35.8	35.4	36.6	37.9	40.2	41.5	27		302g
	ST.DEV.	2.5	2.6	2.2	3.0	2.6	2.3	3.1	2.5	3.4			

		FREQUENCY HZ	63	125	250	500	1000	2000	3150	4000	6300	8000	H	M	L	SNR	WEIGHT		
NECKBAND	ZONE 1 NECKBAND EN 352-1:2002																		
	MEAN ATTENUATION	15.7	14.6	18.3	27.8	34.4	32.7	29.4	30.1	35.2	33.8								
	ST.DEV.	5.6	2.4	1.6	2.7	3.4	2.8	1.9	2.8	2.6	2.8	30	26	19	28				214g
	APV	10.1	12.2	16.7	25.2	31.1	29.9	27.5	27.3	32.6	31								
	ZONE 2 NECKBAND - EN 352-1:2002																		
	MEAN ATTENUATION	16.1	16.6	22.2	31.6	36.7	34	34.4	36	39.3	40								
	ST.DEV.	4.1	2.3	3.5	2.7	3.3	3.0	3.3	3.4	3.2	3.2	33	29	21	31				230g
	APV	12.0	14.4	18.7	28.9	33.4	31.1	31.1	32.6	36.1	36.8								
	ZONE 3 NECKBAND - EN 352-1:2002																		
MEAN ATTENUATION	17.7	16.2	24.3	32.2	37.9	34.8	37.9	40.4	42.9	42.9									
ST.DEV.	5.3	1.7	2.4	2.3	2.4	2.8	4.0	2.8	2.8	3.0	35	30	22	33				296g	
APV	12.5	14.5	21.9	29.9	35.6	31.9	33.9	37.6	40	39.9									

		FREQUENCY HZ	125	250	500	1000	2000	3150	4000	6300	8000	NRR	WEIGHT
NECKBAND	ZONE 1 NECKBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	15.5	21.2	26.7	33.7	34.1	35.0	35.0	37.3	37.0	23		214g
	ST.DEV.	2.7	2.4	2.8	3.6	2.7	2.3	2.8	3.3	3.7			
	ZONE 2 NECKBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	16.6	24.4	31.0	38.7	36.1	37.1	35.8	38.1	38.4	25		230g
	ST.DEV.	3.3	3.0	3.5	2.7	3.2	3.1	2.8	2.8	3.4			
	ZONE 3 NECKBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	17.4	25.3	34.0	37.6	34.9	38.0	37.1	38.8	41.2	27		296g
	ST.DEV.	2.5	2.3	2.5	2.8	2.5	3.0	2.9	3.2	4.0			

ACTIVE AND AM/FM RADIO HEARING PROTECTION

		FREQUENCY HZ	63	125	250	500	1000	2000	3150	4000	6300	8000	H	M	L	SNR	WEIGHT		
HEADBAND	ALERT ZONE (HEADBAND) EN 352-1:2002																		
	MEAN ATTENUATION	15.3	14.6	19.2	27.9	33.8	33.4	39.4	42.3	42.6	41.6								
	ST.DEV.	3.5	3.7	2.3	2.6	3.7	3.0	3.7	3.3	3.3	2.9	33	26	18	29				367g
	APV	11.8	11.0	16.9	25.2	30.1	30.3	35.8	39.0	39.3	38.7								
	FOCUS ZONE (HEADBAND) - EN 352-1:2002																		
	MEAN ATTENUATION	15.7	14.3	22.1	31.5	36.2	34.6	40.1	40.8	41.4	40.4								
	ST.DEV.	3.7	3.0	2.7	2.6	3.5	3.5	3.7	3.5	3.2	4.0	34	28	19	31				439g
	APV	12.0	11.3	19.4	28.9	32.7	31.0	36.4	37.3	38.2	36.4								
	ALERT ZONE (HELMET MOUNTED) EN 352-3:2002																		
MEAN ATTENUATION	11.6	9.9	13.1	24.3	13.1	31.1	37.1	40.8	40.6	39.2									
ST.DEV.	4.4	2.1	2.8	3.2	3.0	2.7	3.4	4.4	4.6	3.4	31	21	13	25				378g	
APV	7.2	7.8	10.3	21.1	28.1	28.4	33.7	36.4	36.0	35.8									
FOCUS ZONE (HELMET MOUNTED) EN 352-3:2002																			
MEAN ATTENUATION	10.7	10.8	15.4	28.1	34.9	33.0	40.6	40.6	42.6	39.7									
ST.DEV.	3.5	2.4	2.8	3.4	2.5	2.7	3.7	3.7	2.6	3.9	33	24	15	27				450g	
APV	7.2	8.4	12.6	24.7	32.4	30.3	36.9	36.9	40.0	35.8									

		FREQUENCY HZ	125	250	500	1000	2000	3150	4000	6300	8000	NRR	WEIGHT
HEADBAND	ALERT ZONE HEADBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	15.3	21.8	28.6	36.7	36.3	39.0	38.8	41.1	41.7	25		367g
	ST.DEV.	2.9	2.5	2.8	2.6	2.2	2.5	3.2	2.3	3.2			
	FOCUS ZONE HEADBAND ANSI S-3.19-1974												
	MEAN ATTENUATION	17.1	22.9	30.6	34.3	34.2	36.6	39.7	41.9	42.3	25		439g
ST.DEV.	2.8	2.6	2.8	2.7	2.5	3.0	2.7	2.9	3.9				

HEARING

A NATURAL GIFT WORTH PROTECTING

Each and everyone of us has a favourite sound; the dawn chorus, a cat purring, the laughter of a child, waves crashing on the shore or the acceleration of a powerful car can all raise the human spirit. This natural and everyday gift should not be taken for granted; hearing damage is irreversible but with education entirely avoidable.

