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3M™ PELTOR™ Optime™ I Earmuffs

Technical Data Sheet

Product description

The 3M™ PELTOR™ Optime™ I earmuffs are available in headband, neckband, foldable or helmet attach version. These products are designed to provide moderate level of attenuation that meets the needs of the majority of industrial applications.

When correctly selected and worn these products help reduce exposure to hazardous levels of noise and loud sounds.

The helmet mounted version is designed to fit a wide range of industrial safety helmets.

Features

- Modern, stylish slim line cup design.
- Unique low profile headband design helps maintain constant pressure thus providing confidence in protection.
- Space inside cup helps reduce moisture and heat build-up Soft wide cushions helps reduce pressure around the ears and improves comfort and wearability.
- Easy to replace cushions and inserts helps keep them hygienically clean.
- Easy to understand attenuation symbol to help ensure correct product selection.
- Helmet mounted earmuffs include two helmet adapters (25mm GS blade on product, & 30mm loose in box) to accommodate common helmet slots, and Scott/3M accessories such as visors.

Applications

The 3M™ PELTOR™ Optime™ I Earmuffs are ideal for protection against noise arising from a wide range of applications in the workplace and leisure activity.

Examples of typical applications include:

- Agriculture
- Automotive Construction
- Chemical & Pharmaceutical Manufacture
- Construction
- Light Engineering
- Metal Processing
- Woodworking

H510A

H510F

H510P3GS/E

H510B

Materials

Optime I Headband/Neckband/Foldable version

Component	Material
Headband/Neckband/ Foldable	Stainless Steel Wire, PVC, Acetal
Headband padding	PVC
Cups	ABS
Inserts	PU Foam
Cushions and Cushion Covers	PU Foam and PVC

Optime I Helmet Attach version

Component	Material
Helmet attachment arm	Stainless Steel Wire, PVC, Acetal, Polyamid
Cups	ABS
Inserts	PU Foam
Cushions and Cushion Covers	PU Foam and PVC

Standards

The 3M™ PELTOR™ Optime™ I Earmuffs have been tested by an accredited laboratory in accordance with the requirements specified in the Australian/New Zealand Standard AS/NZS1270:2002.

Declaration(s) of Conformity are available at: www.3M.com/Hearing/certs.

Fitting Instructions

Research suggests that user may receive less noise reduction than indicated by the attenuation label value(s).

Performance will be reduced by anything that impairs the seal of the cushions against the wearer's head e.g., thick spectacle frames, goggles, respirator straps, balaclavas, etc. If spectacles are worn, cushions must be soft and subtle to ensure seal. Select thin, flat temples or straps when wearing this product in combination with other PPE (safety glasses, googles, or respiratory protection), to minimize interference with the seal of the earmuff cushions (i.e., acoustic seal).

Prior to fitting, inspect the product to ensure it is not damaged. Follow manufacturers instructions.

Headband Earmuff

To fit the hearing protector:

1. Pull the cups apart and place the earmuffs over the ears so that the cushions form a snug seal around the ears (Fig 1).
2. Adjust the height for optimum comfort and fit by sliding the cups up or down the guide whilst holding the headband in place (Fig 2).
3. Figure 3 shows the product correctly fitted.

Neckband Earmuff

To fit the hearing protector:

1. Place the cups in position over the ears (Fig 4).
2. Keep the cups in position, place the head strap on top of your head and lock it tight in position (Fig 5).
3. The head strap should be positioned across the top ofyour head and should support the weight of the headsetThe head strap should be positioned across the top of your head and should support the weight of the headset (Fig 6).

   Caution: The neckband earmuffs must be worn with the head strap correctly attached to keep them firmly in position to maintain an effective acoustic seal. The protection level provided by neckband earmuffs may be reduced if the head straps are not worn correctly.


