HEARING PROTECTION GUIDE

WHY WOULD YOU WANT YOUR WORKFORCE IN ANYTHING ELSE?

[CHOICE] PRO SAFETY GEAR
prosafetygear.com

HEARING PROTECTION

HEARING DAMAGE IS PERMANENT.
PROTECT YOUR EARS WITH OUR
EXTENSIVE RANGE OF PRODUCTS.

PRO [CHOICE] prosafetygear.com SAFETY GEAR

HEARING PROTECTION

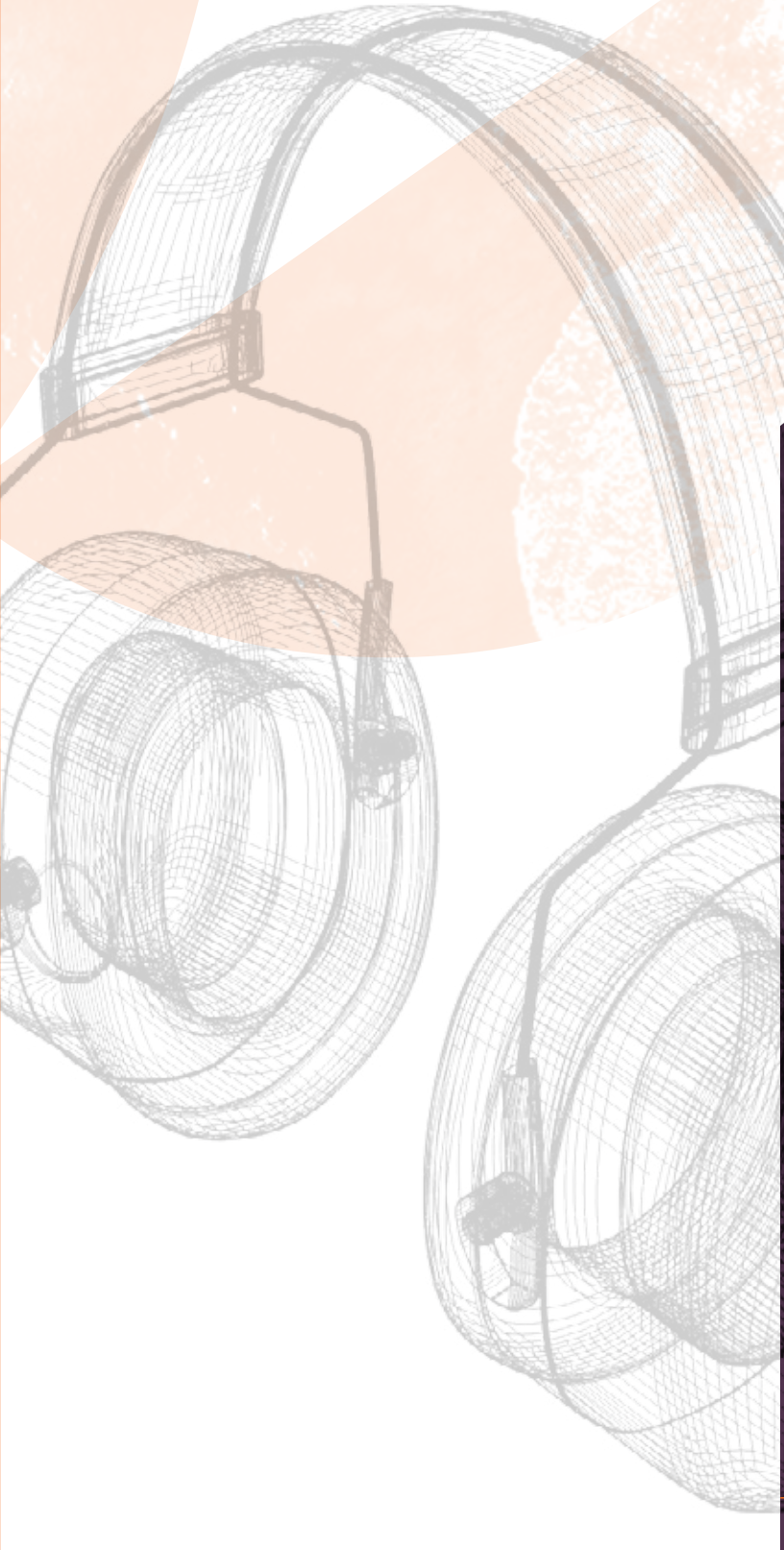
Noise-induced hearing loss is permanent.

