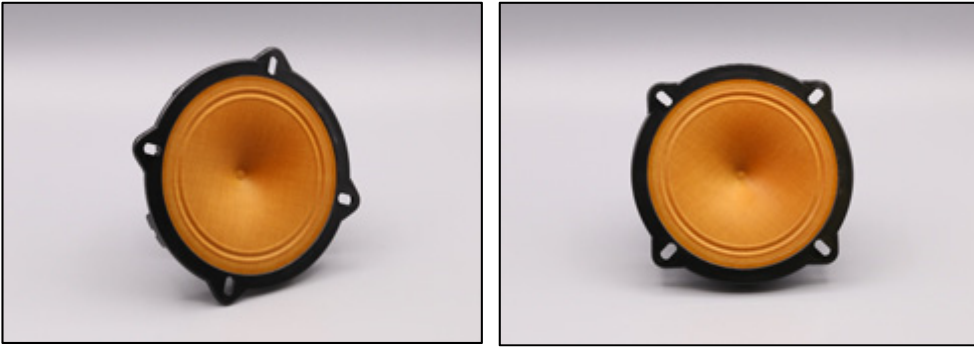


Piezoelectric Loud Speaker for Harsh Environments – Case Study

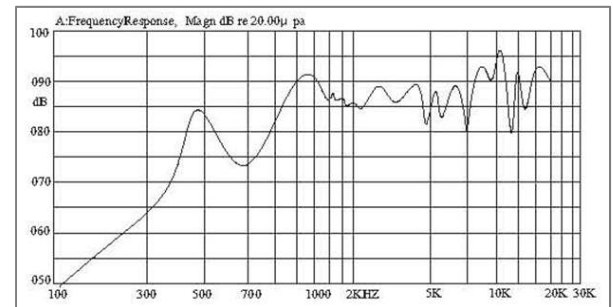


Overview: ISL was approached by a customer who was in need of a speaker that could be used in harsh environments, where a traditional magnetic speaker could not be used.

Challenge: Due to the application and the speaker's environment, ISL had to design a speaker that had no magnetics. The result was for ISL to design a piezoelectric speaker to meet the customer's application requirements. The speaker needed to operate at a broad frequency range as well as provide voice reproduction.

Solution: ISL designed the PZ-94 speaker. It's a piezoelectric speaker with an extended frequency range that meets all of the customer's strict requirements. This speaker is lightweight with a thin profile, but robust enough to handle 50 W (EIA). The PZ-94 speaker utilizes a high strength phenolic cone which provides the resistance to humidity when used in harsh environments.

- Frequency Response: 450 Hz to 20kHz
- Average Sensitivity: 82dB at 1m/1W
- Max. Power Handling Capacity: 50 W (EIA RS426) (8Ω system reference)
- Operating Temperature Range: -40°C – 105°C
- Typical Impedance: Appears as a 1.5μF Capacitor
- Shock Test: 1,000G, 1ms
- Humidity Test: 100% RH (MIL STD 810C; Method 509.1; Salt Fog)
- Weight: 1.10 oz (33g)



Although the speaker was initially intended to be used in military audio applications, our customers have begun using this PZ-94 speaker in MRI suites as well. Due to the unique characteristics of the PZ-94 speaker it can be used inside MRI suites because it has no magnetics.