Fig 4


Fig 5

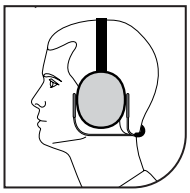


Fig 6

Helmet Attach Earmuff

To fit the hearing protector:

- **Fit the cup:** Push the attachment blade firmly into the slot on the side of the helmet until it clicks into place (Fig 7)
- **Working position:** With the cups over the ears press the arms inwards until you hear a click on both sides indicating a firm seal (Fig 8).
- **Stand-by position:** Lift the cups to the fixed stand-by position. In a noisy environment the earmuffs must be worn in the working position at all times (Fig 9)
- **Parking position:** First lift the cups to the stand-by position, then rotate them up to the next fixed position (Fig 10)

  IMPORTANT: Do not press the cups onto the helmet shell.
- **Storage Position:** When the helmet is not in use, lower the earmuffs and press them inward. Keep the cups clean and dry and store at normal room temperature (Fig 11).

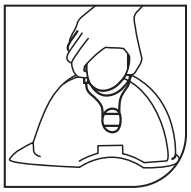


Fig 7

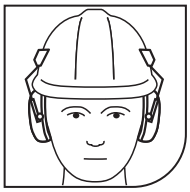


Fig 8

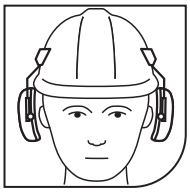


Fig 9

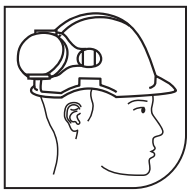


Fig 10

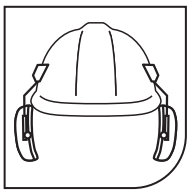


Fig 11

Fit Check

When hearing protectors are correctly worn your own voice should sound hollow and sounds around you should not sound as loud as before.

Attenuation Data

3M™ PELTOR™ Optime™ I Series H510A, Headband & H510F Foldable Headband

AS/NZS 1270:2002

Frequency (Hz)	125	250	500	1000	2000	4000	8000	SLC_{80}	Class	Clamp Force
Mean Attenuation (dB)	14.7	16.4	25.6	34.6	34.7	35.2	36.0			
Standard Deviation (SD) (dB)	2.9	2.3	3.1	3.2	3.1	2.9	3.5	28 dB	5	11.4 N
Mean minus SD (dB)	11.8	14.1	22.5	31.4	31.6	32.3	32.5			

Hearing protector Class 5 tested to AS/NZS1270. When selected, used and maintained as specified in AS/NZS1269, this protector may be used in noise up to 110dB(A) assuming an 85dB(A) criterion. A lower criterion may require a higher protection class.

3M™ PELTOR™ Optime™ I Series Neckband Earmuffs

AS/NZS 1270:2002

Frequency (Hz)	125	250	500	1000	2000	4000	8000	SLC_{80}	Class	Clamp Force
Mean Attenuation (dB)	14.5	13.5	23.6	29.7	34.2	35.0	36.8			
Standard Deviation (SD) (dB)	4.7	3.2	3.7	4.6	4.6	3.6	3.5	25 dB	4	12 N
Mean minus SD (dB)	9.8	10.3	19.9	25.1	29.6	31.4	33.3			

Hearing protector Class 4 tested to AS/NZS 1270. When selected, used, and maintained as specified in AS/NZS 1269, this protector may be used in noise 100dB(A) to less than 105dB(A), assuming an 85dB(A) criterion. A lower criterion may require a higher protection class.

3M™ PELTOR™ Optime™ I Series Helmet Attach Earmuffs

AS/NZS 1270:2002

Frequency (Hz)	125	250	500	1000	2000	4000	8000	SLC_{80}	Class	Clamp Force
Mean Attenuation (dB)	15.3	16.1	23.8	31.5	35.5	34.7	36.5			
Standard Deviation (SD) (dB)	4.0	2.6	5.2	4.2	4.6	6.1	7.7	26 dB	5	10.2 N
Mean minus SD (dB)	11.3	13.5	18.6	27.3	30.9	28.6	28.8			

Hearing protector Class 5 tested to AS/NZS1270. When selected, used, and maintained as specified in AS/NZS1269, this protector may be used in noise up to 110dB(A) assuming an 85dB(A) criterion. A lower criterion may require a higher protection class.