It is also 100% preventable through the successful application of physical changes to the work environment and by wearing of Certified protection devices such as earplugs or earmuffs.

One in six Australians suffer from some type of hearing loss. By 2050, this figure is expected to increase to one in four Australians or about eight million people.[1]

Exposure to hazardous noise levels at work (industrial noise) and play (music ear-phones and traffic) causes permanent hearing impairment. Use available charts (in this Guide) to select a protective device that will protect against specific noise levels.

[1] Access Economics: Listen Hear!
The economic impact and cost of hearing loss in Australia, February 2006.



HEARING PROTECTION

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Easy prevention measures, including hearing protection, will avert permanent and debilitating hearing loss.

Hearing loss due to industrial noise is one of the most widespread, yet preventable work place injuries. Continual exposure to noise from machinery, tools, traffic and general workplace activity can cause significant, irreversible hearing loss.

Hearing loss has a dramatic impact on quality of life and may contribute to other safety problems, such as lack of awareness and reduced concentration. Correctly designed and fitted ear protection will keep industrial noise below harmful levels. The choice of the appropriate protection device for each job is also vitally important.

Research and development by ProChoice has resulted in hearing protection devices that offer the most effective protection available. The types of hearing protection available give you a choice.

Ear Muffs

Suppress unwanted noise by completely covering the outer ear. Our styles come with a variety of features from adjustable headband to hard hat attachments to suit individual needs.

Disposable Ear Plugs

Made from PU foam and are designed to be compressed and then inserted into the ear canal, where they expand and seal against noise. These are economical, designed for single use and are available in uncorded and corded options.

Reusable Ear Plugs

Pre-moulded from washable silicone to fit snugly. Corded and uncorded options are supplied in handy resealable plastic case and can be reused.

Banded Earplugs

A convenient, easily inserted option for those who are constantly in and out of noisy areas.

Metal Detectable Ear Plugs

Contain a metal tab in each plug and a metalized cord that can be detected if they accidentally fall into processing lines.

What is a dB?

dB stands for Decibel, the unit of sound level and noise exposure measurement.

How do I know when hearing protection is required?

Have a workplace noise assessment done. Exposure to noise levels between 85dB - 90dB and above can cause permanent hearing loss and therefore hearing protection is required.

What is the "Safe Noise Threshold"?

90dB (A) – at this level and above appropriate hearing protection MUST be worn.

What is Tinnitus?

Involuntary noises in the ear, such as ringing or hissing, often associated with hearing loss.

How can I protect my hearing at work?

The best method of preventing occupational deafness is to reduce noise at the source by engineering methods. However, in certain workplace conditions, there is very little or nothing one can do to reduce noise at the source. In these workplaces, workers must wear hearing protection to reduce the amount of noise reaching the ears.

When does noise become harmful to your hearing?

Exposure to sounds greater than 85 dB may cause hearing loss. General estimates of some work-related noises are listed in the chart below.

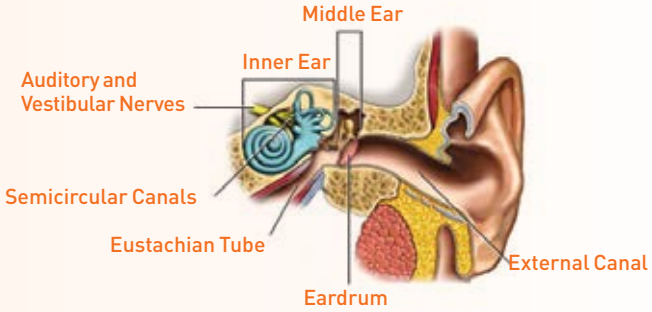
Noise Level Examples	Class	SLC80dB	Allowable Noise Level Range	
Ringing Telephone - 80dB	1	10 to 13	Less than 90db	SAFE AREA
Loud Radio - 80dB	1	10 to 13	Less than 90db	
Busy Traffic - 80dB	1	10 to 13	Less than 90db	
Band Saws - 85dB	2	14 to 17	Less than 90db	
Power Lawn Mower - 90dB	2	14 to 17	90 - 95db	RISK AREA
Belt Sander - 93dB	2	14 to 17	90 - 95db	
Tractor - 96dB	3	18 to 21	95 - 100db	
Electric Drill - 98dB	3	18 to 21	95 - 100db	
Bulldozer - 105dB	4	22 to 25	100 - 105db	
Blasting - 110dB	5	26 to 36	110 - 115db	HARMFUL RANGE
Nail Gun - 110dB	5	26 to 36	110 - 115db	
Chainsaw - 120dB	5	26 to 36	115 - 120db	
Propeller Aircraft - 120dB	5	26 to 36	115 - 120db	
Gun Shot - 130dB	5	26 to 36	125 - 130db	
Rivetting Hammers - 130dB	5	26 to 36	125 - 130db	
Jet Engine Aircraft - 140dB	5	26 to 36	135 - 140db	

