



Sound i

$$\frac{\partial^2 \psi}{\partial x^2} + \frac{\partial^2 \psi}{\partial y^2}$$

Just close your eyes and you'll hear those waves breaking against the shore. It reaches us in an instant – a primeval sound.

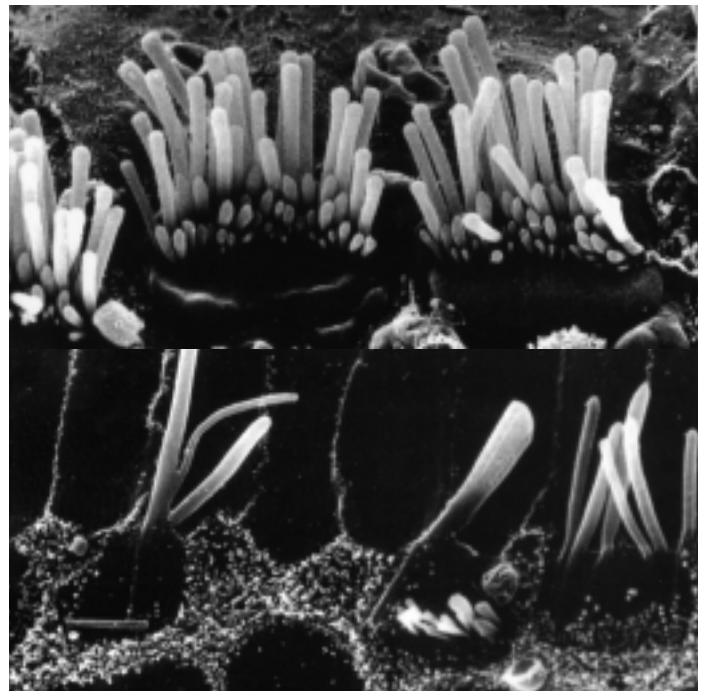
The motion of the waves is a process in time and space, and has many guises – light, gravitation and sound. Sound waves occur when the air is subjected to a disturbance – the vibrations in your vocal chords or the pounding of a stamping press. The waves are transmitted through the air and picked up by the eardrum.

This wave motion can be described mathematically with the help of an equation. As you'll note, wave motion is a complete science. We at Peltor take charge of this science and turn it into practical knowledge: the market's most effective hearing protection.

Destructive waves

Acoustic waves are a fundamental part of your hearing ability – which cuts both ways. The waves are a pre-requisite for the transmission of sound. But if they are not within the ear's "natural" acoustic range, they have a destructive effect.

Located inside your inner ear are the wave specialists: hair cells with their fine hairs. It is these hairs that are set in motion by the sound waves the ear receives. And the higher the sound level, the more the hairs flutter. This motion is converted into nerve impulses that are passed on to the brain. But if the hairs are repeatedly subjected to excessively high doses of sound, they eventually break off. Those that survive only manage to transfer a fraction of the information. The result is impaired hearing.



Always wear Peltor!

s waves

$$+ \frac{\partial^2 \psi}{\partial z^2} = \frac{1}{v^2} \cdot \frac{\partial^2 \psi}{\partial t^2}$$



You only have two

One of five senses. Two ears for a whole life. And a damaged ear cannot be repaired. Noise in the workplace is the most common cause of hearing impairment.

Noise is just like radioactivity – we can only tolerate a limited daily dosage. How harmful the noise is depends on the exposure time in combination with the sound level. Five minutes of carelessness during an eight-hour working day could result in impaired hearing for the rest of your life. Full-time wear is therefore the only way to guarantee protection. Most people are aware of this, but are still careless because they perceive hearing protection as heavy or uncomfortable, or because they can't hear what their colleagues are saying.

But how do you convince people to wear hearing protection all the time? Well, just make it easy to wear!

Practical knowledge. Guaranteed safety.

