磁性流体を充填したスピーカーを従来のスピーカーと比べると、次のような良い効果が得られます。
1. 最大許容入力の向上（放熱効果）
2. 周波数特性の改善（ダンピング効果）
3. システムコストの低減
4. 高齢者対応

1. 最大許容入力の向上
スピーカーの最大許容入力は、ほとんどの場合バイオサイクルの発熱特性により決定されていますが、空気の流体の熱伝導率を持つ磁性流体を使用することにより、バイオサイクルで発生した熱を効率よく流体伝導を通じて外そうへ逃がすことができるため、最大許容入力が従来の約2倍に上昇します。また、バイオサイクル温度が低温に保たれるため、コイルの発熱抵抗の上昇も防ぎます。

2. 周波数特性の改善
低音共振周波数は、インピーダンスピークが存在するため、周波数特性を悪化させる原因となりますが、磁性流体の特性によるダンピング効果によりQ値が低下し、インピーダンスピークを低く抑えることができ、周波数特性が改善されます。

3. Frequency Response Refinement
Unacceptable Frequency Response is caused by the substance of Impedance Peak at Lowest Resonance Frequency (Qm). Ferrofluid with viscous damping can reduce Q value and impedance peak, and consequently improve Frequency Response.
WHAT ARE THE BENEFITS OF USING FERROFLUID?

Speakers that use ferrofluid exhibit the following benefits when compared to speakers that do not use ferrofluid.

1. Increased Power Handling.
2. Frequency Response Refinement.
3. Reduced System Cost.
4. Reduction of Harmonic Distortion.

### System Cost Reduction

Ferrofluids can improve the damping characteristics of the voice coil, reducing distortion and improving the overall sound quality. The use of ferrofluids can help to reduce the size of the voice coil, which in turn reduces the overall system cost.

### Reduced Harmonic Distortion

Ferrofluids can reduce the amount of harmonic distortion in the speaker, resulting in a cleaner and more natural sound. The use of ferrofluids can also help to reduce the size of the voice coil, which in turn reduces the overall system cost.

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**Note:**

Ferrofluids are a magnetic fluid that can be used to improve the performance of speakers. They work by attracting specific materials and reducing unwanted vibrations, which can improve the overall sound quality. Ferrofluids are often used in high-end audio equipment to improve the performance of speakers. However, it is important to note that the use of ferrofluids can also increase the complexity and cost of the speaker design.

1. To get the best use of ferrofluid in these applications, attention should be paid to the compatibility of the ferrofluid with the materials that will come in contact with the fluid. Most adhesives such as epoxy, hot melt, modified acrylic and polyurethane etc., and wire coverings are compatible with ferrofluid. However, some types of adhesives are not compatible with some ferrofluids. Please confirm compatibility with the ferrofluid before use.
2. Voice coil bobbin made of anodized craft paper or fiber will absorb ferrofluid. Aluminum and Kapton bobbin etc. will be the best choice for the materials.