

Industrial **Hearing Protection** and **Communication Systems**



*Because every life has a **purpose...***

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The most recent head protection standard, ANSI/ISEA Z89.1-2014, states that an accessory/component manufacturer is responsible to prove their products do not cause another manufacturer's helmet to fail:

"The entity claiming that an accessory or replacement component, when installed, does not cause the helmet to fail the requirements of this standard is responsible for providing justification upon request."

If you choose to wear hearing protectors other than an MSA brand on an MSA helmet, be sure to check with the product's manufacturer for ANSI/ISEA Z89.1 test results showing compliance for their products and MSA helmets when tested together.

Industrial Hearing Protection and Communication Systems





MSA has an impressive line of passive and electronic hearing protection and communication system products for nearly every industrial application. In fact, MSA offers what customers want most: economical options, cutting-edge technology, quality and outstanding performance.



Helmet Mounted, Passive

SoundControl® Classic Hearing Protection

MSA SoundControl Classic hearing protection offers four helmet-mounted options for MSA caps and full brim hats. The classic line offers lightweight, low-profile cups with various protection levels for low to loud noise worksites.

Classification:	Slotted Helmet-Mounted, Passive
Markets:	General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, mining
Applications:	Confined space, sanding/grinding, power tool use, occupations with non-impulse noise, demolition, assembly
Compatible PPE:	V-Gard® Slotted and Universal Frames – no additional parts needed Most V-Gard Visors MSA Slotted Helmets (cap or full brim, as indicated)
Standards:	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	SoundControl HPE	10061272	27 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • Excellent protection against low-frequency noises, such as road vehicles, aircraft or wind turbines • Easy to adjust cups – even with gloves on • Spring arm design provides proper closure and low pressure
	SoundControl EXC	10061230	25 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • Provide excellent attenuation and maximum ear space • Three distinct wearing positions
	SoundControl XLS	10061535	23 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • Easy to remove ear cushions for quick replacement
	SoundControl SH	10129327	25 dBA	<ul style="list-style-type: none"> • For use with MSA slotted full brim helmets • Does not interfere with Class E rating of MSA Slotted Full Brim Helmets • Three wearing positions

	Product Name	Part No.	Product Features
	HPE Hygiene Kit	10061291	<ul style="list-style-type: none"> • Foam cushions and inserts • Works with Classic hearing protection helmet-mounted or headband products
	EXC Hygiene Kit	10061292	
	XLS Hygiene Kit	10061537	



Helmet Mounted, Passive




Low Frequency Noise (LFN, 20–200 Hz) in work environments is the irritating, throbbing “background noise” emitted from sources such as road vehicles, aircraft, and ventilation or air conditioning units.

Poor worksite acoustics, coupled with a multitude of LFN sources, creates adverse health effects such as headaches, unusual tiredness, lack of concentration, irritation, and reduced work output¹. Reduce effects of these by selecting hearing protection designed to eliminate LFN.

Classification:	Non-Slotted Helmet-Mounted, Passive
Markets:	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, shipbuilding, mining
Applications:	High-noise environments, industrial plants, construction sites
Compatible PPE:	V-Gard Universal Frames – no additional parts needed Most V-Gard Visors MSA Non-Slotted Helmets (cap or full brim, as indicated)
Standards:	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	Sound Blocker™ 26	10022021	26 dBA	<ul style="list-style-type: none"> • For use with MSA non-slotted caps • Requires drilling into the helmet to mount the muffs • The ANSI/ISEA Z89.1 class rating of a drilled helmet is Class C
	Soprano™	10034487	25 dBA	<ul style="list-style-type: none"> • For use with MSA non-slotted full brim hats • Requires drilling into the helmet to mount the muffs • The ANSI/ISEA Z89.1 class rating of a drilled helmet is Class C

	Product Name	Part No.	Product Features
	SoundBlocker 26 Hygiene Kit	10003360	<ul style="list-style-type: none"> • Foam cushions and inserts



The Noise Reduction Rating (NRR) describes the average sound level reduction (“attenuation”) provided by hearing protectors in a laboratory setting. Because the NRR reflects lab (and perhaps not real-world) usage, the Occupational Safety and Health Administration (OSHA), recommends “de-rating” the NRR to help account for incorrect fit and inconsistent wear time on worksites. OSHA’s methodology for Estimating Hearing Protector Attenuation²:

1. 8-hour Time Weighted Exposure (TWA) = 94 dBA
2. NRR of hearing protector = 31 dBA
3. Subtract 7 dB from the NRR = 31 dB – 7 dB is 24 dB
4. Reduce value by 50% = 12 dB
5. Subtract this value from the TWA = 82 dB (Estimated Protection)
6. Decide if the Estimated Protection works for your environment!

