

Hearing Protection

It is estimated that approximately 30 million people in the U.S. are occupationally exposed to hazardous noise levels. One of the most common methods for minimizing worker exposure to these hazardous noise levels is the use of hearing protection. A wide variety of hearing protection is available, each with its own unique set of advantages and disadvantages. The most common types selected are described below.

OSHA sets limits on noise exposure in the workplace. These limits are based on a worker's time weighted average over an 8 hour day. With noise, OSHA's permissible exposure limit (PEL) is 90 dBA for all workers for an 8 hour day. The OSHA standard 29CFR 1910.95 uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half.

Noise Reduction Rating (NRR)

Hearing Protection is rated in NRR or Noise Reduction Rating. This is listed in dB, and is the maximum level of sound reduction the hearing protection will offer when worn.

Decibel Level (dB)	Example of Noise Level
140	Rifle Fire 1 Meter Away
120	Sports Game Crowd Noise
100	Chain Saw
90	Drilling Concrete, Leaf Blower
80	Vacuum Cleaner
50	Floor Fan

Foam Earplugs:

These are the most common type of hearing protection. They are usually made of a PVC (polyvinyl chloride) or PU (polyurethane) foam. Disposable earplugs are compressed or rolled down prior to insertion, and then slowly re-expand to fill the ear canal. These earplugs are usually available with or without a pre-attached cord and are usually a "one size fits all". These types of earplug are for single use, and are not intended to be cleaned or reused. The NRR for foam ear plugs ranges from 26 to 34dB.



Flanged Ear Plugs:

Made of flexible material, such as silicone, and tapered to fit the ear canal. Flanged ear plugs are intended to be reused and can be cleaned using soap and water. Available either corded or un-corded. While these are more durable than disposable earplugs, they typically have a lower NRR. Both reusable and disposable earplugs are small enough to be used with any other head/face/eye protective equipment, such as hard hats, face shields, or safety glasses. The NRR for flanged ear plugs ranges from 26 to 33dB.

Ear Muffs:

Rigid cups with soft cushions seal around the ears to block noise. Typically an earmuff with a higher NRR tends to be bulkier (larger cups with more sound-reducing insulation) than an earmuff with a lower NRR. Earmuffs are usually constructed of plastic materials (these are called dielectric and are ideal for work around electrical hazards) or a combination of metal and plastic for added durability. The three common designs of earmuffs are: over the head, cap mounted and behind the neck. Cap-mounted earmuffs are designed to mount directly to most hard hats with side-accessory slots. Behind-the-neck style can be used while wearing a hard hat or face shield. The NRR for ear muffs ranges from 17 to 30dB. To improve jobsite communications in a high noise environment, ear muffs may include radio or communications interface options, auto attenuation and sound amplification.



Information sources include OSHA/ANSI, 3M, North by Honeywell and W.W. Grainger

If you are still having difficulty choosing Hearing Protection
please contact us at askzoro@zoro.com or 855-289-9676

Product Compliance and Suitability.

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