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# 3M™ E-A-R™ Switch Protection Earplugs 370-1047

Technical Data Sheet

## Product description

The 3M™ E-A-R™ Switch Protection Earplugs 370-1047 are designed for insertion into the ear canal to help reduce exposure to hazardous noise including steady state and peak impulse.

The product features a special acoustic filter that lets lower level of sound through with little noise reduction for greater situational awareness (Awareness Mode) and at the same time offer protection against high levels of peak impulse noise.

The product works in two distinctive modes; Awareness mode and Normal Protection mode.

In the normal Protection mode, the product offers higher level of protection against continuous noise compared against Awareness mode. To use it in Awareness mode simply press the rocker switch marked with 'CAE' and to use it in the Normal Protection mode press the rocker switch marked with '3M'.

The product can be easily switched between the two modes to help adapt to the workplace needs whilst the earplugs are seated inside the ear canal.

The product is supplied ready assembled fitted with medium size ear tips but also includes a pair of each of the three different size ear tips (small, medium and large) for better fit.

Each pair of plugs are differentiated between the left ear and right ear by means of the letter "L" and "R" moulded on the flexible retainer respectively to ensure correct fitting.

The soft flexible retainer helps ensure the ear plug remain firmly in the ear canal.

The product is supplied with convenient storage case and a bright coloured connecting cord to prevent loss of ear plugs.

## Market segments

The 3M™ E-A-R™ Switch Protection Earplugs are ideally suited where the required level of attenuation ranges between 15 dB and 28 dB SNR for continuous noise level. These products are specially designed for greater situational awareness in a dynamic workplace environment. Typical segments include:

- Metal processing
- Construction
- Textile manufacture
- Automotive
- Chemical & pharmaceutical
- Hunting and shooting
- Transportation


## Key features

- Specially designed soft retainer helps ensure the ear plug remains seated inside the ear canal.
- Rocker assembly featuring the patented acoustic filter for protection against high level of peak impulse noise.
- Made from soft and durable material.
- Supplied with three different size ear tips for best individual fit.
- Can be used against peak impulse noise up to 160dB peak.
- Easy to wash and clean.
- Supplied in a durable storage case featuring a convenient metal chain.
- Supplied with a soft polyester cord as standard.

## Approvals

The 3M™ E-A-R™ Switch Protection Earplugs are tested and CE approved against EN352-2:2002. The product has also been tested for peak noise reduction at the Institute of Saint Lois (ISL) in France against an internal test protocol developed by ISL.

Full subjective attenuation measurements have been carried out in both in Awareness and Normal Protection mode.

## Materials

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

***Ear tip:*** TPE (Krayton Polymer)

***Mechanical Filter:*** POM (Acetal)

***Rigid Post (connecting ear tip to filter housing):*** ABS (Acrylonitrile Butadiene Styrene)

***Housing:*** PA (Polyamide)

***Rocker Switch:*** POM (Acetal)

***Flexible Retainer:*** VMQ (Silicone)

***Connecting cord:*** PET (Polyester)

## Nominal size designation (mm):

- 6 (smallest fitted) and 12 (largest fitted) – when used with medium size ear tips
- 6 (smallest fitted) and 11 (largest fitted) – when used with small size ear tips
- 8 (smallest fitted) and 14 (largest fitted) – when used with large size ear tips

## Subjective attenuation data in normal protection mode

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|---|---|---|---|---|---|---|---|
| Mf (dB) | 28.3 | 27.9 | 26.8 | 28.3 | 27.2 | 31.5 | 33.0 | 39.2 |
| sf (dB) | 5.8 | 4.3 | 4.4 | 3.4 | 4.0 | 4.4 | 2.3 | 4.9 |
| APVf (dB) | 22.5 | 23.6 | 22.4 | 24.9 | 23.2 | 27.1 | 30.7 | 34.3 |

SNR = 28dB H = 28dB M = 25dB L = 24dB APVf = Mf – sf

## Subjective attenuation data in awareness mode

| Frequency (Hz) | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|---|---|---|---|---|---|---|---|
| Mf (dB) | 5.7 | 5.8 | 7.9 | 10.1 | 17.3 | 23.9 | 23.3 | 28.3 |
| sf (dB) | 2.5 | 2.8 | 3.1 | 2.3 | 2.6 | 3.4 | 2.7 | 5.4 |
| APVf (dB) | 3.2 | 3.0 | 4.8 | 7.8 | 14.7 | 20.5 | 20.6 | 22.9 |

SNR = 16dB H = 20dB M = 12dB L = 7dB APVf = Mf – sf

Mf = mean attenuation, Sf = standard deviation, APVf = assumed protection value

## Peak noise reduction values in Awareness mode as determined by the Institute of Saint-Louis (ISL) Laboratory, France.

| External Peak Level (dB) | 110 | 130 | 150 | 170 | 190 |
|---|---|---|---|---|---|
| Peak noise reduction (dB) | 4.8 | 13.9 | 17.0 | 23.5 | 30.2 |
| Standard deviation (dB) | 1.8 | 0.4 | 0.5 | 0.6 | 0.7 |

## Warning/limitation

When exposed to impulse sounds, the severity of exposure is influenced by the overall peak level of impulse noise, as well as the number of events and other variables. Proper selection, fit, use and maintenance of the hearing protector is very important. All of these factors make it difficult to predict the required and/or actual protection obtained. Regardless of the hearing protector being worn, the user should be alert to his or her own hearing. If during or after exposure, tinnitus (ringing or buzzing in the ears) is heard or the user's hearing seems muffled or dulled, or for any other reason the user suspects a hearing problem, the fit, condition or adequacy of the hearing protector should be carefully checked and/or a more protective device or combination of devices (such as ear muffs and ear plugs together) should be worn. For those exposed to high peak noise on a regular basis, periodic hearing evaluations are advised.

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## Important notice

The use of the 3M product described within this document assumes that the user has previous experience of this type of product and that it will be used by a competent professional. Before any use of this product it is recommended to complete some trials to validate the performance of the product within its expected application.

All information and specification details contained within this document are inherent to this specific 3M product and would not be applied to other products or environment. Any action or usage of this product made in violation of this document is at the risk of the user.

Compliance to the information and specification relative to the 3M product contained within this document does not exempt the user from compliance with additional guidelines (safety rules, procedures). Compliance to operational requirements especially in respect to the environment and usage of tools with this product must be observed. The 3M group (which cannot verify or control those elements) would not be held responsible for the consequences of any violation of these rules which remain external to its decision and control.

Warranty conditions for 3M products are determined with the sales contract documents and with the mandatory and applicable clause, excluding any other warranty or compensation.

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