OTICON | **Own**

MoreSound Intelligence
in custom hearing aids

Dual vs. single microphone instruments

life-changing **technology**

Introducing Oticon Own™, the world's first custom hearing aid with an on-board Deep Neural Network (DNN).* Oticon Own is built on our most intelligent platform ever, Polaris™, and features MoreSound Intelligence (MSI). MSI is a groundbreaking BrainHearing™ technology which uses our highly trained on-board DNN to provide access to the full sound scene with clear contrast and balance. This information helps the brain orient and focus and makes it easier for patients to enjoy, follow, and engage in conversations. MSI functions differently in dual (ITE FS, ITE HS, ITC) versus single (CIC, IIC) microphone instruments.
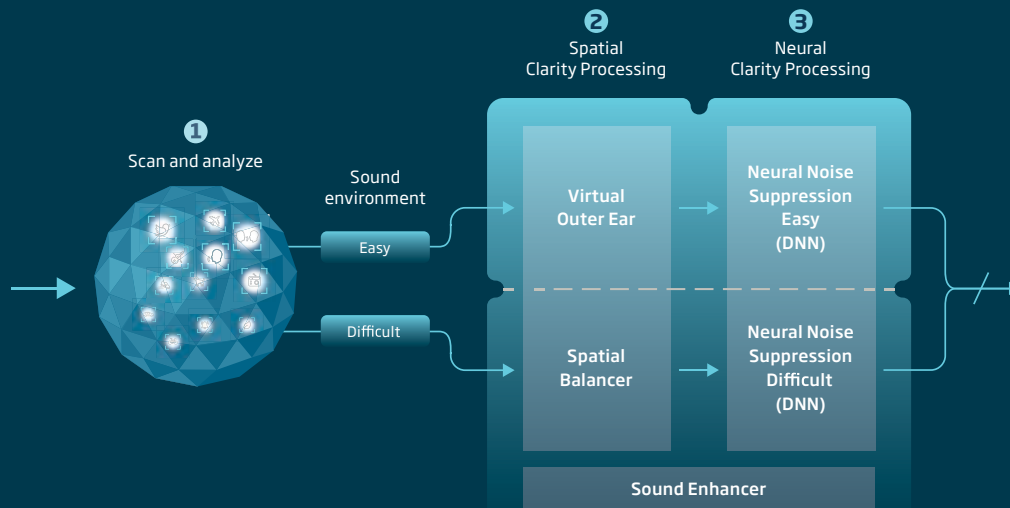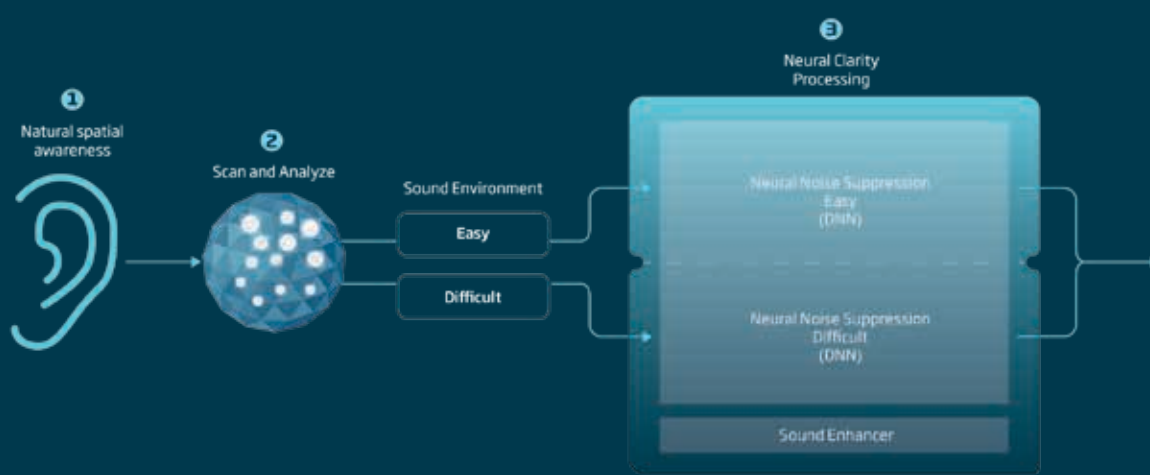

MSI in dual microphone hearing aids

MSI processes the sound environment with surgical precision to provide clear contrast and balance for all sounds. It includes three parts that work together to provide the brain a more precise and natural representation of all sounds in the environment. The three parts include:

1. **Scan and analyze:** Scans the full sound scene 500 times per second which results in a precise analysis of all sounds and the complexity of the surroundings.
2. **Spatial Clarity Processing:** Recreates the natural spatial cues provided by the pinna by using a Virtual Outer Ear (three true-to-life pinna models that can be chosen based on the patient's spatial sound needs) and a Spatial Balancer to quickly balance distinct sound sources.
3. **Neural Clarity Processing:** Where the unique and dedicated development for Oticon Own resides. It uses a highly intelligent on-board DNN to process sound and reduce noise.

Sound Enhancer:

Working with both Spatial Clarity and Neural Clarity Processing, Sound Enhancer provides more details or more comfort in difficult situations by dynamically adding sound detail based on patient preference.

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❸ Neural Clarity Processing

❶ Natural spatial awareness

❷ Scan and Analyze

Sound Environment

Easy

Difficult

Neural Noise Suppression Easy (DNN)

Neural Noise Suppression Difficult (DNN)

Sound Enhancer

MSI in single microphone hearing aids

In single microphone hearing aids, MoreSound Intelligence works slightly different. Spatial Clarity Processing is not part of the processing flow, as it requires input from two microphones. Instead, the patient can utilize the natural pinna for spatial awareness. The three steps include:

1. Natural spatial awareness: The single microphone instruments (IIC and CIC) are calibrated for placement inside the ear canal to allow for pinna cues like a normal hearing ear.

2. Scan and analyze: Scans the full sound scene 500 times per second which results in a precise analysis of all sounds and the complexity of he surroundings.

3. Neural Clarity Processing: Handled by our highly intelligent on-board Deep Neural Network (DNN) to process sound.

Sound Enhancer:

Provides dynamic sound detail when noise suppression is active – mainly in difficult environments. In single-microphone hearing aids the calculations behind Sound Enhancer are based on the dynamic suppression achieved by the DNN.

Key takeaways

MoreSound Intelligence:
- Designed to give access to the full sound scene with clear contrast and balance in both dual and single microphone instruments
- Uses a highly intelligent on-board Deep Neural Network to seamlessly handle virtually all sound scenes with unparalleled precision and clarity
- Provides more precise and natural representation of all sounds, making it easier for patients to enjoy, follow, and engage in conversations

* DNN is only available in Oticon Own 1, 2 and 3.