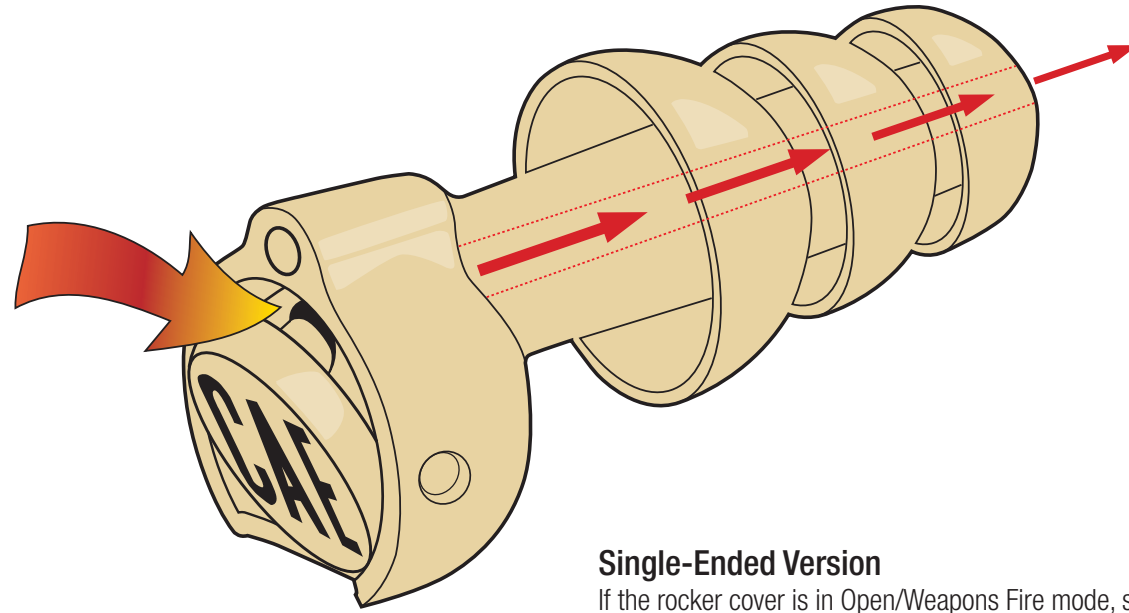


Explanation of the Hear-Through™ Protection Utilized by the Combat Arms™ Earplugs

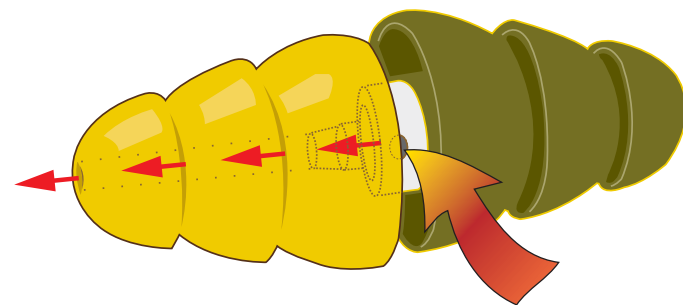


Single-Ended Version

If the rocker cover is in Open/Weapons Fire mode, sound travels into the earplug and down the sound channel to the special filter. The filter allows lower-level sounds to pass with limited interruption but high-level impulsive noises are restricted. The more intense the impulse, the more it is limited.

Dual-Ended Version

Sound travels into the opening at the middle of the earplug and down the sound channel to the special filter. The filter allows lower-level sounds to pass with limited interruption but high-level impulsive noises are restricted. The more intense the impulse, the more it is limited.



Single-Ended Combat Arms™

| Product Code | NSN # | Description | Minimum Purchase Info | Case Quantity | Case Dimensions L x W x H (in.) | Case Wt. (lbs.) | NRR (Open) | NRR (Closed) |
|--------------|------------------|----------------------------|-----------------------|---------------|---------------------------------|-----------------|------------|--------------|
| 370-1030 | 6515-01-576-8837 | Single-Ended CAE (small) | 1 Case | 50 pair | 7.725 x 6.50 x 9.25 | 1.39 | 7 dB | 23 dB |
| 370-1031 | 6515-01-576-8861 | Single-Ended CAE (regular) | 1 Case | 50 pair | 7.725 x 6.50 x 9.25 | 1.39 | 7 dB | 23 dB |
| 370-1032 | 6515-01-576-8869 | Single-Ended CAE (large) | 1 Case | 50 pair | 7.725 x 6.50 x 9.25 | 1.41 | 7 dB | 23 dB |

ATTENUATION DATA (ANSI S3.19-1974)

