

# A tremendous cinema system

Can a home cinema set costing 24,000 euros be worth every euro? It can if it comes from Quadral!

▶ Audiovision takes an in-depth look at Quadral this time. The reason for this: The

## QUADRAL AURUM VULKAN SET

- + Very natural sound
- + High tone rang is finely defined
- + Very high maximum volume
- + Deep rich and very clean bass
- Its size makes the Center easy to position

second largest box in the top Aurum range made by the manufacturer based in Hanover, the Vulkan, has been completely updated and is now called the Aurum Vulkan VIII R and Quadral sent us four of these 122 cm high upright speakers that weigh 55 kg each (8,000 euros per pair) for testing as front and surround sound boxes. The four Vulkans make powerful colleagues when placed on the sides of: the Center Titan Base, which costs 5,000 euros and the Orkus subwoofer (1,500 euros), of which there were two.

## Technology

In the case of the Vulkan the term "updated" is a real understatement. The only part that remains from the previous box is the low mid-range section, as everything else has been replaced. For example, two 20 cm diameter chassis are now used for the bass. They have virtually the same membrane surface as the 30 cm one that was used in the previous model, but react faster when pulsed thanks to the reduced size of the membranes.



**Typical:** Quadral's high recognition value allows the bass pressure chamber to be restricted by the taught rubber strips. Anyone who wants to use this huge Center will need a lot of room in his home cinema.

This also means that the case does not have to be so wide and this makes the smaller chassis easier to integrate.

For some time now, Quadral has no longer been fitting the woofer used in the large speaker models directly on the baffle plate, but offset to the rear by a few centimetres. There are small spaces in front of the membranes that also work as so-called pressure chambers and these amplify the bass and bot-

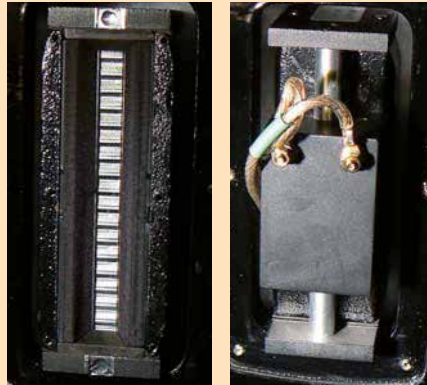


## RIBBON TWEETER

In principle, a ribbon tweeter like the one used by Quadral, is extremely easy to construct. The tone signal current flows through a thin strip of aluminium foil and it hangs in a powerful magnetic field.

Like all top quality speaker models, the devil is in the details. An aluminium strip has extremely low impedance of just a few milliohms, which cannot handle normal amplification. A transformer, known as a transducer, must also be fitted in front of the ribbon, which can step up the impedance to an acceptable value for the amplifier. In addition to this, the way that the aluminium foil is suspended as well as its folds are decisive with regard to the sound quality. Furthermore, powerful magnets are also needed so that the ribbon can generate usable volume levels. Last but not least is the importance of the design and the insulation of the chamber behind the membrane foil, so that no resonances and/or reflections can occur.

The advantage of using ribbons easily exceeds any disadvantages. For example, the moving mass of the membrane is extremely low, which results in an excellent pulse ratio. Membrane resonances are eliminated, as the current flows across the entire surface of the foil and it is driven homogeneously. The membranes used for the ribbon tweeters can be very small, which ensures that their



**The small aluminium strips** in the centre form the membrane used by the Quadral ribbon tweeter (left). The rectangular box at the back of the tweeter houses the transducer.

horizontal omni-directional sound distribution stays wide and even. However, the vertical alignment, especially with long designs such as those used by Quadral, is tight and this prevents both ceiling and floor reflections.

Magnetostatic working speakers are frequently used and, as such, they have conductive paths bonded onto their plastic membrane foil and these are also called ribbons.

## Surround tone quality

Absolutely exemplary and only insignificant sound ripples are able to affect the frequency responses from the Vulkan and the Titan Base. With a minor exception: The Center shows a clear break up around 600 Hertz, which does not completely vanish even when using side measuring.

When we asked Quadral engineer, Sascha Reckert, if this problem is seen as a defect and we were given the reassuring answer that everything is OK and this quite normal. The technical explanation: The two pressure chambers used for the woofer act as an absorber in this range for the sound generated by the mid-ranger. However, it is virtually inaudible, as the effect is extremely narrow-banded. The omni-directional sound distribution of the Titan Base is absolutely exemplary and no other centre can come anywhere near it. The two subwoofers work down as low as 30 Hertz and are still very loud at 112 decibels.

