

DualMags



In any day and age, speaker systems have always evolved in the pursuit of high quality sound reproduction.

By focusing strictly on this eternal, basic concept, a magnetic circuit that defies conventional thinking was created.

DualMags embodies the "quest for better sound" in its truest form, as Kenwood believes it should be.

This is where you can discover the story behind DualMags.

KENWOOD

CONCEPT

Endless quest for better sound

At Kenwood, in order to solve the problems that have existed with speakers in the past, we developed a totally new magnetic circuit — the DualMags magnetic circuit.

The eternal goal in speaker development is, needless to say, the reproduction of good sound. However, this is actually more difficult than it seems because "good sound" is a subjective decision that can be affected by personal preference.

This is where Kenwood took note of the electrical distortion in the magnetic circuit. As speakers relied on the magnetic circuit and electrical current as the elements to produce sound, electrical distortion was long considered unavoidable.





In all the frequency ranges used to express sound — from a clear high range and natural vocals (middle range) to a powerful low range — a common and objective key point for the production of quality sound is low distortion.

By dramatically reducing the electrical distortion that causes muddled sound, a speaker will be able to reproduce sound that is much clearer overall. Hence, the necessity to create a magnetic circuit that would greatly reduce electrical distortion. This is where the DualMags project, aimed at creating a new speaker technology that will far surpass conventional types, got its start.

TECHNOLO

Magnetic circuit that goes beyond the conventional in car speakers

In conventional speaker design, steel based parts such as the top plate and yoke were considered absolute necessities for the

materials inherently disrupted the magnetic force in the magnetic circuit and produced electrical interference, thereby adversely affecting

this, Kenwood undertook extensive research into a magnetic circuit that would allow a dramatic reduction in the amount of metal

result of these efforts was the compact, resistant magnetic circuit, called DualMags.

As the first point, in order to reduce the amount of steel materials, it was necessary to reduce the size and weight of the magnetic

Since the amount of force applied to the voice coil in order to move the diaphragm is propor-

tional to the size of the magnetic field, using a magnet with stronger magnetic energy

will enable the size of the voice coil and magnetic circuit to be reduced.

That is why we decided to use the neodymium magnet, which boasts the

highest magnetic power available. The neodymium magnet produces

approximately 10 times more magnetic energy as compared to conven-



and a uniform magnetic speed density is attained. As a result,

Furthermore, as opposed to the closed-loop construction used in conventional

netic speed from the voice coil, and by minimizing the electrical distortion

According to conventional thinking in speaker technology, a speaker had to

the weight of the magnet — the heavier the stronger. The neodymium magnet

GY

magnetic circuit. However, steel mate-

the sound. To improve

parts used. The

circuit.



Or in other words, it is possible to use a magnet that is a mere 1/10th the size of a conventional magnet to generate the same magnetic force. And by reducing the size of the magnet, it becomes possible to use lighter aluminum based materials in the top plate and yoke instead of steel, while maintaining sufficient structural strength.

The next point of innovation was in revising the structure of the magnetic circuit. With DualMags, the N poles of the neodymium magnets are placed facing each other through the center plate. By placing the magnets so that they repel each other, the line of magnetic force emanating from the center plate is smoothed out, the upper and lower magnetic speeds are equalized by reducing the amount of steel materials, it was possible to reduce distortion and gain a dramatic improvement in sound quality. In speakers, DualMags uses an open-loop construction that isn't closed by steel materials. This reduces the effects of alternating magnetic flux from the moving voice coil, serves to greatly ameliorate sound quality.

be heavy in order to produce good sound. That is because the strength of a magnet was considered to be proportional to the size of the magnet. The DualMags magnet used in DualMags is what changed this preconception.

DES

Materials and construction for better sound

For any speaker, the construction of each unit devoted to handling a certain frequency range is important.

Depending on their materials or positioning, the final sound can be affected. Our new Coaxial type models for 1999 meet and indeed surpass these challenges in terms of materials and design.

First, for materials, we used a UFLC soft dome tweeter because of its favorable directionality characteristics. UFLC (Urethane Film Laminated Cloth) is basically the polyester surface used in conventional soft dome diaphragms but is laminated with a polyurethane film.

Compared to conventional polyester diaphragms, UFLC can be made approximately 10% lighter, and thanks to its damping characteristics it also reduces distortion.

Mags
WOOD

IGN

In terms of design, we used a thinner arm with a smooth-curvature bridged round fitting to support the tweeter. And to keep it from covering the center of the woofer, it was mounted in a coaxially offset position. Moreover, using a soft dome tweeter allowed the size of the tweeter case as well as the overall area of the bridge to be reduced, thereby minimizing masking effects and avoiding peak dips in the frequency characteristics.

The DualMags magnetic circuit is a technological breakthrough without a doubt, but aside from that, through every aspect of our speakers from design to materials, we are certain that anybody can experience Kenwood's policy of striving for high quality sound.



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