

## Science and Nature in their purest forms, create the perfect shape

### Why Lowthers?

We have an almost universal love of music through all societies because of the emotional impact it can have on our lives. It can express happiness, sorry, joy, or a good party. When we try to bring music home, we do it so that we can to enrich our lives, bringing home these emotions that make us love music.

Lowther drivers are unique. Utilizing a principle developed more than 50 years ago, the Lowther design concept is stronger than ever. Audiophile fads come and go, but once you've acquired the Lowther audiophile sound, it's Lowther for life!

Reproduced music typically lacks in the dynamic contrast of live music. The sudden burst of noise, the pause of silence, a dramatic increase in volume are part of what gives live music its impact. The single best feature of Lowthers is the detail they are capable of reproducing.

The basic Lowther design features a 20cm twin cone driver. This twin-cone combination, coupled with an exceptionally strong magnet and a very light cone enables the driver to reproduce the full spectrum of audible sound and beyond. This unique construction has many advantages unequalled by any other design!

Lowthers are the most efficient speakers in the world! With an efficiency of over 100 db from one watt at 1 m, a mere 3 watts will drive these speakers to more than realistic sound levels. As the driver is full range, no woofers, tweeters or crossovers are required. This gives a purity of sound that no other conventional speaker can match. Remember, no crossovers. So, no inductors, capacitors or resistors in the circuit. You've gained a few dB in sound level already!

Only one Lowther driver is used per cabinet. Imaging is wonderful.

Also, don't forget that new Lowther drivers take some time to "run in" and mellow, just like a good red wine. Within 30 hours they'll smoothen out, after 500 hours they'll be run-in and then, after many, many years of service, they'll just sing.

### The Lowther DX Series incorporates 'state of the art' magnet technology using powerful rare earth magnetic materials



The DX series of drive units employ 'state of the art' rare earth magnet technology. The magnet assemblies are extremely light and compact, yet much more powerful than any conventional magnets. Coupled to Lowther's own 'Hi-Ferric' coil control system, the acceleration and damping factors are increased well beyond anything achieved in the past, even with the extremely large and powerful magnet assemblies for which Lowther has always been renowned. These all-powerful magnet assemblies allow the diaphragms to reach acceleration rates well beyond the capabilities of any conventional magnet system.

The effect of such powerful magnet assemblies coupled to the 'Hi-Ferric' coil control system, increases the speed of the cones and yet has a truly remarkable degree of damping. This results in an exceptional transient response, but with the oscillating factor

reduced to an absolute minimum by the remarkable control of the 'Hi-Ferric' system.

The amount of information now obtainable from the recorded source is truly remarkable. If it is on the recording then it will be heard. No detail is missed and no degrading of the signal will occur due to unwanted coil oscillations.

It is true to say that never before has it been possible to achieve such a quality of sound reproduction. The DX series achieve a realism to sound reproduction that has to be heard to be believed.

Perhaps the most remarkable feature is the very compact size and light weight and yet with a magnetic power which is more than 10 times that possible from conventional magnets.

The DX series of drive units have so many advantages and this all adds up to a quality of sound reproduction that will provide a level of listening enjoyment equaled only by the pleasure of a live performance.

## The Lowther 'Hi-Ferric'<sup>TM</sup> Coil Control System

Lowther developed their unique 'HI-FERRIC' Coil Control System in order to overcome the problem of keeping colloidal ferromagnetic fluids within the magnet's air gap throughout the frequency range of our full-range drive units.

We realized ferromagnetic fluids offered advantages, but except for the higher frequencies we were unable to keep the fluids in place. This was disappointing as we, like many other loudspeaker manufacturers, realized magnetic fluids could offer improved performance. Determined not to lose the advantages ferromagnetic fluids provided we developed our own coil control system.

The Lowther 'HI-FERRIC' Coil control System incorporates all the benefits of ferromagnetic fluids with some additional advantages. Lowther's latest 'HI-FERRIC' Coil Control System is based on a compound of ferrous oxides securely encased in a high temperature resistant plastic cocoon which is attached to the voice coil. It remains securely in position throughout the entire frequency range of our full-range drive units.

The 'HI-FERRIC' Coil Control System, as with ferromagnetic fluids, can assist in maintaining better temperature control. Sensitivity can fall approaching 1.0 percent for every 2 degrees C increase in temperature of the coil. In addition unwanted voice coil oscillations are greatly reduced. The improved damping factor allows for a faster transient response.

The 'HI-FERRIC' Coil Control System has another advantage. It is actually an energized magnet system in it's own right. As current passes through the voice coil, the ferrous material of the 'Hi-ferric' system is magnetically energized. As like poles repel and unlike poles attract, the 'Hi-ferric' system attached to the voice coil is either attracted to or repelled from the host magnet's air-gap, depending on the polarity of the applied signal. As the velocity of the voice coil is substantially increased the transient response time is reduced. Between signals the 'Hi-ferric' system is immediately attracted to the central position within the air-gap, thus increasing the rate of damping. Unwanted Coil oscillations are therefore reduced to a minimum.

## Power and Sensitivity

The sensitivity of a speaker (often expressed as a "dB" figure) is how loud it will play for a given power input. The usual (and proper) sensitivity rating is given as so many dB at one meter distance with 2.83 V playing into 8 Ohms (dB/2.83 V/1 m). 2.83 V into 8 Ohms is exactly 1 Watt of power, so sometimes sensitivity is given as dB/1W/1m. The driver sensitivity will usually not be the final sensitivity of your overall speaker system (including enclosure). Often enclosures will add some sensitivity to the loudspeaker.

Single driver speakers are often more efficient than multiple drivers because of the lack of crossover. A passive crossover eats up power (how much depends on the complexity and value of the crossover components).

Generally my minimum recommendations for speaker sensitivity are as follows:

3 watts or less - 100dB minimum sensitivity

8 watts - 96dB minimum sensitivity

15 watts - 92dB minimum sensitivity

25 watts - 89dB minimum sensitivity

These are general guidelines and can vary by plus or minus 2dB depending upon the impedance of the speaker, the type of music listened to, the size of the listening room and how loud you like to listen to your music. With sensitivity of 98dB and better Lowther drivers are the most efficient in the world. A good enclosure will easily add another 2-3dB for over 100dB sensitivity that will make even lowest power amplifiers sing.

## Lowther DX Drivers

Lowther drivers come in three flavors: Alnico magnet (A series), Ferrite magnet (C series), and neodymium magnet (DX and EX series). DX2, DX3, and DX4 are the new neodymium magnet drivers. The neodymium magnet material is less costly to make than the alnico and is also smaller and lighter for a similar magnetic strength. This is very important since heavy magnets such as Alnico magnet (A series) require rotation of drivers in the cabinet every six to nine months in order to prevent improper functioning!

Lowther's DX range of drive units use the same cone and coil technology as the "C" series but use a new Rare Earth magnet system to produce very high levels of magnetic flux from very small magnets. The small Neodymium magnets give a smaller reflected wave than the larger "C" range magnets, while giving a higher flux density. Both these help to give a faster cleaner sweeter sound. The smaller magnet also reduces the change of movement within the gap of the voice coil. With many of the very large magnets the frame can become distorted due to the mass of the magnet forcing the basket of the speaker.

The DX series tend to sound a bit warmer and more midrange-forward than the classic Lowther sound. For most people that makes them easier to listen to. Of the DX series, the DX3 is the best compromise between performance and price. With a powerful magnet rated at 2Tesla and excellent 98dB sensitivity DX3 is a stellar performer and possibly the best value for money in the entire Lowther line.