Single-Ended Combat Arms - Open/Weapons Fire mode

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | NRR | CSA CLASS |
|-----------------------|-----|-----|------|------|------|------|------|------|------|-----|-----------|
| Mean Attenuation dB | 4.1 | 4.5 | 11.0 | 18.7 | 24.9 | 29.8 | 25.8 | 18.7 | 26.5 | 7 | C |
| Standard Deviation dB | 2.7 | 2.8 | 3.9 | 3.2 | 3.3 | 2.7 | 3.3 | 3.6 | 3.3 | | |

Single-Ended Combat Arms - Closed/Constant Protection mode

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | NRR | CSA CLASS |
|-----------------------|------|------|------|------|------|------|------|------|------|-----|-----------|
| Mean Attenuation dB | 30.3 | 28.7 | 32.2 | 31.9 | 31.7 | 38.0 | 35.1 | 31.9 | 37.8 | 23 | BL |
| Standard Deviation dB | 3.4 | 3.9 | 3.4 | 3.8 | 3.0 | 4.4 | 4.8 | 5.4 | 4.3 | | |

Dual-Ended Combat Arms™

| Product Code | NSN # | Description | Minimum Purchase Info | Case Quantity | Case Dimensions L x W x H (in.) | Case Wt. (lbs.) | NRR (Green End) | NRR (Yellow End) |
|--------------|------------------|-------------------|-----------------------|----------------|---------------------------------|-----------------|-----------------|------------------|
| 370-1000 | 6515-01-466-2710 | Bulk CAE Dual-End | 1 Case | 50 pair | 6.75 x 6.50 x 5.25 | 0.48 | 22 dB | 0 dB |
| 370-1011 | Not Applicable | CAE Blister Pack | 1 Case | 10 blister pks | 8.25 x 6.00 x 8.00 | 1.98 | 22 dB | 0 dB |

ATTENUATION DATA (ANSI S3.19-1974)

Dual-Ended Combat Arms - Weapons Fire mode (yellow end)

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | NRR | CSA CLASS |
|-----------------------|-----|-----|-----|------|------|------|------|------|------|-----|-----------|
| Mean Attenuation dB | 4.7 | 4.2 | 6.0 | 9.5 | 16.7 | 18.6 | 16.3 | 16.7 | 17.2 | 0 | None |
| Standard Deviation dB | 4.0 | 4.3 | 5.0 | 6.7 | 4.9 | 5.7 | 5.8 | 6.1 | 6.8 | | |

Dual-Ended Combat Arms - Constant Protection mode (green end)

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | NRR | CSA CLASS |
|-----------------------|------|------|------|------|------|------|------|------|------|-----|-----------|
| Mean Attenuation dB | 32.7 | 31.8 | 33.0 | 32.0 | 34.5 | 37.3 | 38.9 | 43.8 | 43.3 | 22 | AL |
| Standard Deviation dB | 5.9 | 6.1 | 6.5 | 5.5 | 4.1 | 5.3 | 6.1 | 6.7 | 6.9 | | |



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Technical Assistance: 1-800-243-4630
Website: www.3M.com/OccSafety



Combat Arms Earplugs

Patented Dual-Protection Design

3M™ Combat Arms™ Earplugs (CAE) meet the demanding hearing protection needs of the armed forces. In the Open/Weapons Fire mode, CAE allows greater situational awareness than a common foam earplug yet protects against dangerous peak levels with a filter element that reacts instantaneously to provide increased protection. In the Closed/Constant Protection mode, CAE protects against high-level steady noises like those in tracked vehicles and air transport. The corded version of the Combat Arms utilizes a new finger-touch rocker cover that can be operated while the earplug is in the ear.



Designed for Combat

Designed to Meet the Unique Demands of the Armed Forces

The level-dependent technology used in the earplug (and the earplug itself) has been tested on human subjects and found to be protective at 190 dBp for at least 100 exposures (sufficient to cover the loudest weapons in the military inventory, including shoulder-fired rockets). The earplug sizing options for the single-ended Combat Arms™ accommodate 98% of the adult population's earcanals for proper fit. There is a 100% product testing protocol for impedance characteristics. Combat Arms earplugs do not require batteries and include convenient retention cords. The single-sided versions feature an in-ear switching mechanism for the user to toggle between impulse noise and steady state noise hazards (23 dB NRR in the Constand Protection mode).