¹Encyclopedia of Environmental Health, “Effects of Low Frequency Noise and Vibrations: Environmental and Occupational Perspectives,” J.O. Nriagu, K.P. Waye, 2011.

²https://www.osha.gov/dts/osta/otm/noise/hcp/attenuation_estimation.html

Helmet Mounted, Passive

left/RIGHT® Passive Hearing Protection

MSA left/RIGHT passive hearing protection offers three helmet-mounted options. MSA left/RIGHT earmuffs are different from any other on the market: the cups are designed to account for the asymmetrical position of each ear on the head. MSA left/RIGHT cups can be adjusted to the angle of the ear, and also independently raised or lowered. MSA left/RIGHT muffs offer a truly personal fit.




Classification: Slotted Helmet-Mounted, Passive


Markets: General industry, manufacturing, repair and maintenance, construction, OGP, forestry, shipbuilding, mining

Applications: Heavy mechanical industries, compression rooms, airports (HIGH)
Utilities, construction, general industry (MEDIUM)
Food manufacturing, automotive, light industry (LOW)

Compatible PPE: V-Gard Slotted and Universal Frames – no additional parts needed
Most V-Gard Visors
MSA Slotted Caps

Standards: Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT (HIGH)	10087422	28 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • For use in high-noise environments, such as paper mills, foundries, mines and airports • Cups are sized and shaped to provide space for most ear sizes
	left/RIGHT (MEDIUM)	10087429	25 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • For use in medium-noise environments, such as oil, gas and petrochemical, forestry and agriculture • Cups are sized and shaped to provide space for most ear sizes
	left/RIGHT (LOW)	10087439	21 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • For use in low-noise environments, such as pharmaceuticals and outside maintenance, where overprotection is a concern

	Product Name	Part No.	Product Features
	left/RIGHT (HIGH) Hygiene Kit	10092880	<ul style="list-style-type: none"> • Cushions and inserts • Works with left/RIGHT passive helmet-mounted or headband products
	left/RIGHT (MEDIUM) Hygiene Kit	10092879	
	left/RIGHT (LOW) Hygiene Kit	10092878	




The pinnae (or auricles) are the external parts of the ear most people are familiar with. Like most paired anatomical structures, your two pinnae differ in shape. They also differ in location, being slightly asymmetrical to each other on both the vertical and horizontal planes of the head.


Helmet Mounted, Electronic

left/RIGHT Electronic Hearing Protection

MSA left/RIGHT electronic hearing protection has three different helmet-mounted options that offer protection, communication and listening pleasure! Like their passive hearing protection counterparts, MSA left/RIGHT electronic cups can be adjusted to the angle of the ear, and also independently raised or lowered. Plus, left/RIGHT electronic muffs offer surface-coated electronics to help protect against impact and damage.

Classification:	Helmet-Mounted, Electronic with FM Radio
Markets:	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
Applications:	Manufacturing/assembly, DIY
Compatible PPE:	V-Gard Slotted and Universal Frames – no additional parts needed Most V-Gard Visors MSA Slotted Caps
Standards:	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT FM Pro	10111829	20 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • FM radio with excellent reception and superior sound quality and balance • Sound levels limited to a safe 82dB • Automatic tuning and volume adjustment via push buttons • Battery save and low battery warning functions • AUX input for MP3 player


	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> • Cushions, distance rings and inserts • Works with left/RIGHT helmet-mounted or headband electronic products




*To maintain the stated sound attenuation performance of your earmuffs, it is important to regularly replace cushions and inserts. Under "normal use," you should replace the hygiene kit **at least** twice per year.*

