

Queen To The Kingdom: Tannoy Dimension TD12 Loudspeaker

Review by Alvin Gold

This review looks at the TD12, EISA award winning High End Product of the Year 2001/2002. This is the flagship of the Tannoy Dimension (TD) range. The TD12 is a massive, costly high-end design using updated Dual Concentric drive units with updated asymmetric designer enclosures. The statistics are little short of awesome - 1030mm tall, 49kg weight, 92dB sensitivity (you can use this giant with a good 8 watt single-ended triode if this is what turns you on, but feel free to use 250+ watt solid state power houses as I did for this test) a frequency bandwidth (-6dB) extending from 30Hz all the way to 54kHz, and a price tag of \$10,000 a pair!

For those who have not encountered Dual Concentric, it is a proprietary Tannoy technology in which the tweeter - in this case a 25mm alloy dome - is positioned just behind the bass cone, which is open in the center where you'd normally expect to find the dust cap. The sound output exits via the Tulip-like arrangement of concentric waveguides, and is horn loaded by the bass cone which surrounds it, in effect giving a single point source output. The tweeter magnet assembly rides piggyback on the main magnet. The Dimension range also features Tannoy's 25 mm ultra-lightweight dome ultra-high frequency SuperTweeter. This is another proprietary technology, a tweeter which is designed to extend the bandwidth of the system to well in excess of 50kHz, and which is housed in a solid aluminum case bolted to the main structure of the speaker. This is old ground, but again for those who are not familiar with the SuperTweeter, the basic idea here is less to extend the frequency response to match the extended bandwidth of the new digital media like DVD-Audio and SACD, but to reduce high frequency phase distortion and to improve transient response, factors that are known to influence low frequency reproduction too. Hence the claim that the SuperTweeter improves the bass, and they're right.



The physical aspects of the Dimension TD12 are as distinctive as the aesthetics. The enormous enclosure has a trapezoidal cross-section, with a canted top that is shaped at its apex to accommodate the solid metal housing for the supertweeter, which is a version of the ST-200 that was introduced as a general-purpose add-on for existing speakers about a year ago. The base of the enclosure is also tilted, but in the opposite sense to further reduce any symmetry that might encourage internal reflections, with the enclosure vertical orientation established by a fully integrated pair of inverted cone shaped aluminum feet, tapped for spikes, that are extended vertically to form the low diffraction wide radius vertical cabinet edges.

Rather than using enormously thick chipboard panels to deaden the enclosure, Tannoy has taken the more intelligent route of building the carcass from birch ply, 25mm thick for the main panels apart from the baffle, which is 38mm thick. The laminations provide high levels of

damping, but the enclosure is further stiffened by an extensive system of shelf bracing and by using different materials in combination, an idea that Tannoy calls DMT - Differential Materials Technology. The supertweeter is set well back from the tweeter, and a layer of black velvet material is used to inhibit early reflections from the near horizontal section at the top of the enclosure, and the felt is extended down the front to surround the main Dual Concentric driver. The massive enclosure is rear vented with two large ports which are fitted with removable reticulated foam bungs which help damp the port resonance, though with the very open grade of foam provided, the damping effect is not large.

Viewed from the side, the SuperTweeter is positioned behind the apex of the 30.5cm Dual Concentric bass cone, an arrangement designed to provide time alignment in the forward listening plane. In fact the picture is somewhat more complex than this simplistic description implies. The main bass/midrange crossover in the Dual Concentric unit is at 1.1kHz, about an octave and a half lower than in a conventional speaker crossover, and because the two units are concentric and time aligned, and thanks also to the directional properties of the Tulip waveguide in front of the tweeter, the unit has a phase correct transition, not only on the primary listening axis, but over a wide solid arc. Of course if you listen from off to one side, the level of treble eventually falls off, but the critical crossover region is largely free of the usual interference peaks and troughs caused by phase reinforcement and cancellation, and this characteristic has been enhanced in this version of the unit, thanks to the new lightweight pulp bass cone, which has a much smoother output over the top of the passband than the polymer cones used in the previous range of Dual Concentrics. The drive unit chassis are linked by a ground wire, which can be connected back to system ground via a fifth terminal on the WBT biwire terminal block on the rear, and while I couldn't reliably detect a benefit using the partnering equipment to hand, it is quite possible that amplifier earthing arrangements other than the one involved with the Musical Fidelity A3CR and A300CR pre/power amp used for most of the test will show some benefit.

Of Music And SuperTweeters

Although the supertweeter is time aligned as previously described, it is axially displaced, and the alignment will only hold on one axis, and because the transition from the tweeter happens at a very high frequency - around 12kHz - the phase response is bound to be all over the place, when even only slightly off axis. In addition, the supertweeter is not claimed to have a completely smooth output within its passband. It is claimed to be more or less flat out to 30kHz or so, with -6dB at 54kHz, and 'useful' output to around 100kHz (-18dB). In practice the SuperTweeter output is barely audible as such, but make no mistake about the effect it has on the sound at a whole, which tends to be most apparent when it is removed from circuit. Although its contribution may be negligible when the whole system is running (it's almost inaudible even when auditioned on its own, as I discovered when I tested the stand-alone ST-200 on its own some time ago), covering the tweeter with gaffer tape has a significant and adverse effect on the sound, which becomes oddly boxy and compressed, as well as sounding less detailed and slower. Further, prizing away the magnetically secured mesh covers that protect the fragile dome has an additional beneficial effect on the sound. The SuperTweeter is extremely directional, and listening on axis really works, subtly but unmistakably.