Single-Ended Combat Arms™ Earplugs

- Deployed in recent Rapid Fielding Initiatives
- Designed to allow wearer to hear low-level sounds
- High-impulse noise attenuated quickly
- Three sizes of triple-flange-design fits most earcanals
- Comfortable and reusable
- No batteries required

Small tip NSN #: 6515-01-576-8837



Large tip NSN #: 6515-01-576-8869

Dual-Ended Combat Arms™ Earplugs

- Original patented dual-protection design
- Designed to allow wearer to hear low-level sounds
- High-impulse noise attenuated quickly
- Premolded triple-flange-design fits most earcanals
- Comfortable and reusable
- No batteries required



Uncorded dual-ended version.
Optional cord available.
NSN #: 6515-01-466-2710

Regular tip NSN #: 6515-01-576-8861



Patented Dual-Protection Design

Open/Weapons Fire Mode: this earplug's patented design gives wearers a better ability to hear low-level sounds critical to mission safety – conversation, footsteps, rifle bolts. When needed, the plug's filter provides attenuation of high level noises like weapons fire and explosions.

Closed/Constant Protection Mode: for attenuation of constant noise (aircraft, armored vehicles, etc.) without hear-through.

FAQ

FREQUENTLY ASKED QUESTIONS ABOUT THE (single-ended) COMBAT ARMS™ EARPLUGS

When is the Combat Arms Earplug (CAE) in the Weapons Fire mode and when is it in the Constant Protection mode?
When the rocker cover exposes the hole, you are in the Weapons Fire mode. In the closed position, the earplug is in the Constant Protection mode.

When do I set the rocker cover for either Open/Weapons Fire or Closed/Constant Protection?
If you are firing a weapon (in training or in combat) and you have to maintain situational awareness and hear verbal communication, set the rocker cover in the Open/Weapons Fire mode. For steady/continuous noise, like in a helicopter or tracked vehicle, set the rocker cover in the Closed/Constant Protection mode. You will be protected from weapons fire in either mode, but only from steady/continuous noise in the Closed mode.

How does the CAE protect my hearing from weapons fire or explosions in the Open/Weapons Fire mode?
The blast energy (impulse noise) must pass through two calibrated holes that filter the more hazardous sound energy. Think of the reduction of this sound energy as sound friction which increases as the impulse noise becomes louder. Meanwhile, lower level sounds like conversation get through the filter relatively unchanged.

How protective is the CAE in the Open/Weapons Fire mode?
When properly inserted, Army studies found the plug protective for impulse noise (weapons fire and explosions) up to 193 dBp. That covers the loudest weapons in the inventory at the firer's position.

Why does weapons fire sound louder in the Open/Weapons Fire mode than the Closed/Constant Protection mode?
More low-frequency sound energy, which is not as hazardous to hearing as high-frequency sound, gets through in the Open position.

How do I determine the correct size?
It is essential that someone with the appropriate training fits you with the correct size. Sizes are color-coded – small (olive drab), medium (tan) and large (brown). An ear gage will provide an approximation of the correct size, but the insertion of a trial earplug is needed to confirm. A recommended sizing distribution for a military population would be 25% small, 60% medium and 15% large. Approximately 1% will require a different size in each ear. There will be a shift toward the smaller sizes for females, African Americans and younger personnel. Conversely, there is a shift toward the larger sizes for Caucasian males.

As long as it stays in my ear, will any size work? What's the problem if the size is a little off?
You want these earplugs to be tough on noise, not your ears. For you own comfort and maximum protection, you want the size that fits best. The correct size also keeps the ear sealed without having to constantly reinsert the plug.

How do I insert the earplug properly and know when it is in correctly?
Reach behind your head and pull your ear out to straighten the earcanal; insert the earplug with your free hand. Gently tug on the earplug for a required tension. Your own voice will also sound low-toned, muffled even more so in the Closed mode. If the plugs do not appear to be blocking any sound, try again to reinsert them. If they still do not appear to be working, have a person trained in earplug fitting recheck you for the correct size. Remember, if you don't have them in correctly, you might as well not have them in at all.

What is the best way to clean the earplug?
Use plain soap and water only, no harsh chemicals or detergents. Ensure the soap is thoroughly rinsed off so no holes are clogged. For best results, separate the plug from the plastic housing and clean the plug separately.

How do I know when to replace the Combat Arms earplug?
Replace if the plug flanges become torn, harden or cannot be cleaned, or if the plastic housing is damaged.

How should I store the earplug?
When not in use, keep in the plastic case provided or tie the cords to the helmet webbing for quick access.

Can I remove the cord?
Yes, it just snaps off. Note: the cord cannot be re-attached.

Are any other modifications to the CAE recommended?
None are recommended. Any other modifications could degrade the ability of the earplug to protect you from hazardous noise and/or interfere with your ability to maintain situational awareness and hear verbal communications.