PLEASE NOTE: This table is a general guide only and is not an absolute basis for noise levels selection as some equipment may operate at different noise levels. Every worksite should be tested by OH&S.

HOW DOES HEARING LOSS OCCUR?

Permanent loss of hearing is the result of nerve destruction or damage to the hair cells which transfer sound waves within the ear.

Once these important parts of the hearing mechanism are damaged or destroyed, they can never be regenerated, resulting in slight to total, permanent hearing loss.



HEARING PROTECTION

How do I choose my hearing protection?

The choice of hearing protection depends on a number of factors including level of noise, comfort, and the suitability of the hearing protection for both the worker and the environment. Most importantly, the hearing protection should provide the desired noise reduction.

It is best, where protection must be used, to provide a choice of a number of different types of hearing protection. Each hearing protection device is given a class rating from 1 to 5 to show the level of noise reduction achieved.

If the noise exposure is intermittent, ear muffs are more desirable, since it may be inconvenient to remove and reinsert earplugs.

How is hearing protection tested in Australia and New Zealand and what standards apply?

The SOUND LEVEL CONVERSION (SLC_{80}) rating as applied to hearing protection devices (HPD) is a simple number and class rating derived from a test procedure outlined in the Australian/ New Zealand Standard, AS/NZS 1270: 2002.

It provides a simple number guide to the level of noise attenuation (reduction) that can be expected from a particular HPD.

Because humans are different, the level of protection achieved for each person could also be different and so a scientific formula is used to allow for differences.

The SLC value includes a correction to ensure that the stated degree of noise reduction is obtained on 80% of occasions. Hence the SLC_{80} rating. The SLC_{80} rating is the difference between the sound level of the environment in which the HPD is worn and the sound level reaching the wearer's ears.

The testing procedure can be separated into two different areas:

1) Mechanical Testing:

Where the device is subjected to physical forces, stretching, heating and concussion - to simulate real wearing conditions over a period of time.

2) Audiometric Testing:

This is a subjective test. A minimum number of human test subjects are selected at random and given a hearing test to establish if they fall into the category of "normal hearing", as outlined in the standard. The attenuation of the HPD is determined by measuring each subject's hearing threshold with and without the HPD fitted. The difference between these two thresholds is the so-called real ear attenuation of the HPD to a variety of frequencies.

In simplistic terms, from this data the mean real ear attenuation and standard deviation (variation) at each frequency is calculated. The mean minus standard deviation, when subtracted from the band level gives the attenuation.

HPD are also given a class rating, as outlined below, once the SLC80 rating is known, and refers to the level of noise attenuation achieved by each device. The higher the rating, the greater the efficiency of the hearing protection device.

Class	SLC_{80}dB
1	10 to 13
2	14 to 17
3	18 to 21
4	22 to 25
5	26 to 36

The SLC_{80} is a rating only, by which in conjunction with the information contained in the Australian/New Zealand Standard AS/NZS 1269.3:2005 Occupational Noise Management - Hearing Protector, the problems of hearing loss due to noise exposure for a given environment are addressed.

A deeper understanding of the SLC_{80} rating or how to apply these ratings to your workplace can be obtained from the OH&S authority in your State.

What should I know about the fit of my hearing protection?

Follow manufacturers' instructions. With ear plugs, for example, the ear should be pulled outward and upward with the opposite hand to enlarge and straighten the ear canal, and insert the plug with clean hands. Ensure the hearing protector tightly seals within the ear canal or against the side of the head. Hair and clothing should not be in the way.

Can I "toughen up" my ears?

