3M Science. Applied to Life.™

Testable with the
3M™ E-A-Rfit™ Validation System

3M™ Tri-Flange™ Reusable Earplugs

Technical Data Sheet

Product description

3M™ Tri-Flange™ corded reusable earplugs features a proven, triple-flange design and pliable, premolded material to provide clean and comfortable hearing protection. Fits flexibly in most ear canals.

Features

- Vinyl or cloth cord connects earplugs.
- Triple-flanged, premolded design
- Livewire stem fused with flanges looks cool, inserts easily and fits comfortably.
- Washable and reusable.
- SLC_{80} 19dB (Class 3).

Applications

The 3M™ Tri-flange™ earplugs are ideal for a wide range of industrial workplace and leisure environments.

Examples of typical applications include:

- Automotive
- Chemical & pharmaceutical manufacture
- Construction
- Heavy engineering
- Metal processing
- Textile manufacture
- Woodworking

Standards

These hearing protectors have been produced to comply with the requirements of the Australian /New Zealand Standard AS/NZS 1270:2002.

Laboratory Attenuation Values

Frequency (Hz)	125	250	500	1000	2000	4000	8000
Mean (dB)	22.5	22.0	22.9	26.4	30.6	33.3	36.7
SD (dB)	9.5	10.2	9.5	9.3	8.0	11.7	10.5
Mean - SD (dB)	13.0	11.8	13.4	17.1	22.6	21.6	26.2

SLC_{80} 19dB (Class 3)

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.

Hearing protector Class 3 tested to AS/NZS 1270. When selected, used and m aintained as specified in AS/NZS 1269, this protector may be used in noise 95 dB(A) to less than 100dB(A), assuming an 85dB(A) criterion.

A lower criterion may require a higher protector class.

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
SLC80 = 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 SLC80 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.

Materials

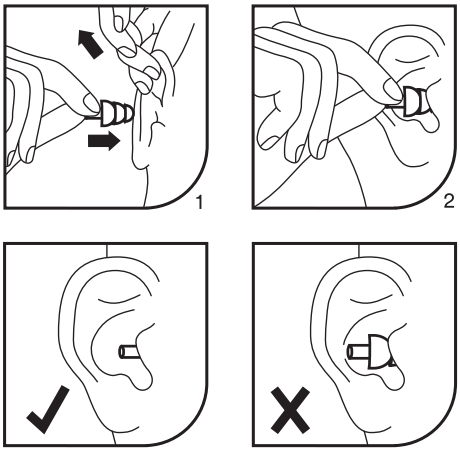
The following materials are used in the manufacture of this product.

Component	Material
Earplugs	Polyurethane Foam
Cord	PVC or Cotton

Fitting Instructions

Always fit your ear plugs before entering a noise hazard area. To properly insert push-to-fit earplugs, follow the traditional method of using 2 hands, one to pull on the outer ear to help straighten the ear canal and the other to push the earplug into the ear. Before fitting inspect the product to ensure that it is not torn or damaged. Ensure hair and jewellery do not interfere with fitting. See Figures 1-2.

1. Insert rounded earplug tip into ear canal while pulling ear outward and upward with opposite hand. (Fig. 1)
2. Hold pressure on stem for a few seconds while inserting. If needed, push stem from a different direction to make insertion easier. (Fig. 2)
3. The entire earplug tip should be inside the ear canal.
4. To check fit pull earplug stem gently. Earplug should not come out of the ear easily. If it does, remove earplug and repeat fitting.



Fit Check

When ear plugs are correctly inserted your own voice should sound hollow and sounds around you should not sound as loud as before. Listen to steady loud sound with earplugs in both ears. Cover ears with tightly cupped hands. Noise should sound about the same whether or not ears are covered. Re-check the fit often during wear time. If earplugs become loose the actual protection obtained may be significantly reduced. To re-fit follow steps 1-3 above.

If you cannot obtain a good fit, try a different size or type of hearing protector. If you are unable to fit these earplugs correctly and comfortably in both ears, contact your safety officer or 3M for further advice.

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.

Storage

- Store in area free of contamination
- Storage Temperature must be kept between -20°C and 40°C.
- Storage humidity <85% RH
- Product must be stored in original packaging.
- Regardless of storage history, always inspect hearing protectors before use and discard immediately if worn or damaged.

Shelf-Life

- 3M™ hearing protector product lifetimes assume the above storage conditions are met.
- Product lifetime = 5 years from date of manufacture as printed on the product packaging.

NOTE: Some locations may have regulations that include specific product lifetime requirements for hearing protectors, which should take precedence over these 3M™ recommendations if they are more restrictive.

Ordering Information

3M Order Code	Model #	Description
70071515723	P3000	3M™ Tri-Flange™ Corded
70071515715	P3001	3M™ Tri-Flange™ Cloth Corded
3M™ E-A-Rfit™ Dual-Ear Validation System - Probe		
70071647740	393-2011-50	3M™ Tri-Flange™ Probed Test Plug

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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