

# Sordin Seal™

PASSIVE RE-DEFINED



**SORDIN**

# Passive re-defined

Sordin Seal is Sordin's firm response to industries seeking safe, modern and cost-effective hearing protection for their employees. And, of course, others who share the same aspirations.

Sordin Seal re-defines the concept of passive hearing protection with its many elaborately engineered features. There are many passive hearing protectors out there which meet the necessary attenuation criteria – thus ensuring the user's health and safety. Sordin Seal is just a little bit more technologically advanced.

We carefully reviewed important user criteria when designing Sordin Seal. The primary one being – keeping your hearing protector on for as long as you're exposed to harmful noise! Here, already, many products fail and are taken on and off by users, or even left in the lockers in the first place.

While Sordin Seal dampens noise more effectively than most comparable hearing protectors, that's only part of the reason your employees will like them and keep them on all day. It is also lightweight, it fits perfectly around the ears without pressing uncomfortably hard, and it stays firmly in place thanks to e.g. an additional, flexible support head band.

It's also easy to buy and get started in large scale with Sordin Seal. The hearing protector comes with only one attenuation level, comparable to industry-standard Medium, which makes it suitable for most professional or industrial noise environments.



## Made in Sweden

Sordin Seal builds on genuine Swedish craftsmanship. The brand carries a long tradition of caring for workers' health and safety. Sordin Seal is manufactured by Sordin in Sweden, a country famous for its strong engineering tradition – paired with innovation and quality excellence.

## Certified quality

Sordin Seal has a truly global footprint and is widely used for both professional and recreational purposes. All hearing protectors are tested and certified according to EN and ANSI, making them approved for professional use in most markets worldwide.

# Passive hearing protection – an active safety measure

While both sound and hearing are complex sciences, their essence can be very easily summarized: Use hearing protection!

It takes surprisingly little noise to cause hearing loss. What many don't know, or think about, is that all hearing loss is permanent. So, be careful and wear a hearing protector even if you're at the lower end of, or even slightly below, the risk exposure level! Especially when it's so easy and straight-forward to avoid life-long hearing loss.

First, choose between a passive or electronic hearing protector. Sordin Seal is passive, which means that it uses mechanical noise suppression only. In contrast, electronic hearing protectors combine mechanical suppression with some type of digital audio processing technology, along with for example radio and streaming functionality.

Passive hearing protection is fully adequate for many purposes. Unless you want to be able to listen to music, hear ambient sound or communicate electronically, you are generally well off with a high-quality, cost-efficient passive hearing protector like Sordin Seal.

## Some useful facts

### Passive vs. electronic

Sordin Seal is a passive hearing protector, which means that it uses mechanical noise suppression technology only. With electronic hearing protectors, this is complemented by microphones on the outside of the muffs, which pick up sound, amplify it and deliver it to the user's ears electronically. These products may also include additional features such as FM radio and communications capabilities.

### dB vs. dB(A)

Decibel (dB) is the general measure of sound level, or loudness. There are, however, numerous variants and in this brochure, we address dB and dB(A). In simplified terms, dB is the intrinsic loudness of a sound source, while dB(A) is the loudness subjected to a person's hearing when exposed to noise. Hence dB(A) depends on factors such as the distance to the source and whether you're wearing a hearing protector or not.