Helmet Mounted, Electronic

Classification:	Helmet-Mounted, Electronic with CutOff
Markets:	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining
Applications:	Manufacturing/assembly, food processing, high-impulse noise environments (such as steel and shipyards)
Compatible PPE:	V-Gard Slotted and Universal Frames – no additional parts needed V-Gard Visors MSA slotted caps
Standards:	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT CutOff Pro	10111823	20 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • Sound levels limited to a safe 82dB • Enables face to face communication while hearing is protected • Amplifies weak signals through the electronic system • Battery save and low battery warning functions • AUX input for MP3 player


	Product Name	Part No.	Product Features
	left/RIGHT CutOff Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> • Cushions, distance rings and inserts • Works with left/RIGHT helmet-mounted or headband electronic products




Both the Cut-Off Pro and the Dual Pro offer a level-dependent feature that allows the user to hear ambient sounds. Excess sound is compressed, not blocked, to a safe noise level of 82 dBA maximum. Additionally, low-level sounds are amplified so that face-to-face communication is possible—even while wearing hearing protection!

Helmet Mounted, Electronic

Classification:	Helmet-Mounted, Electronic , FM Radio & CutOff Combination
Markets:	General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
Applications:	Manufacturing/assembly, high-impulse noise environments (such as steelworking)
Compatible PPE:	V-Gard Slotted and Universal Frames – no additional parts needed V-Gard Visors MSA Slotted Caps
Standards:	Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT Dual Pro	10111832	20 dBA	<ul style="list-style-type: none"> • For use with MSA slotted caps • FM radio with excellent reception and superior sound quality • Speaker audio is limited to a safe 82dB • Enables face to face communication while hearing is protected • Level-dependent function allows users to hear ambient sounds (like warning signals and moving vehicles) • Requires two 1.5V AA/LR6 batteries; ~300 operating hours • Low battery warning signal • AUX input for MP3 player

	Product Name	Part No.	Product Features
	left/RIGHT Dual Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> • Cushions, distance rings and inserts • Works with left/RIGHT helmet-mounted or headband electronic products





Unprotected hearing at sustained noise levels between 90-95 db can cause permanent hearing loss. But, even short term exposure at 140dB with hearing protection could cause such damage. For a guide of noise levels vs. MSA protector you need, please see the Attenuation Chart. Keep in mind that labeled noise reduction values are based on laboratory tests. To ensure protection, those wearing hearing protectors for occupational exposures must be enrolled in a worksite hearing conservation program.

Headband, Passive

Economuff Value Hearing Protection

MSA Economuff Value hearing protection offers two headband options. Economuff hearing protectors provide cost-effective options that don't sacrifice comfort or protection.

Classification:	Headband, Passive
Markets:	Repair and operation (MRO), mining, food and beverage manufacturing, metalfabrication, oil & gas, general manufacturing
Applications:	Facility maintenance, grinding, machine operations, sanding, welding, demolition, painting, assembly, cleaning
Compatible PPE:	MSA Helmets ¹
Standards:	Meets ANSI S3.19-1974 and CSA Class B Standards

	Product Name	Part No.	NRR	Product Features
	Economuff Multi-Position	10061273	23 dBA (under chin/ behind head) 24 dBA (over the head)	<ul style="list-style-type: none"> • Offers three positions: under the chin, behind the head or over the head • Under the chin or behind the head positions allow use of head protection • Durable design for use in tough environments • No metal parts • Padded headband makes longer wear possible • One size fits most
	Economuff	10004291	20 dBA	<ul style="list-style-type: none"> • Soft wide cushions maintain comfortable pressure around the ears • Lightweight • One size fits most • No metal parts • Most economical option



*The attenuation of an earmuff depends on the fit of the muff against the head and around the pinnae (i.e., the “tightness” of the seal). Gaps, including those caused by safety glasses, provide an easy path for sound to travel, reducing protection levels. To reduce this effect, try not to put **ANYTHING** under the cup (such as pencils, hair, etc.). But, if you must wear protective eyewear, select either those with a thin strap or a very thin temple. If the gap is noticeable, the protection level is compromised.*



¹Economuff multi-position worn in behind-the-head or under-the-chin positions only.



Headband, Passive

SoundControl Classic Hearing Protection

MSA SoundControl Classic hearing protection offers two headband models, making it easy for safety directors to find the proper attenuation levels for noise in their particular environment. And, just like their helmet—mounted Classic counterparts, these muffs are lightweight and low-profile!