When it comes to protective equipment, only one thing counts: the pursuit of progress. For more than 50 years, Peltor has specialised in developing and manufacturing hearing protection. Today we are world leaders in that field. Our secret lies in the way we tackle the problem: we start with people. We learn everything about different workplaces and occupational conditions, we listen to young and old, we investigate needs but also find out what could give the working day that little bit extra. Things that are a matter of course, such as safety, security and comfort, are complemented by communication solutions and radio.

Product development is a constant process, and we take into account the latest findings during the course of our work. Peltor also has its own research department, which follows up the entire chain from development to production. All our products are tested in accordance with the EU norms and bear the European CE label of approval. The result is a complete range of hearing care and communication options that offer alternatives for all noise-hazard situations. The choice is yours.



One minute twice a year

Peltor Optime hearing protection lasts a long time. It protects you from hazardous noise and fits well. All it demands in return is a little care. To ensure maximum protection and the best comfort, we ask you to devote one minute of your time twice a year to your hearing protection. The Peltor Optime safety kit contains new sealing rings and muffler pads. These are replaced in a few easy steps – and the holder will be like new again.

Clean HY100A

If you work in a heavily polluted environment or share hearing protection with others, we recommend that you fit the sealing rings with a hygienic, disposable cover. Available in packs of 100 pairs.

Available for helmets, with neck-, head-, and folding band.

Seamless adjustment for a smooth fit to the shape of the head.

The steel in Peltor protection is super strong and maintains a constant and even pressure. Without yielding to heat or cold, your protection will stay in place securely and comfortably, hour after hour, year after year.

Labelling that makes it easy to choose the right hearing protection.

Easy maintenance. Our safety kit includes new sealing rings and muffler pads. Replace twice a year for maximum protection and best comfort.

Broad, soft sealing rings mean a snug fit – even for those who wear glasses.

A unique two-point attachment with individual spring action facilitates even pressure distribution.

Extremely low profile without protruding parts.

We've reduced the size. Despite that, the protection is just as effective, or better, than before.

Peltor Optime

A new standard



As we said, full-time wear is the only guarantee you have. Peltor has made it easy to be consistent by introducing a new generation of hearing protection. Peltor Optime is a range of three models that are clearly graded from one to three – from demanding to extreme. The hearing protection is smaller than it was before, but protects just as well – or better! It's easy to wear and provides proper protection, yet doesn't shut out the world around. By choosing the right protection in relation to your working environment and your own criteria, you can work a full day without even thinking about it.



Headband H510A
Stainless spring steel. Soft padded cushion – comfortable even during long-term use.

OPTIME I

Optime I is very versatile protection, characterised by its lightness. Despite being so lightweight, it's the best imaginable protection. We have combined a low profile with generous inside depth. This makes it easy to team with other equipment and means that the ear rests comfortably. **Optime I** is the natural choice when you need to use all-round protection for both short and long spells. It is first-rate for use in environments with moderate industrial noise, such as workshops, sheet-metal shops and printing works, but can also be used to good effect outdoors, for instance when mowing the lawn or in connection with hobby and leisure activities.



Neckband H510B

Combines with other protective equipment, such as welding shield.



Folding headband H510F

Takes little space in toolbox or pocket. Sealing rings are protected against soiling and damage.



Helmet attachment H510P3

For helmets with slot attachment. The protector can be set in the working, airing or park position.

HY51 Safety kit

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
H510A 180g	Mean att. ³	11.6	18.7	27.5	32.9	33.6	36.1	36.8	32 dB	25 dB	15 dB	27 dB
	Stand. dev. ⁴	4.3	3.6	2.5	2.7	3.4	3.0	3.8				
	APV	7.3	15.1	25.0	30.1	30.2	33.2	32.0				

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
H510B 165g	Mean att. ³	10.9	17.1	25.4	31.5	32.6	36.3	34.8	30 dB	24 dB	15 dB	26 dB
	Stand. dev. ⁴	3.5	2.8	1.8	2.6	4.3	3.4	3.6				
	APV	7.3	14.3	23.6	28.9	28.3	32.9	31.1				