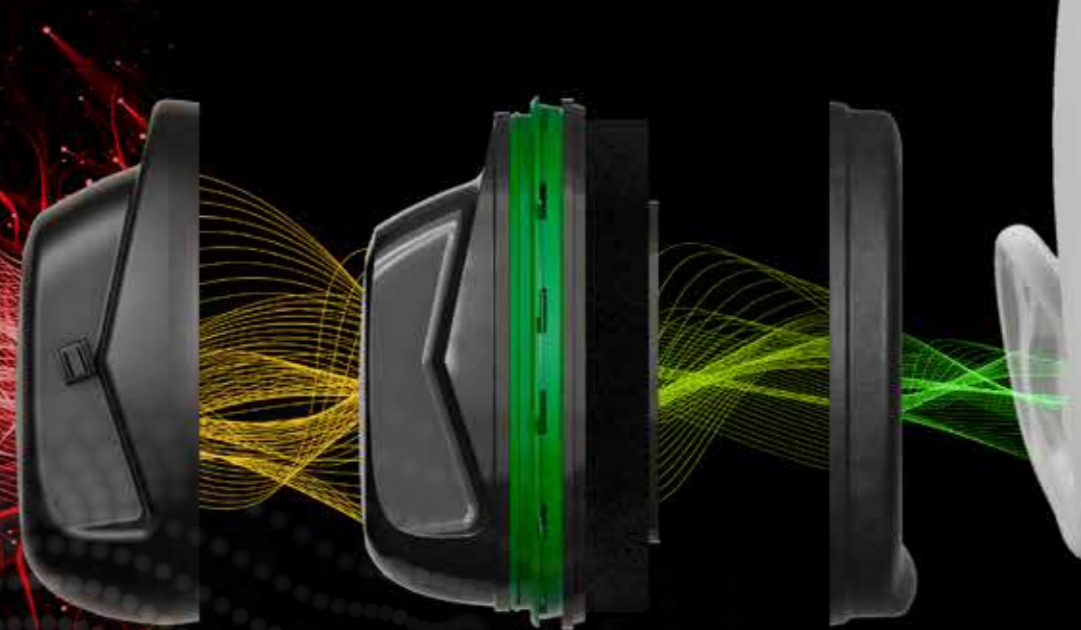
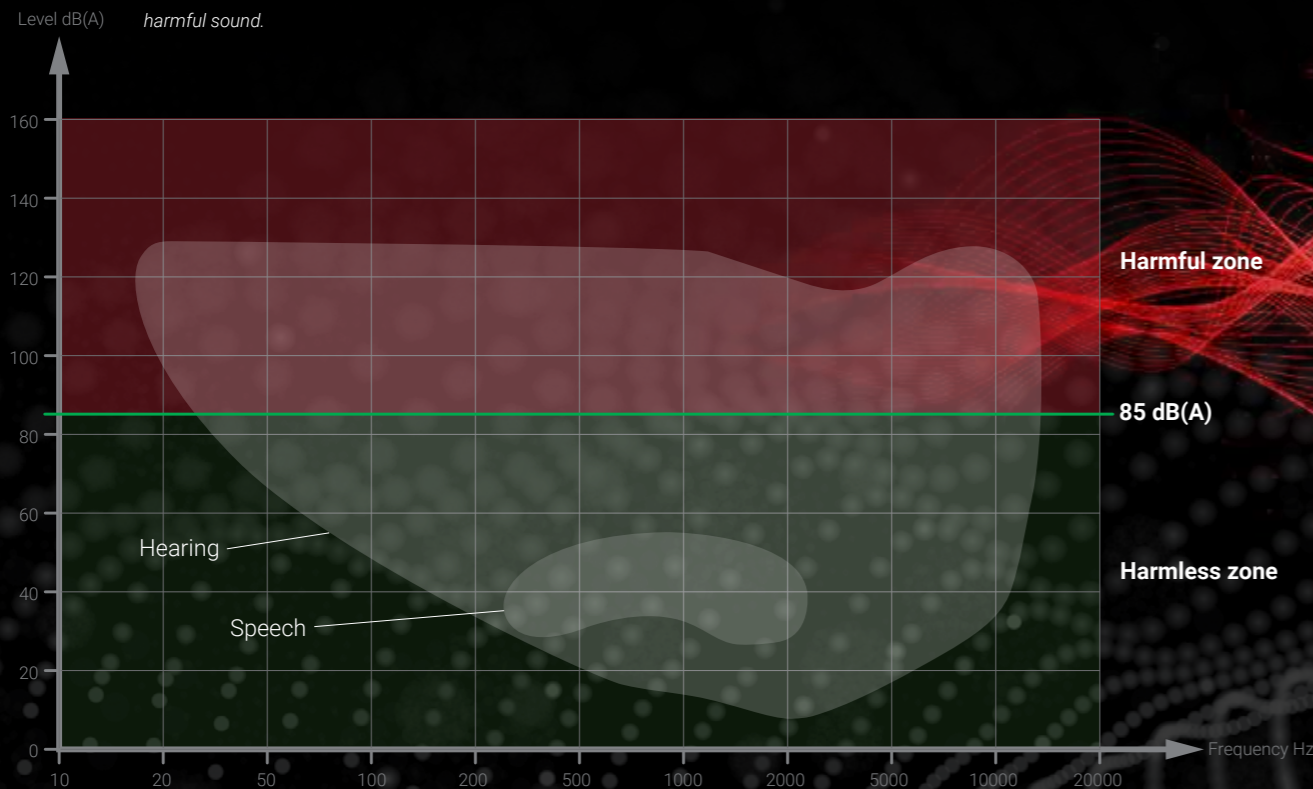
### Harmless vs. harmful noise

There is no clear dB(A) limit where noise becomes harmful. Directives are based on a combination of noise level and exposure time. According to the Swedish Work Environment Authority, a hearing protector should have a daily noise exposure index (LEX), of "8 h, 80 dB(A)". This is equivalent to 8 hours of continuous exposure at 80 dB(A), or 4 hours at 83 dB(A). At LEX "8 h, 85 dB(A)", hearing protection is mandatory – requirements met by Sordin Seal in most noise environments.