- Classification:** Headband, Passive
- Markets:** General industry, manufacturing, repair and maintenance, construction, oil and gas, forestry, shipbuilding, mining, metal processing, automotive
- Applications:** Confined space, sanding/grinding, power tool use, occupations with non-impulse noise (such as machine operations), demolition, assembly
- Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	SoundControl HPE	10061271	26 dBA	<ul style="list-style-type: none"> • Lightweight, low-profile earmuffs are ideal for a variety of noisy applications • High attenuation and excellent sealing for reliable protection • Headband design and two-point cup mounting distributes weight evenly, offering outstanding balance and comfort • No metal parts • Cups can be moved to a range of wearing positions for a custom fit
	SoundControl EXC	10061229	24 dBA	<ul style="list-style-type: none"> • Unique injection-molded inserts provide excellent attenuation and maximum ear space • Medium attenuation for moderately-high noise exposures • Three distinct wearing position • Cups can be moved to a range of wearing positions for a custom fit




	Product Name	Part No.	Product Features
	HPE Hygiene Kit	10061291	<ul style="list-style-type: none"> • Foam cushions and inserts • Works with Classic helmet-mounted or headband products
	EXC Hygiene Kit	10061292	


Headband, Passive

left/RIGHT Passive Hearing Protection

MSA left/RIGHT passive headband hearing products offer three levels of NRR values ranging from 21 to 28 dBA, making it simple to match the attenuation of the earmuff with the noise exposure of the worker.

- Classification:** Headband, Passive
- Markets:** General industry, manufacturing, repair and maintenance, construction, OGP, forestry, shipbuilding, mining
- Applications:** Heavy mechanical industries, compression rooms, airports (HIGH)
Utilities, construction, general industry (MEDIUM)
Food manufacturing, automotive, light industry (LOW)
- Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT (HIGH)	10087399	28 dBA	<ul style="list-style-type: none"> • For use in high-noise environments, such as paper mills, foundries, mines and airports • Cups are sized and shaped to provide space for most ear sizes
	left/RIGHT (MEDIUM)	10087426	25 dBA	<ul style="list-style-type: none"> • For use in medium-noise environments, such as oil, gas and petrochemical, forestry and agriculture • Cups are sized and shaped to provide space for most ear sizes
	left/RIGHT (LOW)	10087436	21 dBA	<ul style="list-style-type: none"> • For use in low-noise environments, such pharmaceuticals and outside maintenance, where overprotection is a concern


	Product Name	Part No.	Product Features
	left/RIGHT (HIGH) Hygiene Kit	10092880	<ul style="list-style-type: none"> • Cushions and inserts • Works with left/RIGHT passive helmet-mounted or headband products
	left/RIGHT (MEDIUM) Hygiene Kit	10092879	
	left/RIGHT (LOW) Hygiene Kit	10092878	


Headband, Electronic

left/RIGHT Electronic Hearing Protection


There are three different headband models of MSA left/RIGHT electronic hearing protection. Whether you want to listen to soothing music while you work or just reduce the high-noise around you ... or both ... MSA has your product. Like all left/RIGHT products, the cups can be adjusted to meet the angle of the ear, and also independently raised or lowered.


- Classification:** Helmet-Mounted, Electronic with Radio
- Markets:** General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
- Applications:** Manufacturing/assembly, high-impulse noise environments (such as steelworking)
- Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT FM Pro	10108381	22 dBA	<ul style="list-style-type: none"> • FM radio with excellent reception and superior sound quality • Sound levels limited to a safe 82dB • Automatic tuning and volume adjustment via push buttons • Battery save and low battery warning functions • AUX input for MP3 player or communication headset

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> • Cushions, distance rings and inserts • Works with left/RIGHT helmet-mounted or headband electronic product versions


- Classification:** Headband, Electronic with CutOff
- Markets:** General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining
- Applications:** Manufacturing/assembly, food processing, high- and impulse noise environments (such as steel and shipyards)
- Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards


	Product Name	Part No.	NRR	Product Features
	left/RIGHT CutOff Pro	10111789	22 dBA	<ul style="list-style-type: none"> • Sound levels limited to a safe 82 dB • Innovative headband design provides optimal fit and comfort • Enables face to face communication while hearing is protected • Amplifies weak signals through the electronic system • Battery save and low battery warning functions • AUX input for MP3 player or communication headset