* These earmuffs were tested in combination with the HC600 industrial safety helmet using the P3G adapter and may give different levels of protection if fitted to different helmets.

Mean = Mean attenuation value derived from testing in accordance with AS/NZS 1270:2002.
SD = Standard Deviation derived from testing in accordance with AS/NZS 1270:2002.
Mean-SD = Mean attenuation value minus Standard Deviation.
SLC_{80} = Single number rating commonly used in Australia and New Zealand to compare acoustic performance of hearing protectors. The subscript '80' indicates that in well managed hearing protector programs, the protection provided is expected to equal or exceed the SLC_{80} in 80% of protector-wearer noise spectrum combinations.
Class = A simplified process for selecting hearing protectors based on the wearers 8-hour equivalent continuous A-weighted sound pressure level.

3M strongly recommends personal fit testing of hearing protectors. Research suggests that users may receive less noise reduction than indicated by the attenuation label value(s) on the packaging due to variation in fit, fitting skill, and motivation of the user. Refer to applicable regulations and guidance on how to adjust attenuation label value(s). In the absence of applicable regulations, it is recommended that the attenuation label value(s) be reduced to better estimate typical protection.

The effectiveness of a hearing protector reduces dramatically when the hearing protector does not fit properly, is incorrectly inserted or is not worn 100% of the time during ALL hazardous noise events. Removal of the hearing protector, even for brief moments, substantially reduces protection and greatly increases the risk of hearing damage.

Hearing Protector Fit Testing

The 3M™ E-A-Rfit™ Dual-Ear Validation System

The success of your hearing conservation program requires more than offering earplugs or earmuffs. Each worker needs to wear the most effective hearing protector for the environment and the correct fit for their unique anatomy.

With 3M™ E-A-Rfit™ Dual-Ear Validation System, you can quickly identify how much protection each worker receives from their 3M hearing protectors.

The Technology Behind 3M™ E-A-Rfit™

The 3M™ E-A-Rfit™ Dual-Ear Validation System is based on Field Microphone-In-Real Ear (F-MIRE) technology that measures the effectiveness of hearing protectors from inside a worker's ears, providing accurate, quantitative results.

The tester wears a pair of modified 3M™ probed hearing protectors connected to a dual-element microphone. A loudspeaker is placed in front of the tester. When it emits a broadband noise, the dual-element microphone measures the signal in the ear canal and outside the ear plug. In less than five seconds, the difference between the two measurements is calculated and a Personal Attenuation Rating (PAR) is displayed.

It Starts with PAR.

The 3M™ E-A-Rfit™ Validation System puts the worker in the context of their noise environment and helps you understand their level of attenuation.

The results you get from the 3M™ E-A-Rfit™ is displayed as a PAR. The PAR is a numerical value that shows the reduction in sound level within the ear when a hearing protector is worn. The resulting PAR, combined with the worker's exposure to noise, is used to determine if a worker is receiving appropriate protection from the noise hazard.

Knowing the PAR lets you identify workers who are inadequately protected, so you can provide real-time intervention and training.

Key Benefits of the 3M™ E-A-Rfit™ Dual-Ear Validation System include:

- Tests both ears simultaneously in less than 5 seconds
- Science-based, quantitative testing
- Fast, clear and accurate results
- Tests 7 frequencies—125Hz to 8000Hz
- 3M™ Earplug, earmuff, and headset (comms) testing capability

Contact your 3M Personal Safety Specialist to find out more about our 3M™ E-A-Rfit™ Dual-Ear Validation System or for assistance in solving your complex or day-to-day hearing conservation challenges.

Cleaning and Maintenance

Follow recommended care and cleaning instructions in order to maintain best noise reduction and function.

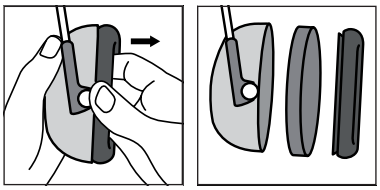
Cleaning

1. After use, wipe outside cups and hygiene pads so they remain clean and hygienic. The product be cleaned using mild detergent and water. Do not immerse in water. Do not clean with solvents such as acetone, or with waterless hand cleaners or products containing lanolin.
2. If the earmuffs cannot be cleaned or are damaged, dispose of the product and obtain a new pair.