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
H510F 200g	Mean att. ³	12.2	18.7	27.1	32.9	35.0	36.5	34.4	32 dB	25 dB	16 dB	28 dB
	Stand. dev. ⁴	3.4	3.2	3.0	2.1	4.0	2.9	3.9				
	APV	8.7	15.5	24.1	30.8	31.0	33.6	30.6				

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
H510P3* 205g	Mean att. ³	11.2	13.4	26.9	33.9	32.0	33.5	36.9	32 dB	23 dB	15 dB	26 dB
	Stand. dev. ⁴	2.0	1.9	1.8	1.9	2.4	1.8	1.8				
	APV	9.2	11.5	25.1	31.9	29.6	31.7	35.1				



Headband H520A
Seamless height adjustment. Flexible adaptation to size and shape of head.

OPTIME II

Optime II has been developed for demanding noise-hazard environments and muffles even extremely low frequencies to a maximum degree. The sealing rings are filled with a unique combination of liquid and foam. The result is an optimum seal with low contact pressure, which provides snug comfort even during long-time use. The sealing rings have ventilation channels and are covered with soft, patterned, hygienic foil. **Optime II** is a suitable choice for environments with substantial industrial noise or construction machinery, airports and agricultural work.



Neckband H520B

For independent use in conjunction with protective helmet, for example.



Folding headband H520F

Thin and supple headband for combination with headgear. Can easily and quickly be folded out/up.



Helmet attachment H520P3

Slot attachment with quick mounting without tools. Working, airing or park positions. Attachment for visor and rain protection.

HY52 Safety kit

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	14.6	20.2	32.5	39.3	36.4	34.4	40.2				
H520A	Stand. dev. ⁴	1.6	2.5	2.3	2.1	2.4	4.0	2.3				
210 g	APV	13.0	17.7	30.2	37.2	34.0	30.4	37.9	34 dB	29 dB	20 dB	31 dB

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	14.7	20.4	32.3	39.6	36.2	35.4	40.2				
H520B	Stand. dev. ⁴	1.8	2.6	2.5	2.2	2.4	4.2	2.4				
195 g	APV	12.9	17.8	29.8	37.4	33.8	31.2	37.8	34 dB	29 dB	20 dB	31 dB

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	14.5	20.3	32.6	39.1	35.1	34.7	39.8				
H520F	Stand. dev. ⁴	1.8	2.6	2.4	2.5	2.3	2.7	2.5				
230 g	APV	12.7	17.7	30.2	36.6	32.8	32.0	37.3	34 dB	28 dB	20 dB	31 dB

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	14.1	19.4	32.0	39.9	36.2	35.4	39.2				
H520P3*	Stand. dev. ⁴	2.3	2.7	2.7	2.4	2.6	4.4	2.6				
235 g	APV	11.8	16.7	29.3	37.5	33.6	31.0	36.6	34 dB	28 dB	19 dB	30 dB



Broadband Noise:
Broad, soft head cushion
for best comfort even
when worn for long inter-
vals.

Optime III is a super-muff, and has been developed for use in extremely noisy environments. The protection is based on new technology with a double casing that minimises resonance in the holder casing. This results in maximum high-frequency muffling, while at the same time it's still easy to understand speech and signals. An acoustic connection between the inner volume and the volume between the casings in its turn provides maximum low-frequency muffling. The sealing rings are broad and filled with soft plastic foam for the best fit and low contact pressure. Effective protection and best comfort are the hallmarks of **Optime III**.



Optimum shape with no protruding parts.
Thin, adjustable headband for comfortable use.



Helmet combination with slot attachment.
The protector can be set in the working,
airing or park position.