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> • Cushions, distance rings and inserts • Works with left/RIGHT helmet-mounted or headband electronic product versions

Headband, Electronic

Classification: Heaband, Electronic , FM Radio & CutOff Combination
Markets: General industry, manufacturing, repair and maintenance, construction, OGP, forestry, mining, agriculture
Applications: Manufacturing/assembly, high-impulse noise environments (such as steelworking)
Standards: Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	left/RIGHT Dual Pro	10108385	22 dBA	<ul style="list-style-type: none"> • FM radio with excellent reception and superior sound quality • Speaker audio is limited to a safe 82 dB • Innovative headband design provides optimal fit and comfort • Enables face-to-face communication while hearing is protected • Level-dependent function allows users to hear ambient sounds (like warning signals and moving vehicles) • Requires two 1.5V AA/LR6 batteries; ~300 operating hours • Low battery warning signal • AUX input for MP3 player or communication headset

	Product Name	Part No.	Product Features
	left/RIGHT FM Pro Hygiene Kit	10094605	<ul style="list-style-type: none"> • Cushions, distance rings and inserts • Works with left/RIGHT helmet-mounted or headband electronic product versions



The EPA requirement (40 CFR 211) specifies that hearing protectors sold in the U.S. must be tested to ANSI S3.19-1974 and labeled with a Noise Reduction Rating (NRR). MSA Hearing Protectors have been tested and labeled according to the EPA requirements. Standards organizations, such as ANSI and CSA, do not approve or certify hearing protectors.

²Occupational Safety and Health Administration (OSHA) "Method for Estimating HPD Attenuation" for dual protection; osha.gov.



³See page 4 for the OSHA recommended de-rating methodology.

Earplugs

SoundControl FormFit II Earplugs

FormFit II earplugs seal the ear canal with tapered, slow-recovery foam. When inserted correctly, FormFit II earplugs provide excellent attenuation. To properly insert earplugs, please see below for instructions.

- Classification:** Earplugs, Foam
- Markets:** Transportation, pharmaceutical, construction, automotive, military, maintenance, repair and operation (MRO), mining, food and beverage manufacturing, metal fabrication, oil & gas, general manufacturing
- Applications:** Facility maintenance, health & safety testing, grinding, electrical, machine operations, sanding, welding, demolition, painting, blasting, assembly, cleaning
- Standards:** Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	FormFit II, Uncorded	10151070	31 dBA	<ul style="list-style-type: none">•Uncorded•Easy-to-roll foam expands for a comfortable, custom fit•Best choice when dual protection is needed•Standard size fits most earcanals•Min Order Qty: 200 pair container
	FormFit II, Corded	10151069	31 dBA	<ul style="list-style-type: none">•Corded to avoid misplacement or loss•Especially useful in food and beverage manufacturing environments•Inserts easily into ear•Standard size fits most earcanals•Min Order Qty: 200 pair container



There's a proper way to insert a formable earplug. Follow these three easy steps:



1. Roll the plug between your thumb and your forefinger until it's thin and long.



2. Pull the top of your pinna back with your opposite hand to straighten your ear canal. Slide the plug into the canal.



3. Hold the plug for a count of 20-30 seconds while it expands. Once the seal is acceptable, sounds will be reduced.

Industrial Communication Systems

Connect-by-Cable

Connect-by-Cable (CbC) products are designed for industrial users working in high noise environments. They offer versatility along with hearing protection, providing clear communication with ambient listening, instant impact noise protection and a noise-canceling flexible microphone. Cable connection is hardwired to the communication radio headset for two-way communication.



Available as a helmet-mounted or headband product that filters harmful noise and amplifies useful sounds, such as alarms and warnings.

