

Misco corporate profile

Creating the sound you want

Over the past 60 years, the MISCO team has continually refined our engineering and manufacturing processes to reflect industry best practices, and beyond.

Development: Creating a new loudspeaker begins by understanding customer needs — how you understand the audio application and what sound characteristics you want to hear. In addition, we discuss performance, environmental considerations, quantities, and cost. A standard MISCO speaker might already exist that meets all of these requirements. If not, we look at modifying an existing speaker or, we'll custom engineer a new design.

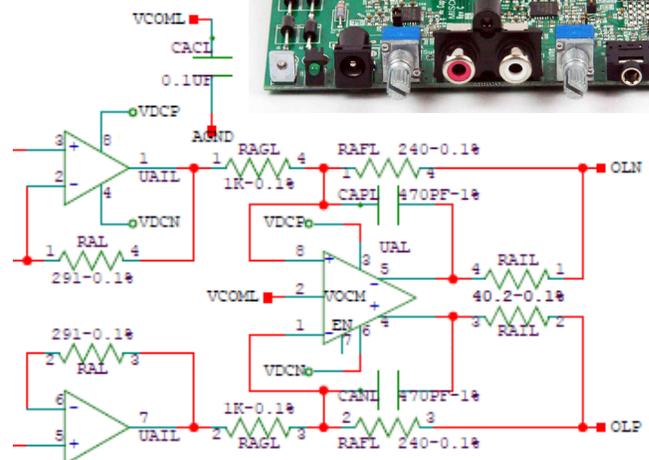
Design: MISCO engineers use the latest modeling tools to design our loudspeakers. Performance can be simulated at the workstation. This virtually eliminates old-school trial and error, reduces design time to days, and creates a model that is highly predictive of the actual, finished loudspeaker.

Prototype and testing: The most promising design is built as a functional prototype. We use this prototype to validate the project plan and bill of materials, and thoroughly test the performance of the speaker — sometimes to destruction. These prototypes are built by the same MISCO team that manufactures all of our speakers so everyone gets a preview of how the speaker's production will flow.

Manufacturing and quality control: Once approved, we ramp up the loudspeaker design to full production. MISCO facilities can handle every aspect of loudspeaker manufacturing and final performance testing. There's no sampling or spot checking. Every MISCO speaker is individually tested and must pass the rigorous testing before it goes out the door. Our quality system is based on the standards of ISO 9001:2008.



Precise adhesive dispensing is a key requirement for QC in loudspeaker manufacturing.



Years of audio design experience assures high quality amplifiers.

Other audio markets and applications:



Gaming – Casino, Arcade, and Theme Park: Wide frequency range to deliver music and unusual sound effects with full fidelity. Optimized torque for

noisy casino and arcade environments. Standard and custom enclosures to fit inside game cabinets and surround chairs.



Pro Sound – Concert and Stage:

High power handling and high output. Robust design and rugged construction to withstand the demands of touring.



Pro Sound – Musical

instruments: Custom-voiced speakers for guitar amps and other musical instruments, using both modern and vintage designs

and materials.



Pro Sound – Commercial:

Includes houses of worship, auditoriums, schools, airports and commercial buildings. Accurate, high-sensitivity, low-distortion

speakers in custom enclosures to fill big spaces with a warm, distinct sound.



Automotive/Motorcycle: High output and custom frequency response to deliver clear, rich sound over ambient noise.

Lightweight yet rugged to resist vibration and harsh environments. Cost efficient; no product end-of-life.



Outdoor: Music and public address applications in theme parks, zoos, and other venues. Engineered and built to withstand harsh environments. Provides

durability plus sensitivity for clear, full-fidelity sound.



Transit: In-car, on-platform, and emergency public address loudspeakers and systems.

Designed to cut through noisy environments with clear, intelligible sound. Cost efficient and lightweight. Multiple transformers and baffles to choose from. Vandal-proof grills designed for harsh environments.



Medical: Lightweight, specialized components such as drivers that reduce stray magnetic fields. Durable for long lifecycles with no product end-of-life.



Military: Highly reliable, customized speakers that deliver clear sound in heavy stress applications and punishing environments.



Signal/Alarm: Durable, high functioning, high output for signal and alarm systems. Long life and reliable performance indoors and outdoors:

manufacturing, warehouses, security gates, offices and response centers.



Commercial: High sensitivity, broad dispersion loudspeakers for clear sound in noisy malls, stores, restaurants, and offices. Complete speaker assemblies that include

wide range of transformers, baffles, and enclosures.



Aerospace: Tough, reliable, lightweight speakers for cockpit and cabin applications. High output with high intelligibility. Flame retardant materials. No product end-of-life.



Home Theater: Bring the thrill of movies and live performance home with high performance mid-woofers and sub-woofers. Wide frequency range; state-of-

the-art cone and motor designs. Wide selection of materials and cosmetic finishes.