## Three layers for your protection

Sordin Seal consists of three protective layers, all of which contribute to suppressing noise to a harmless level once it reaches your ear.

The range of human hearing depends on sound level and frequency. We all know sound level as "loud or weak", and frequency as "high or low pitch", both of which are tested in regular hearing tests. A common indicator of harmless sound is below 85 dB(A), although also partly dependent on frequency. See page 5 for more information on harmless vs. harmful sound.



### Outer layer

The outer layer takes the first hit of the sound wave and determines the attenuation capacity. For a medium-level hearing protector, Sordin Seal comes with an exceptionally thin outer layer.

### Center layer

The molded inserts provide excellent noise attenuation and offer maximum space for the ears inside the cups.

### Inner layer

The patented sealing rings are covered by PVC-free TPE polymer, making the hearing protector stay firmly in place, while offering a cool feeling even in hot environments.

# An unbeatable trio

With its medium-level attenuation, Sordin Seal is the perfect all-round product for most professional purposes. Sometimes, there's a need for additional functionality. Then Sordin Seal's electronic "siblings" come in to beautifully complement your hearing protector range.

We let Sordin Seal stand as the design model when developing our two most advanced hearing protectors to date, designed specifically for professional use: Sordin Sharp and Sordin Share.

Our decision to base these two high-end products – both featuring novel designs and launched in 2021 – on Sordin Seal says a lot about our trust in the product. Sordin Sharp and Sordin Share lend several features to Sordin Seal, including material selection, cup shape and the unique headband design.

Weight may be an issue with electronic hearing protectors and Sordin Sharp and Sordin Share owe their relatively low weight to the slim Sordin Seal design. Similarly, its excellent robustness makes all three products equally suitable for use in harsh industrial environments.

Combined, Sordin Seal, Sordin Sharp and Sordin Share offer a future-proof investment path for professional hearing protection. This unbeatable trio will cover every need you may experience in future – whether for pure health and safety purposes using Sordin Seal, or for the added value of e.g. Bluetooth Multipoint connectivity, ambient sound and advanced communications capabilities provided by Sordin Sharp and Sordin Share.

For detailed information, see Sordin Sharp and Sordin Share brochures.

## Sordin Seal

Sordin Seal is your ideal all-round hearing protector suitable for medium-level noise. It provides safe protection, while offering the comfort necessary for all-day use – sitting firmly in place for optimum noise attenuation, without pressing too hard on your head.



## Sordin Sharp

Sordin Sharp comes with built-in Bluetooth® Multipoint support. You can therefore, for example, connect up to two cell phones or one cell phone and a com radio – providing functionality ranging from music or audio book entertainment to advanced communications with colleagues.

## Sordin Share

Sordin Share re-defines the very concept of hearing protection. It comes with unique team-intercom capabilities and allows for app-controlled setup and management of user groups. Each Sordin Share unit forms part of a mesh network, enabling medium-range direct communication between group members.

# Sordin Seal features

The image below is a collage of different Sordin Seal models and configurations. For a detailed product specification, see page 10–11.



## Headband or helmet version

Sordin Seal is available in headband and helmet versions. The helmet version is compatible with many popular helmet brands and models in the market by using an adapter.

## Large cup volume

Despite its slim design, Sordin Seal offers plenty of ear space inside the cups – making it comfortable to wear all day.

## Wide sealing rings

Just like its cups, Sordin Seal's sealing rings offer plenty of ear space, ensuring a perfect individual fit even for large user groups.

## Modern design

A slim and slick shape makes people want to wear Sordin Seal. Thanks to its modern look, we even used Sordin Seal as the design model for our high-end electronic products Sordin Sharp and Sordin Share.



## Metal free

Sordin Seal is manufactured without any metal parts (headband version only). This makes it suitable for use in production where metals are prohibited, for example in European medicine manufacturing.

## Color selection

The cups are available in black or high-visibility yellow (Yellow Hi-Viz). Other customization of Sordin Seal can be provided on request (large volumes only).

## PVC-free sealing rings

The cushions are made of thermoplastic elastomer (TPE), a PVC-free polymer, making Sordin Seal fit firmly and comfortably on your head.

## Headband features

The headband is made of a dielectric polymer (POM), thus remaining stiff in even hot environments. A support band adds to wearing stability (headband version only).