SOUND IS MADE UP OF WAVES THAT ENTER THE EAR

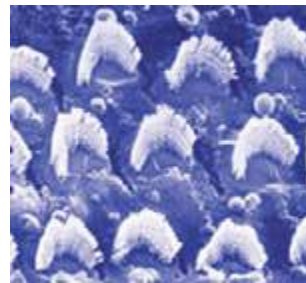
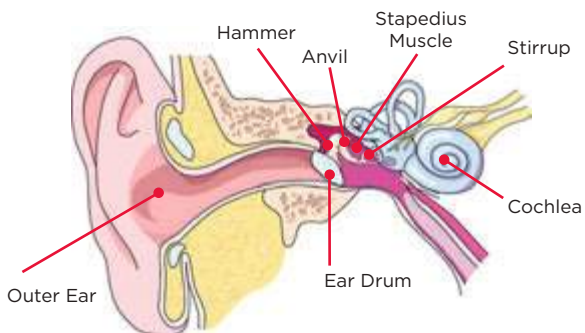
The ear is a complicated and delicate apparatus that converts pressure waves to recognisable sound with different pitch, intensity and tone quality. Airborne vibrations enter the ear canal and begin a process that results in sound being processed by the brain.

These vibrations strike the eardrum causing it to vibrate and form a protective barrier between the outer and inner ear, guarding it against prolonged exposure to loud low pitch noises. The vibrations continue till they reach three tiny mechanical bones, the hammer, anvil and stirrup. The Stapedius muscle, which is attached to the stirrup flexes if noise levels exceed 75 dB and reduces the strength of the sound waves in preparation to be received by the inner ear.

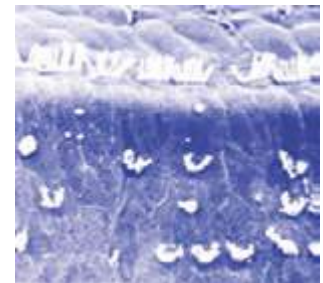
The cochlea, of the inner ear is the next station. It comprises three canals; the middle of which contains the hearing organ situated on a membrane made up of 4 rows of hair cells,

each with its own frequency. The hair cells (Cilia) sway under sound pressure, leading to electrical signals being sent to the brain. It is at this point that we become aware of sound.

While each stage of hearing is vital the hair cells within the inner ear are critical, the higher the sound level the more rigorously they move. Repeated subjection to high levels of sound (in excess 75dB) or short term exposure to excessive sound levels (Levels above 110 dB) will result in irreparable hearing damage. Although not visible to the human eye the process of hearing deterioration can be compared with Coral reefs. Coral sways with the oceans currents like the hairs in the inner ear. Repeated unprotected noise exposure can be likened in its effect to the greenhouse gases and pollution which increases the oceans acidity levels to a point where coral simply dies. The destruction caused to coral represents a good comparison of the permanent damage excessive noise inflicts on the hairs of the inner ear.



Healthy hair cells in the ear



Example of the damage caused by exposure to dangerous levels of noise.



HEARING AND THE LAW

HOW IS NOISE MEASURED?

Noise is measured in decibels (dB). An 'A-weighting' or 'dB(A)', measures average noise levels, and 'C-weighting' or 'dB(C)' measures peak, impulse or explosive noises.

EXAMPLES OF NOISE EXPOSURE		
Hazard	Noise dB	Approx Time Unprotected
Motorway driving	80	c.8 hours
Hammering on Wood	97-103	c.5 min
Drilling in Wood	98	c.7 min
Woodcutting with chainsaw	103	c.2 min
Drilling in metal	103	c.2 min
Woodcutting with blade	104	c.1.5 min
Woodcutting with circular saw	107	c.45 sec
Metal filing with angle grinder	110	c.20 sec

WHAT ARE THE ACTION LEVELS AND LIMIT VALUES OF THE CONTROL OF NOISE AT WORK REGULATIONS 2005?

The regulations require action dependent on the levels of daily or weekly exposure and the maximum noise (peak sound pressure) exposure in a working day. These exposure limit values take account of any reduction in exposure provided by hearing protection.

ACTION VALUES		
	Daily/weekly exposure A-Weighting	Peak sound exposure C-Weighting
Lower Action Values	80dB	135dB
Upper Action Values	85dB	137dB
Noise Level Exposure not to be Exceeded	87dB	140dB

WHAT DO THESE REGULATIONS MEAN TO EMPLOYERS?

Employers are required to:

- Assess the risks to employees from noise at work
- Take action to reduce noise exposure at source

IF UNABLE TO REDUCE NOISE EXPOSURE VIA OTHER METHODS;

Employers must:

- Provide employees hearing protection and ensure they are worn at the action levels specified
- Provide hearing protection if requested by employees in the lower action value range 80-85dB
- Provide hearing protection for the upper action values of 85dB and above
- Ensure legal noise exposure limits are not exceeded
- Identify and clearly mark areas or Zones where wearing hearing protection is compulsory
- Provide information and training to ensure ear defenders are properly used and maintained
- Conduct spot checks to ensure hearing protection is worn properly
- Carry out health surveillance where there is a risk to employee health

WHAT DO THE REGULATIONS MEAN TO EMPLOYEES?

Employees must:

- Wear hearing protection in clearly marked zones that meet and exceed the upper action value
- Agree to be trained in the use and maintenance of hearing protection

An employee who regularly fails to use the hearing protection provided could normally expect to be subject to the company's disciplinary procedure.



The Zone range provides a simple solution to help you make an appropriate hearing protection choice. With modern aesthetics and added comfort, the range offers products suitable for specific applications whilst maintaining high attenuation performance and comfort.



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