One would think that with the Vulkan's total of eight 20 cm bass chassis as well as the two 25 cm ones from the Center that sufficient bass area is available. In fact, even without the two Orkus units the set generates sufficient bass pressure to ensure opulent home cinema and musical enjoyment.

However, if you add in the two subwoofer specialists, positioned in the vicinity of the "large" speakers, then you will have additional boost from deep down in the abyss. Particularly impressive: The fly-over of the robot aircraft after the wrecker truck chase in "Terminator: The Salvation". It will blow you away!

Naturally, bass reproduction is not the only strong point of this Aurum combination. Initially the set makes a restrained and unremarkable impression during "Ratatouille", when Remy is looking to take herbs from the old lady. The voices are clear and pure and the ambient noises are natural and plausible. If you listen more closely, "unremarkable" becomes precision without any exaggeration and "restrained" becomes smooth detail and high tone reproduction without any sharpness. These characteristics remain completely intact, even when the sound of the shotgun rises above the old lady's powerful voice or Remy is making a lot of noise fighting for his life in the drain. Your ears will never tire of listening to this set and you will really enjoy long home cinema sessions.

Using four identical speakers for the Front and Surround makes this Aurum set the perfect choice for playing multi-channel music. For example, Aaron Copland's "Apalachian Spring" played by the San Francisco Symphony was a lot of fun. This small orchestra plays with joy and enthusiasm, the violins sound like real violins, sometimes gently, sometimes aggressively, but always without the unnatural glassy hardness of many other speakers. For hard rock fans we recommend "Away from the

tom tone ranges. Quadral has fitted taught, thick black rubber strips across the rectangular opening at the front in order to visually conceal it. At the rear the woofer works in a conventional bass reflex case and in the case of the Vulkan VIII R an amply dimensioned tube has been fitted in order to prevent flow noises.

Like the two woofers the 17 cm mid-toner also uses a membrane made from a special material, which the manufacturer calls "Altima", to produce its sound. This is made from aluminium, titanium and magnesium and it optimally combines the characteristics of the three metals. Any membrane resonance that occurs can be removed from the usable range of the chassis and suppressed by the frequency separating filter. The mid-ranger is identical to the one used in the top model, the Titan VIII. The same applies to the tweeter, which is a real ribbon and this current carrying conductor, which is a strip of aluminium foil, is responsible for the sound radiation (see box above).

The Center Titan Base is a direct descendant of the Titan VIII, as mentioned previously. The chassis used for the Center is identical to the one used in the flagship upright speakers, only the volume of

**Expenditure:** The number and quality of the components that Quadral have fitted in the Vulkan VIII R prove that no expense has been spared.

the casing has been reduced. Despite this, it is exceptionally big designed. It is difficult to see it being placed underneath a normal flatscreen TV, as it is the same size! It really should be used in a fully-fledged home cinema system together with a projector and a XXL screen. Even then it is not easy to handle, it is placed underneath the screen so that it is as close as possible to the floor as well as the rear wall. The resulting bass boost should be compensated for using an AV receiver.

The best position of the center is behind a sound permeable screen.

The profound bass lends its name to the two Quadral subwoofers: Orkus, which means underworld in German, best describes an abyss or the depths. This is realised with the help of its 32 cm long-throw chassis, which radiates downwards. The distance to the floor is determined by four huge feet that also have to be secured to a base plate. A power amplifier with full 500 Watt sine power provides the required drive.



**Linear control** over the separating frequencies and peaks with the Orkus subwoofer – the phase can only be switched between 0° and 180°.

## ADVANTAGES OF A DOWNFIRE SUBWOOFER

If your subwoofer does not look like a woofer chassis or even a front cover that is hiding the unit behind it, you should assume that a downfire design is being used.

In this case the chassis will have been moved down to the bottom of the case and the sound radiates downwards. Naturally the subwoofer cannot be attached to the chassis frame, as it would no longer be able to move if it was. A predefined gap between it and the floor has to be maintained and this can be realised by using feet of a specific length. Quadral, like many other manufacturers, uses a solid base plate, which increases the stability of the case.

The main advantage of this special design can also be a disadvantage: The sound radiation is in close vicinity to one of the room boundaries (i.e. the floor). In accordance with the laws of room acoustics, it follows that the room resonances, which depend on this boundary, are going to be strongly stimulated. In many rooms this has a positive effect as frequencies that would normally be reproduced weakly, will be amplified. In other rooms this can be excessive, so that the bass becomes booming and imprecise.

Another advantage is the load effect, which causes a volume of air to be trapped between the bottom of the



The Quadral subwoofer chassis is fitted between the bottom of the case and the base plate.

subwoofer and the floor, similar to the pressure chamber used in Quadral's main speakers.

This effect is not particularly intense on the subwoofer's working frequencies.