It took about two days for the previously run in but extremely cold test pair to come fully on song, and although orientation and positioning was remarkably uncritical, presumably thanks to the wide, even dispersion over the main part of the audio frequency band, removing the baffle covers is an absolute necessity. Once this has been taken care of, it became clear that this is a very special loudspeaker, with a unique set of aural attributes. In many ways indeed it is in a class of its own, but unlike the JMLab Mezzo Utopia which I have standardized on (previously reviewed - check archives) it could be criticized for lacking the ultra fine resolving ability, refinement and superbly articulated micro-dynamics that are the hallmark of that design.

But living with and listening to the TD12 was full of incident, almost all of which were life (or at least music-) enhancing. I confess that I had my previous experiences of Dual Concentric in mind when I started using the TD12. This didn't mean I was prejudiced against them: I have long admired the breed for their consistency and dynamic ability, and the very easy way in which they seemed to take up residence in real rooms, making the best of the available acoustic thanks, in the main, to a good off-axis phase response. It is the off axis radiation that energizes the room, and which comes back at the listener as an acoustic halo around the sound, though it is rarely perceived independently from the first arrival direct sound, of course. The downside with Dual Concentrics, however, has always been a certain coarseness and wiriness that tends to make music sound rather inexpressive and occasionally clumsy and brittle edged. At high volume levels the effect tends to load up, and the result simply lacks the finesse or dynamic consistency that I look for in a loudspeaker.

As the Dual Concentric bass cone is larger than other Dual Concentrics I have used in the past, I fully expected the TD12 to be worse in the crossover region - or I would have had it not been for the almost missionary zeal in which another reviewer which views I respect (thanks, Martin Colloms) had presented the TD12 in conversation. I am not big on proselytising or missionaries, which I automatically associate with the worst forms of religious bigotry, but I requested a review pair anyway, and was frankly astonished by what I heard.

Without wishing to make this sound like an unwarranted insult to others in the big high end loudspeaker business, the Tannoy seems to me to effectively overcome the shortcomings endemic with such speakers as a breed. They are frequently more than capable of projecting power, image scale and authority, but they too often tend to sound overbearing at the low frequency end of the spectrum, and muddled through complex passages. Of course this is not a universal complaint, but it is far from being an isolated one, and it serves to reinforce the proposition that as bandwidth is extended, design difficulties seem to increase exponentially.

Rules and Regulations

Tannoy hasn't rewritten the rulebook, and there is still a suggestion of quintessential Dual Concentric-like mid and upper-midband coloration in the TD12, but they have tamed it's worst manifestations. Rather than being exaggerated by the bass cone's presumed inability to work cleanly at the upper end of its passband, the situation is exactly the opposite. The high power design of the TD12 is clearly in its element at that kind of volume levels that cause otherwise good alternative designs real grief, and there is little of the expected loading up of harshness as the volume level increased, at least not before the kind of sound pressure levels in my 3 x 8 meter that would have me quickly evicted from house and home. Actually this is not quite the whole story. There is a certain something about the upper midband, which tends to beam slightly, giving an impression of listening through a tunnel, and this does increase to an extent with level. But it happens slowly, and the effects rarely strays far above the lower limits of perception, and as a result it's a largely static unvarying quality that is quickly learned and forgotten. Much more obvious is the fluidity of the sound, the broad, expensive way that images are formed, the rich, pungent yet tuneful and immaculately controlled bass, and its overall agility and propulsive timing. One particularly impressive quality is the way that the sound scales itself to the music. While orchestras sound larger than you may have thought possible from a hi-fi system in a normal room, chamber and solo music, or solo singing, when properly mic'ed, reproduced from a realistically smaller acoustic space.

The TD12 generated some of the most realistic orchestral tonality I have experienced in a long time, perhaps ever outside the concert hall, and the sheer physical breadth and scale of the sound came as a revelation. The hushed opening to the second movement of Vaughan Williams London symphony (in the Richard Hickox/LSO version on the Chandos label - a worthy winner in this year's Gramophone awards) had a raptness and density of sound, along with and an exquisitely varied range of tonal values that bought the performance to vivid, glowing life. There was never a hint of any loss of density and passion even during the quietest moments.

This is also an extremely dynamic loudspeaker. The word dynamic is a multi-purpose adjective that can be used to cover a multitude of sins, so let's specify by saying that the TD12 obeys the everyday meaning of the term, namely that it has the ability to reproduce the loudest and the quietest passages of a work in their correct relationship, better, arguably, and often more dramatically than with any other loudspeaker I can recall, and certainly at the price. But the TD12 is dynamic in another sense too, namely its ability to resolve low level information in the presence of louder events, and this is the kind of ability that is necessary to make sense of the complexities that are found again and again, not least in the previously mentioned Vaughan Williams recording.

The Roundup

Tannoy has a long history of making expensive singing wardrobes, primarily horn loaded designs aimed at the Far Eastern market. Many of them have been unevenly fine loudspeakers in many respects, but none to my knowledge has ever come close to demonstrating the technological sophistication of this endlessly fascinating design, and none I am convinced has its wide ranging yet fully rounded musical talents.

Tonality	80
Sub-bass (10 Hz - 60 Hz)	85
Mid-bass (60 Hz - 200 Hz)	90
Midrange (200 Hz - 3,000 Hz)	80
High-frequencies (3,000 Hz on up)	85
Attack	90
Decay	90
Inner Resolution	85
Soundscape width front	95
Soundscape width rear	90
Soundscape depth behind speakers	90
Soundscape extension into the room	80
Imaging	90
Fit and Finish	85
Value for the Money	85