No. If you think you have grown used to a loud noise, it probably has damaged your ears, and there is no treatment – no medicine, no surgery, not even a hearing aid – that completely restores your hearing once it is damaged by noise.

What are the common problems of hearing protection?

Studies have shown that one-half of the workers wearing hearing protectors receive one-half or less of the noise reduction potential of their protectors because these devices are not worn continuously while in noise or because they do not fit properly.

A hearing protector that gives an average of 30 dB of noise reduction if worn continuously during an 8-hour work day becomes equivalent to only 9 dB of protection if taken off for one hour in the noise.

This is because decibels are measured on a logarithmic scale, and there is a 10-fold increase in noise energy for each 10 dB increase.

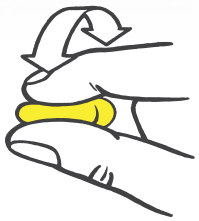
EARPLUG FITTING GUIDE

SINGLE USE

Disposable Foam

EPOU ProBullet™ Uncorded
EPOC ProBullet™ Corded
EPYU ProBell™ Uncorded
EPYC ProBell™ Uncorded
EPBDMC ProBell™ Metal Detectable Corded

1



Hold the earplug between thumb and forefinger. Roll the full length of the earplug into a narrow, wrinkle free cylinder.

2

Using the opposite hand, reach across your head and pull ear up and back to maximise ear opening. Gently work compressed plug well into ear canal, with end level with external ridges of ear.

3

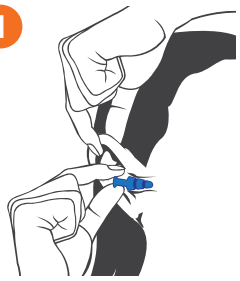
Hold in for 50-60 seconds until the foam expands to fully seal the ear to maximize exclusion of noise.
Repeat steps 1 & 2 for other ear.

MULTI-USE

Reusable Silicone

EPSU ProSil™ Uncorded
EPSC ProSil™ Corded

1



Using the opposite hand, reach across your head and pull ear up and back to maximize ear opening.

2

Insert gently until all ripples are inside the ear canal.

3

The tip of the earplug should be visible when viewed from in front. Repeat steps 1 & 2 for other ear.

MULTI-USE

Headband with replaceable Pads

HBEP ProBand™ Headband
HBEPA ProBand™ Fixed Headband

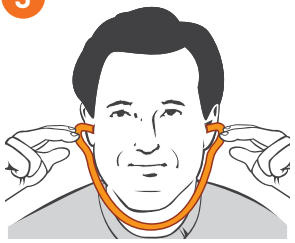
1

With headband beneath chin, place plugs into each ear canal.

2

For maximum efficiency, use opposite hand to pull ear back and up to open ear canal for insertion.

3



Push each pad into the ear until you notice a significant lowering of noise level.

CHECKING CORRECT FIT

When properly inserted, the end of the earplugs should be located at opening of your ear canal.

Test effectiveness in noisy location by cupping both hands over ears and release.

You should NOT notice significant difference in noise level.

Maintenance

Before handling any earplugs, ensure hands are clean. Always check your earplugs and discard if damaged, worn or dirty. Silicone plugs can be washed if necessary.
Single-use ear plugs can cause health issues if used when dirty.

If kept clean and undamaged, silicone (reusable) ear plugs should last for up to three weeks. Clean with mild soap/water and store in a case away from extreme heat and direct sunlight when not in use. On banded earplugs, clean and replace pads regularly as required.

Proper Fit

Follow all earplug fitting instructions for maximum efficiency and durability. If either or both earplugs don't seem to be fitted properly, remove and re-insert following the correct steps as indicated above.

Correct Removal

Gently twist earplug while slowly pulling in an outward motion for removal.

Choose Correct Protection

Consider your need to communicate AND the correct protection level when choosing your hearing protection, especially in minimal noise level environments. Don't over protect if you need to communicate to work safely.