The end effect can be seen with downfire subwoofers: Their pulse reproduction is, in theory at least, better than that of a chassis laid on its side. When the pulse forces the case membrane to speed up, the subwoofer's own weight stops the case from moving in the opposite direction, at least to the point at which the case accelerates to exceed the Earth's gravity. If the chassis is laid on its side then, in the case of large membrane hubs, nominal evasive movement can often be seen and this might well prevent the sound from being radiated.

Sun" by 3 Doors Down, where the cracking guitar rock coming from the Quadral boxes is up there with the best.

### Stereo tone quality

The Vulkan VIII R will still delight you even if it is used just as a simple stereo duo: It also shows restraint here, if you listen for a long time, for example, to "All for the Feeling" by Clair Marlos, it comes over full of true detail and very precise, which means that there is some exaggeration and distortion occurring not only in the high tones. An extremely plausible three-dimensional area is created with "Jazz at the Pawnshop" and this will make you feel as if you are in a jazz club in Copenhagen and you will completely forget reality if you close your eyes as well.

mino



Superb: The bi-wiring connection terminals fitted on the Vulkan VIII R enable large speaker cables to be attached. The high tone level can be switched up or down by two decibels.

## AV CONCLUSION

Here at audiovision we have never tested a set of speakers before with this type of naturalness and smoothness and none of the detail is suppressed. The profound bass controls Quadral's updated sound artist. We awarded this 5.2 Aurum combination set, which costs 24,000 euros, 94 points and this puts it right at the top of our test table.

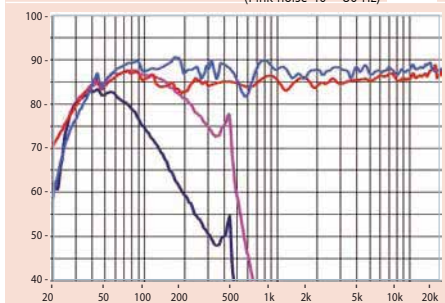
## QUADRAL AURUM

Configuration	
Price (RRP)	24,000 euros
Styling	High-gloss white; high-gloss black
Dimensions / Front weight	122 × 28 × 50 cm / 55 kg
Dimensions / Center weight	39 × 80 × 44 cm / 49 kg
Dimensions / Surround weight	122 × 28 × 50 cm / 55 kg
Dimensions / Surround back weight	No surround back
Dimensions / Subwoofer weight	43.7 × 40 × 50 cm / 31.6 kg
Sub/Sat-Set	No
Number of speakers	5.2
Front / Center / Surround technology	
Number of paths	3 / 3 / 3
Minimum impedance	3.43 Ohms / 3.64 Ohms / 3.43 Ohms
Sensitivity	85.1 dB SPL / 87.3 dB SPL / 85.1 dB SPL
Bi-wiring	yes / yes / yes
Subwoofer technology	
Working principle	Bass reflex
Remote control	No
Amplifying power	500 Watts
Membrane diameter	32 cm (13 inches)
Phase control	Controllable, 0° to 180°
High-pass filter	20 - 50 Hz
Low-pass filter	No

## EVALUATION

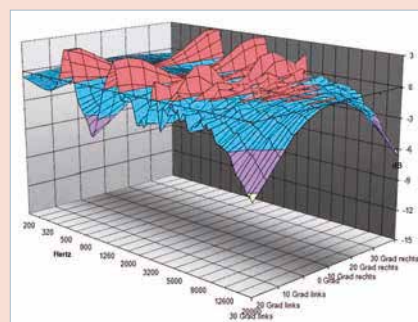
tone quality 5.2 MULTI-CHANNEL Very good 56 / 60

Neutrality	11 / 12
Dynamics	11 / 12
Speech intelligibility	11 / 12
Reproduction capability	12 / 12
Bass characteristics	4 / 4
Front lower frequency limit	30 Hz (with sub) 3 / 4
Maximum acoustic bass pressure	112 dB SPL (Pink noise 40 - 80 Hz) 4 / 4



Front Center Surround Sub maximum crossover frequency Sub minimum crossover frequency

Only abnormality is the break-up just below 600 Hertz recorded by the Center. This is virtually unnoticeable acoustically.



Listeners at the side can also hear optimum voices coming from the Quadral Center.

STEREO TONE QUALITY Very good 23 / 25

Neutrality	5 / 5
Dynamics	4 / 5
Speech intelligibility	4 / 5
Reproduction capability	5 / 5
Bass characteristics	5 / 5

MATERIAL & WORKMANSHIP Very good 10 / 10

CONFIGURATION Very good 5 / 5

av evaluation excellent 94 from 100

REFERENCE CLASS