# Specifications

## TECHNICAL INFORMATION

Materials	
Cups	ABS
Attenuation foam	PU foam
Sealing cushion	ABS, PP, TPE, PU
Headband	POM
Cup supporting arm	PA
Adapter	PA
Holder	PA
Spring cover	PP
Spring	Stainless steel
Operational data	
Operating conditions	-20°C to +50°C
Weight headband / helmet mounted version	250 grams / 250 grams
Complies with following environmental directives	REACH

## APPROVED HELMET COMBINATIONS

Helmet	Adapter	Sizes
Grolls Balance AC	1	S, M, L
KASK Plasma AQ	20	S, M, L
KASK Zenith	20	S, M, L
MSA V-Gard H1	14	S, M, L
Petzl Strato (unventilated)	1	S, M, L
Petzl Strato Vent	1	S, M, L
Petzl Vertex Vent	19	S, M, L
Petzl Vertex (unventilated)	19	S, M, L
Rock Helmets Vertik	1	S, M, L
Rock Helmets Dynamo Volt	1	S, M, L
Rock Helmets Dynamo Hybrid	1	S, M, L
Rock Helmets Dynamo 397	1	S, M, L
Rock Helmets Dynamo Hybrid EN 12492	1	S, M, L
Rock Helmets Exelar EL801	1	S, M, L
UVEX Pheos Alpine	20	S, M, L

## PRODUCT NUMBERS

Product No	Description	Cup Colour
87000-04-S	Sordin Seal Headband Black	Black
87000-30-S	Sordin Seal Headband Yellow Hi-Viz	Yellow Hi-Viz
87501-04-S	Sordin Seal Helmet Mounted Adapter 1 Black	Black
87501-30-S	Sordin Seal Helmet Mounted Adapter 1 Yellow Hi-Viz	Yellow Hi-Viz
87519-04-S	Sordin Seal Helmet Mounted Adapter 19 Black	Black
87519-30-S	Sordin Seal Helmet Mounted Adapter 19 Yellow Hi-Viz	Yellow Hi-Viz
60087-S	Sordin Seal Hygiene Kit (headband and helmet mounted version) <i>Foam cushion: TPE covered PU (Polyurethane) foam, Inserts/liners: Polyurethane</i>	

## EN APPROVALS

### TESTS AND CERTIFICATES

Tested and certified to EN 352-1:2002, and EN 352-3:2002  
 Certificates: CE 708874 (headband version), CE 708880 (helmet mounted version)  
 Notified Body: BSI Netherlands (NB 2797)



### ATTENUATION DATA

Headband version		H=32 dB   M=27 dB   L=21 dB   SNR=30 dB						
Frequency (Hz)		125	250	500	1,000	2,000	4,000	8,000
Mean attenuation, $M_f$ (dB)		17.6	20.5	26.2	32.2	32.8	36.8	38.6
Standard deviation, $s_f$ (dB)		2.6	2.2	1.4	2.3	2.7	2.9	3.4
APV ( $M_f-s_f$ ) (dB)		15.0	18.3	24.8	29.9	30.1	33.9	35.2

Helmet version		H=31 dB   M=25 dB   L=20 dB   SNR=28 dB						
Frequency (Hz)		125	250	500	1,000	2,000	4,000	8,000
Mean attenuation, $M_f$ (dB)		17.6	20.8	24.4	30.9	31.4	36.5	39.4
Standard deviation, $s_f$ (dB)		3.7	2.2	3.7	2.7	2.8	1.7	3.9
APV ( $M_f-s_f$ ) (dB)		13.9	18.6	20.7	28.2	28.6	34.8	35.5

## ANSI APPROVAL (ANSI S3.19-1974)

### ATTENUATION DATA

Headband version		NRR=25 dB								
Frequency (Hz)		125	250	500	1,000	2,000	3,150	4,000	6,300	8,000
Mean attenuation, $M_f$ (dB)		19.4	21.1	28.2	34.4	34.7	38.2	40.7	38.6	38.8
Standard deviation, $s_f$ (dB)		3.2	2.2	2.5	3.1	2.7	3.3	3.5	2.9	4.0

Helmet mounted version (with MSA V-Gard helmet)		NRR=23 dB								
Frequency (Hz)		125	250	500	1,000	2,000	3,150	4,000	6,300	8,000
Mean attenuation, $M_f$ (dB)		17.8	20.0	25.7	32.3	33.6	37.0	39.4	38.7	37.7
Standard deviation, $s_f$ (dB)		3.2	2.5	2.7	3.3	3.1	3.3	3.5	3.0	2.9



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