Strategic partnerships

MISCO's heritage is loudspeakers. But around that core of expertise, we also build complete audio systems in conjunction with strategic partners — leading audio companies that share our values of excellence and customer service.

Digital Audio Labs (DAL) is a recognized leader in amplification, digital signal processing, and audio interfaces. Like MISCO, DAL custom engineers and builds-out their full audio system design to meet specific customer requirements. This strategic partnership is just another critical step in the signal chain that ensures you get the sound you want.



Other of our many strategic partnerships, for example, includes our co-venture with one of the leading professional guitar speaker brands, using their proprietary cones into MISCO speakers, for **leading guitar talent** such as; Eric Clapton, Carlos Santana, Keith Richards and many more.

Our product delivery to the **Aerospace** market poses an example of a MISCO strategic partnership where the loudspeaker design had to meet the most stringent audio and environmental specifications, while maintaining the demands of necessary weight reduction requirements.

MISCO products in the **Medical and Military** marketplaces demand high reliability. Design of customized speakers that deliver clear sound in heavy stress applications and difficult environments is part of the necessary audio focus in these arenas. Other demands include lightweight, specialized components, such as drivers that reduce stray magnetic fields. Durable, with no product end-of-life. These accomplishments have all become successful due to MISCO's ability to develop sound strategic partnerships, proving flexibility in MISCO's development of superior products.



Custom designed for aerospace, model # EN4FR-1000A is a light weight, 4" loudspeaker with an aluminum basket and high energy neodymium magnet. An innovative circuit board design allows the speaker to be used in a 70 volt system without the need for a heavy transformer.

A brief history of MISCO

MISCO founder Cliff Digre's experience as a B-17 crewman during World War II taught him both audio communications, plus the importance of flexible thinking and gaining new skills. Cliff learned how to use limited resources to make the most out of every situation. After discharge Cliff returned home to Minnesota and attended the National Radio School. When a speaker inside his kitchen radio proved defective, Cliff decided to save \$3.00 by fixing it himself instead of replacing it. The repair job turned into a lifelong career. He founded his first company, Vet's Radio, which was a small office employing himself and another student - repairing radios.

In 1949, Cliff founded what would soon become the Minneapolis Speaker Company — MISCO. Reconciling/repairing speakers soon developed into manufacturing loudspeakers for radio and TV. The most popular was an 8" model which was redesigned for durability required in drive-in speakers. These were sold to a sound dealer, specializing in sound for the



MISCO founder, Cliff Digre (Top row – third from left) with crew, in front of their B-17, after a belly landing near Leon, France, WW II

for durability required in drive-in speakers. These were sold to a sound dealer, specializing in sound for the

drive-in theater market. The first orders were for 200 units, then 500 units and finally an order for 1,000 pieces, but shortly after ordering, the customer/owner passed away and the order was canceled. MISCO was on the brink of a new opportunity... selling the 1,000 speakers on their own. In a short time, they were sold and re-orders started rolling-in, followed by inquiries for 12" speakers for Hi-Fi systems.

The "superior quality" speakers needed eye appeal to stand out in the marketplace. To get the desired distinctive appearance the company developed a red cone speaker with a gold basket and black gasket and dust cap. "Our established product identity was important and we registered 'Red Line' as a product trade name." "Red Line" now included the first line of 3" to 15" speakers....we were no longer a 'Me-too' company" said Cliff Digre.. MISCO continued to make several industry innovations along with three U.S. patents. Which have become industry standards throughout the world.

MISCO today is housed in a 20,000 square-foot building in Minneapolis. Built in 2001, the facility provides a stable, controlled environment for continuous manufacturing, and space for increased quality and efficiency through lean manufacturing.

The future for MISCO

MISCO continues to expand into industries that require unique and clear sound in difficult environments, such as the gaming industry and a broader line of Pro-sound loudspeakers. But MISCO is also re-investing in the best people, equipment and systems to focus on being the best US OEM/Driver manufacturer. The MISCO mission statement communicates the unique benefits as well: Providing financial stability to support our customers' growth...A focus on long-term business strategies...A company that continues to maintain formal quality systems to assure consistency...Providing a focus on lean manufacturing strategies to reduce costs...and the flexibility to provide custom manufacturing services

Out of these principles come substantial product value and customer benefits that target the reduction of customer procurement costs, while maintaining quality. Just the advantages of being a US manufacturer allow MISCO customers: Small lot size requirements, responsive and flexible delivery schedules, short lead times, lower freight costs, no duty costs and the elimination of incoming product sorting and inspection due to poor quality.

Our growth and success in thirteen major markets, our quality systems and technical research, our strategic partnerships and most of all - the principles we stick by.... These all assure our continued customer satisfaction.



Cliff Digre (first from left) - storefront of an earlier MISCO location in Minneapolis, MN