HEARING PROTECTION

AS/NZS 1270:2002
Lic 25293

EP0U

ProBullet™ Disposable Uncorded Earplugs

- Class 5, SLC_{80} 27dB
- Disposable, PU foam
- Hearing protection for noise levels to 110 dB(A)
- Pairs packaged in individual poly bags

AS/NZS 1270:2002
Lic 25293

EPYC

ProBell™ Disposable Corded Earplugs

- Class 5, SLC_{80} 27dB
- Disposable, PU foam
- Hearing protection for noise levels to 110dB(A)
- ProBell shape delivers maximum comfort
- Brightly coloured offering high visibility for worker compliance
- Superior design makes it easier to insert and reduces tendency to back out of the ear
- Pairs packaged in individual poly bags

AS/NZS 1270:2002
Lic 25293

EPSU

ProSil® Reusable Uncorded Earplugs

- Class 3, SLC_{80} 18dB
- Reusable silicone earplugs
- Hearing protection for noise levels to 100 dB(A)
- Comes in re-sealable plastic case

EPDS500A

Dispenser Station 500

- Class 5, SLC_{80} 27dB
- Workplace dispenser holds 500 pairs of ProBullet or Pro Bell Disposable Uncorded Earplugs
- Dispenses one pair at a time

AS/NZS 1270:2002
Lic 25293

EPDS500R

ProBullet™ Refill Bag for Dispenser

- Class 5, SLC_{80} 27dB
- Disposable, PU foam
- Hearing protection for noise levels to 110 dB(A)
- Uncorded ProBullet earplugs

AS/NZS 1270:2002
Lic 25293

HBEPA

ProBand™ Fixed Headband Earplugs

- Class 4, SLC_{80} 24dB
- Disposable, PU foam pads
- Hearing protection for noise levels up to 109dB
- Provides wearer the highest level of protection for a headband earplug
- Disposable PU foam pads are ergonomically designed to fit the ear for maximum protection
- Pairs individually packaged

AS/NZS 1270:2002
Lic 20580

HHEM

Viper® Hard Hat Earmuffs

- Class 5, SLC_{80} 26dB
- General purpose use
- To suit all ProChoice hard hats
- Hearing protection for noise levels to 110dB(A)
- Solid, lightweight ear cup construction
- High quality ear cushions
- Inner foam and headband cushions provide comfort during extended wear
- Low clamping force applies minimum pressure while maintaining a tight, snug seal

AS/NZS 1270:2002
Lic 25293

EMCOB

Cobra® Earmuffs

- Class 5, SLC_{80} 28dB
- General purpose use
- Hearing protection for noise levels to 110dB(A)
- Convenient fold-away construction
- High quality ear cushions
- Inner foam and headband cushions provide comfort during extended wear
- Low clamping force applies minimum pressure while maintaining a tight, snug seal

AS/NZS 1270:2001
Lic 25293

EMPYT

Python® Earmuffs

- Class 5, SLC_{80} 31dB.
- High performance and strong durability for maximum protection
- Hearing protection for noise levels to 116dB(A)
- Contemporary design withstands abuse without compromising comfort
- Solid, lightweight ear cup construction
- High quality ear cushions
- Padded foam headband minimises pressure on the head
- Steel wire provides a robust construction to withstand demanding use
- Increased wearer comfort due to low clamping force

Please go to prosafetygear.com for more information and to check out the entire ProChoice Safety Gear range

PRO [CHOICE] prosafetygear.com SAFETY GEAR

The extensive ProChoice range of high quality Personal Protective Equipment is produced for extreme conditions and is available from leading safety stockists.

ProChoice Safety Gear is distributed throughout Australia and New Zealand by Paramount Safety Products. Contact your nearest branch to find your local ProChoice stockist. To see our full range, please visit our website **prosafetygear.com**

Scan your SmartPhone here to visit us online

PERTH
30 Mumford Place
Balcatta 6021 Western Australia
T [618] 9240 1165
F [618] 9240 1185
E wa@paramountsafety.com.au

MELBOURNE
Unit 6 -10 / 65 Barry Street
Bayswater 3153 Victoria
T [613] 9762 2500
F [613] 9762 3500
E vic@paramountsafety.com.au

SYDNEY
18 Yulong Close
Moorebank 2170 New South Wales
T [612] 9601 3877
F [612] 9601 3899
E nsw@paramountsafety.com.au

BRISBANE
Cnr Burchill & Allan Streets
Loganholme 4129 Queensland
T [617] 3806 2699
F [617] 3806 3266
E qld@paramountsafety.com.au

ADELAIDE
M 0424 504 802
T [613] 9762 2500
F [613] 9762 3500
E sa@paramountsafety.com.au

NEW ZEALAND
19/298 Neilson Street
Onehunga, Auckland
T [649] 622 2361
F [649] 523 9773
E nz@paramountsafety.co.nz