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	17.4	24.7	34.7	41.4	39.3	47.5	42.6				
H540A	Stand. dev. ⁴	2.1	2.6	2.0	2.1	1.5	4.5	2.6				
285 g	APV	15.3	22.1	32.7	39.3	37.8	43.0	40.0	40 dB	32 dB	23 dB	35 dB

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	17.5	24.5	34.5	41.4	39.5	47.3	42.0				
H540B	Stand. dev. ⁴	2.3	2.7	2.0	2.2	2.0	4.4	2.8	40 dB	32 dB	23 dB	35 dB
2750g	ADV	15.2	21.9	32.5	39.2	37.5	42.9	39.2				

Model	Frequency ²	125	250	500	1000	2000	4000	8000	H	M	L	SNR
**	Mean att. ³	17.1	24.5	34.8	40.2	39.6	46.7	43.1				
H540P3*	Stand. dev. ⁴	2.3	2.8	2.2	2.0	1.8	4.2	2.5	40 dB	32 dB	22 dB	34 dB
310g	APV	14.8	21.7	32.6	38.2	37.8	42.5	40.6				

Easy to make the right choice

A common reason for neglecting to use proper hearing protection is that the wrong choice was made in the first place. More sophisticated hearing protection than the situation demands can be perceived as uncomfortable and it becomes unnecessarily difficult to understand speech and signals. But how do you know what's right for you?

The basic rule is that you must always (100% of the time!) wear hearing protection if you are in an environment that has an A-rated noise level of 85 dB. The noise level, in combination with how long you are exposed to it, determines just how damaging this noise-hazard environment is to your ear. For example, 8 hours of exposure to an 85 dB A-rated noise level delivers the same harmful dose as 15 minutes of exposure to a 100 dB A-rated noise level.

High tones, high volume...

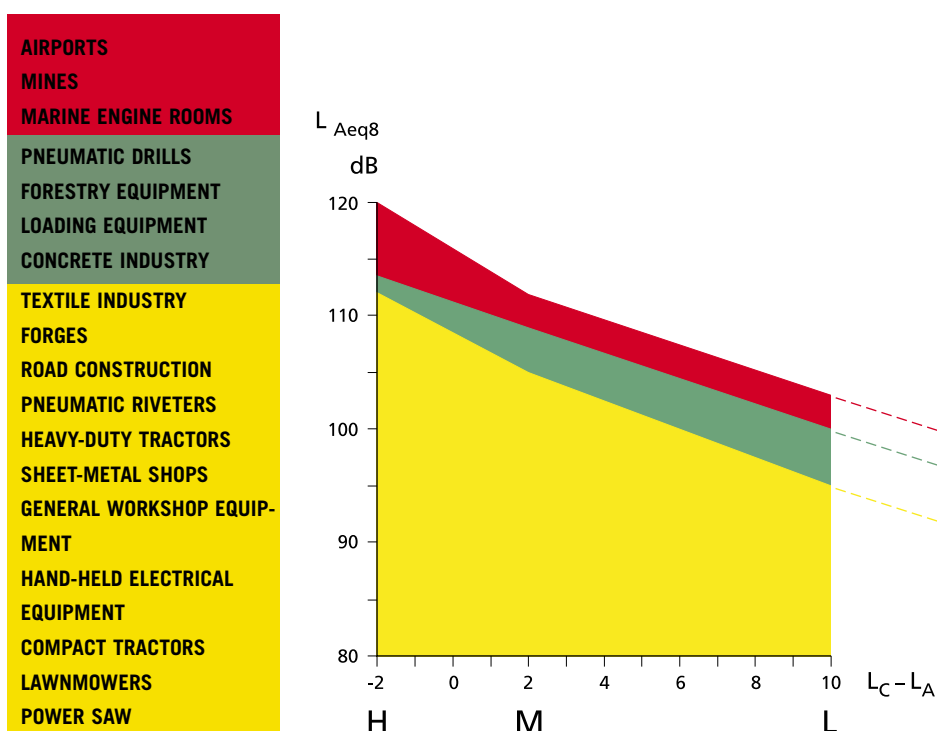
Optime I. Good muffling, especially in the high-frequency range. The nature of this muffling protection permits extremely good communication potential.

+ lower tones and higher volume...

Optime II. Increased muffling, primarily for lower frequencies. This first-rate muffling, which even covers high frequencies, gives suitable protection in most noise-hazard situations.

+ bass tones and extremely high volume

Optime III. Extra noise muffling for both low and high frequencies, intended for particularly high noise levels. This protection meets the most stringent muffling demands.