Classification: Communication with Cut-off Headset

Markets: Transportation, construction, automotive, maintenance, repair and operation (mro), mining, metal fabrication, oil & gas, general manufacturing

Applications: Heavy equipment operators, airport workers, construction, manufacturing, agricultural, racing

Standards: Meets ANSI S3.19-1974 and CSA Class A Standards

	Product Name	Part No.	NRR	Product Features
	Connect-by-Cable Helmet-Mounted	10064516	23 dBA	<ul style="list-style-type: none"> • Designed for use with MSA slotted caps • Sound level is limited to a safe 82dB • Noise-cancelling lapel boom microphone permits two-way communication with minimal background interference • Operates on 2 AA batteries, integrated into muff • Push-to-Talk (PTT) transmit function (adapter required)
	Connect-by-Cable Headband	10064515	25 dBA	<ul style="list-style-type: none"> • Headband version offers higher attenuation • Soft foam earcushions • Noise canceling lapel boom microphone • Push-to-Talk (PTT) transmit function (adapter required)

Attenuation Chart

The attenuation chart below provides guidance on potential noise and protection levels for various types of work environments. This chart is provided as a tool for guidance in selecting protectors, however, it is not intended to replace a worksite-specific hearing conservation program where hearing protectors are required for occupational noise exposure.

Sound Level (dBA)	Example	Dangerous Unprotected Exposure Time	Suggested MSA Product	Style	NRR (EPA Label) ¹	NRR Reduction ^{2,3}	Derated Protection ^{2,3}	Estimated Protected Exposure ^{2,3}
85	Noise from city traffic	8 hours	Economuff	Headband	20	6.5	13.5	71.5
88	Backhoe	4 hours	left/RIGHT (LOW)	Headband Cap-Mounted	21	7	14	74
91	Home Stereo	2 hours	XLS	Headband Cap-Mounted	23	8	15	76
92	Crane	1.5 hours	Economuff MultiPosition (over the head) EXC	Headband Cap-Mounted	24	8.5	15.5	76.5
93	Bulldozer	1 hour	left/RIGHT (MEDIUM) EXC Soprano SoundControl SH	Headband Cap-Mounted (Slotted) Cap-Mounted (Non-Slotted) Full Brim Mounted (Slotted)	25	9	16	77
94	Front-end loader	1 hour	HPE	Headband Cap-Mounted	27	10	17	77
95	Lawn-mower	45 minutes	SoundBlocker 26	Cap-Mounted (Non-slotted)	26	9.5	16.5	78.5
97	Concrete joint cutter	30 minutes	left/RIGHT (HIGH)	Headband Cap-Mounted	28	10.5	17.5	79.5
100	Heavy equipment operation	15 minutes	Dual Protection ⁴ (FormFit II Uncorded Plugs + any MSA passive hearing protector)	Plugs + one: Cap-Mounted Full Brim Mounted Headband	31	12	23.5	76.5
103	Power saw	7.5 minutes	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82
106	Abrasive blasting	< 4 minutes	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82
109	Jack hammer	< 2 minutes	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82
112	Rock drilling	< 1 minute	Dual Pro Cut-Off Pro	Cap-Mounted Headband	20 22	NA	NA	82



You cannot simply add the NRR levels from a plug and muff to get a “dual protection level.” Rather, properly worn hearing protectors worn together will add 4-5 dB to the higher of the two NRR levels (after the higher number is de-rated²). It's best to wear cordless earplugs in dual protection situations to prevent compromising cup seal.

Keep in mind, dual protection can isolate the wearer, so plugs and muffs should only be worn together where there are extreme noise levels (i.e., where the 8-hour TWA exposure exceeds 100 decibels).

¹ The labeled values of noise reduction are based on laboratory tests. To accurately assess occupational noise levels and understand required hearing protection, please refer to the occupational hearing conservation program at your worksite.

² For details on de-rating stated attenuation levels, please see page 4.

³ Experts indicate that overprotection can occur at protected exposure levels of 70 dBA or lower.

⁴ For details on dual protection, please see above.

MSA—The Safety Company

Our business is safety. We've been the world's leading manufacturer of high-quality safety products since 1914. MSA products may be simple to use and maintain, but they're also highly-sophisticated devices and protective gear — the result of countless R&D hours, relentless testing, and an unwavering commitment to quality that saves lives and protects thousands of men and women each and every day. Many of our most popular products integrate multiple combinations of advanced materials, electronics and mechanical systems to ensure that users around the world remain protected within even the most hazardous of situations.

Our Mission

MSA's mission is to see to it that men and women may work in safety and that they, their families and their communities may live in health throughout the world.

MSA: Because every life has a purpose.

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

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