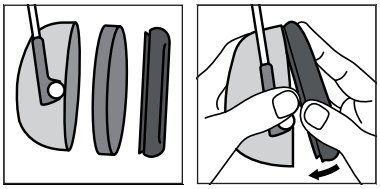
Maintenance – Changing the Hygiene Kit

Cushions and inserts can be replaced by using the approved Hygiene Kits for your 3M™ PELTOR™ Product. See 'Ordering Information' section.

1. Remove the cushions and inserts as shown.



2. Replace the worn or damaged cushions and insert with the new pair from the appropriate hygiene kit.



- 3M recommends replacing the hygiene kit every six months to maintain acceptable noise reduction, hygiene and comfort. In hot and humid environments more frequent changes may be required to maintain acceptable hygiene.
- 3M™ PELTOR™ HY100A Clean Hygiene Pads can be applied onto the earmuff cushions to help absorb sweat and moisture for improved comfort and hygiene.

Storage

- Store the product in a clean and dry area before and after use.
- Always store the product in the original packaging and away from any sources of direct heat or sunlight, dust and damaging chemicals.
- Operating temperature range: – 20°C (-4°F) to 50°C (122°F).
- Storage temperature range:– 20°C (-4°F) to 40°C (104°F).
- Relative humidity: <90%.

Disposal

If the product is to be disposed*, it should be disassembled and disposed of as solid waste. Please see local authority regulations for disposal advice and locations

* Discard the product within 5 years from date of manufacture or immediately if damaged or cannot be cleaned.

Ordering Information

3M ID	Model	Description
Headsets		
70071730454	H510A	3M™ PELTOR™ Optime™ I Series Headband Earmuffs
70071730504	H510F	3M™ PELTOR™ Optime™ I Series Foldable Headband Earmuffs
70071730421	H510B	3M™ PELTOR™ Optime™ I Series Neckband Earmuffs
70071730496	H510P3GS/E	3M™ PELTOR™ Optime™ I Series Helmet Attach Earmuffs
Accessories – Helmet Adaptors/Backplates		
UU010853503	Z3GS/2 (25mm)	Helmet Adapter for 3M™ Scott Safety Helmets and 3M™ Scott Safety Visor Range
XL001642468	Z3E/2 (30mm)	Helmet Adapter for Common Helmets
XL001642484	Z3G/2 (25mm)	Helmet Adapter for 3M™ Visor Range
XA007702625	Z3AF/2	Helmet Adapter for 3M™ Versaflo M-Series Head Top
Accessories – Hygiene		
XA007707574	HYX1	3M™ PELTOR™ HYX1 Hygiene Kit (cushion and foam liner)
XH001651351	HY100A	3M™ PELTOR™ HY100A Clean Hygiene Pad
3M™ E-A-Rfit™ Dual-Ear Validation System – Probe		
70071691136	393-3005-2	3M™ PELTOR™ Earmuff Probed Test Cushion B

E-A-Rfit™ VALIDATION SYSTEM

Testable with the 3M™ E-A-Rfit™ Dual-Ear Validation System. Visit www.3m.com.au/earfit

WARNING!
These hearing protectors help reduce exposure to hazardous noise and other loud sounds. Misuse or failure to wear hearing protectors at all times that you are exposed to noise may result in hearing loss or injury. For proper use, see supervisor, User Instructions, or call 3M TechAssist Helpline 1800 024 464.

Always ensure the hearing protection device (HPD) is:
- Suitable for the application;
- Fitted correctly;
- Worn during all periods of exposure;
- Replaced when necessary.

Important Notice: To the extent permitted by law, 3M shall not be liable for any loss or damage including any loss of business, loss of profits, or for any indirect, special, incidental or consequential loss or damage arising from reliance upon any information herein provided by 3M. Nothing in this statement will be deemed to exclude or restrict 3M's liability for death or personal injury arising from its negligence.

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