Preventive tactics –keep an ear to the ground

In order to be able to choose the right hearing protection, it is important that you are familiar with the noise-hazard circumstances of your particular workplace. Apart from the intensity of the noise and the character of its frequency, you should also think about your preferences for muffling sound and the criteria for holding a conversation. Maybe you'd like to equip your hearing protection with a radio or be able to combine it with other equipment?

With the help of a measuring method such as HML (High, Medium, Low), you or your company can gather information on the noise-hazard situation and choose hearing protection that matches up to these demands.

It is important that you choose the right hearing protection for the right noise-hazard situation. A common mistake is to over-muffle, i.e. to choose hearing protection that is more advanced than the situation demands. Then there's the risk you'll remove your hearing protection when you need to talk to colleagues – the result being impaired hearing caused by noise.

Many cases of hearing impairment could have been avoided through better knowledge and by taking preventive measures. An effective way to keep a hearing-protection programme alive and heighten awareness is to provide continual staff training. Peltor offers a complete training programme with self-study booklets and multi-slide presentation on preventive hearing care. You can also order mandatory signboards and checklists from us.

We kept the best!

You already know that the new Peltor Optime is smaller and has better attenuation values. And that we've made several other improvements.

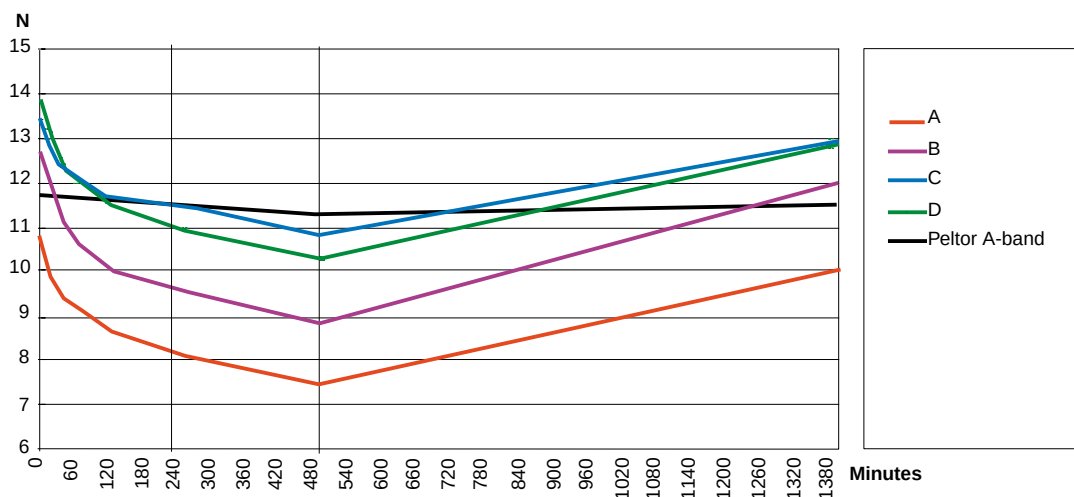
But there's one important detail that we kept: The unique Peltor stainless steel headband. It maintains an even pressure through tough working conditions in both heat and cold.

Peltor hearing protectors have been tested with other companies' hearing protectors – the results are shown in the above graph. After just one hour at standard room temperature, all the other headbands soften up, while Peltor's stainless steel maintains a constant pressure.

Even headband pressure is a matter of safety. You know you have the same protection all the time.

And it's comfortable. A steel headband that keeps its shape never needs to be compensated with unnecessary pressure.

The best hearing protector is one you don't notice.



This diagram illustrates the Peltor Steel band compared to other bands.



When it comes to protective equipment, only one thing counts: the pursuit of progress. For more than 50 years, Peltor has specialised in developing and manufacturing hearing protection.

Today we are world leaders in that field. We work constantly on research and development – with one goal in view: to be better than ourselves. The result is a complete range of hearing protection and communication options that provide alternatives for all noise-hazard situations.

Your hearing is too important to compromise!

PELTOR[®]

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