

Sound & Recording

Producer, Engineer,
Composer & Musician

[RCF Mytho 6] Test

RCF Mytho 6

Individually calibrated monitors from the reference monitor series of the renowned Italian speaker manufacturer RCF

The name RCF is known to many people in the field of sound reinforcement: RCF is both a manufacturer of complete loudspeaker systems as well as the supplier of high-class drivers. Many big names in the world of PA systems rely on RCF drivers and equip their top products with the drivers from Reggio Emilia. This is where RCF was founded – in 1949! The company can therefore draw on more than 60 years of experience building loudspeakers, which is reflected in a broad product range reaching from drivers via PA-systems and installation speakers up to studio monitors.

From developing active PA-speakers RCF had already accumulated a wealth of experience regarding electronics like power amps and controllers in speakers. These were quite useful in addition to the experience in building drivers and enclosures when the company started to develop studio monitors. The result are the models Mytho 6 and 8 which are currently being launched onto the market.

Mytho Models

The well-styled design of the webpage and product infos befit the name and deliver the impression of a valuable, high-quality product with a special touch. As some examples even from recent history have shown, success needs more than a technically good product, but a special legend building or „Mythos“ surrounding the product. Good audio technology is a prerequisite for success today, but is not sufficient by itself.

Let's have a closer look at the Mytho. We received the Mytho 6 with a 6.5 LF unit plus 1" tweeter in a two-way design. The larger alternative Mytho 8 correspondingly comes with

a 8" LF speaker. The enclosures are made of two aluminum die cast halves fixed together with long screws. All the internal bracing, the waveguide for the tweeter and other mechanical parts for mounting drivers and electronics are cast within the aluminium casing. Since there is a high degree of design freedom when manufacturing enclosure molds the outer form was designed with ample curving at the edges, which offers clear advantages in reducing edge reflections. A further advantage of the aluminium enclosures is the good relationship between interior and exterior volume, since the shell material can be significantly thinner than in wooden cabinets.





The woofers of the Mytho monitors are fitted with Neodymium drivers, a 2" voicecoil and a cooling system based on the most recent technology. The membrane is reinforced with carbon fibres and fitted within an amply dimensioned rubber sink. A further feature of the woofers is the impedance control coil (ICC). It is a secondary coil mounted on the speaker yoke and driven in opposite phase to the primary coil, reducing primary coil inductivity. This results in higher current flow with correspondingly higher sensitivity and lower distortion at higher frequencies. Above 1.9 kHz (see X-over function in pict.6) a 1" dome tweeter with a membrane made from an aluminium/magnesium combination is used. The driver also uses a neodymium magnet.

For better heat dissipation from the moving coil to the magnet and carriage of the tweeter the air gap is filled with ferrofluid. This dampens the basic resonance of the tweeter to a high degree as well.

For the poweramps with 200 W and 100 W respectively for low and high ranges the classic AB-class technology was used, which is widely considered above any discussion regarding audio quality in contrast to PWM class-D circuits. Signal processing is handled in the digital domain with an integrated DSP-system. All the filter functions, the clip-limiter and individual equalisation for each speaker are processed here. In reality this means that each speaker is tested and individually adjusted regarding level and frequency in the factory before being shipped. The low difference tested of only up to 0.5 dB at the worst point within the pair confirms this. The filters to match location and positioning specifics are also handled by the DSP system. These consist of low- and high-shelf filters, called bass- and treble-tilt, a bass roll-off, a 80 Hz highpassfilter, a desktop-filter setting and a „linear power response“ setting. All the respective filter curves are shown in picture 6. The desktop setting lowers the area around 145 Hz with a bell filter by ca. 2.5 dB and thereby compensates a potential level rise by a position on top of a console or table.

Linear Power Response

The name „linear power response“ also hides a bell filter - at 1 kHz with a slight boost of 2.5 dB. The background concept for this filter, which allows the settings „linear power response“ and „linear frequency response“, is the fact that there are two different methods to judge the frequency response of a speaker. The „normal“ frequency response test is done with very low reflections in the surrounding area and only counts the frontal projection of sound from a speaker. A different method tests the power frequency response of a speaker and measures the complete sound energy projected from the speaker into the room. Since the projection is more or less globular (ball-shaped) at low frequencies and a controlled and even dispersion only starts when frequencies rise to mids and treble the power frequency response usually rises to the lows. The power fre-

quency response of a speaker should therefore be linear above a certain frequency, which depends on the size of the speaker, at least if the speaker has a more or less regular dispersion behaviour. Which frequency response is the more relevant? The answer depends on the room. The better the acoustic damping of a room, the more important is the free field frequency response. But if the room is more reverberating and projecting a lot of the generated sound back to the speaker, the power frequency response becomes more important. The linear rise to the lows in the power frequency response is more or less the expected listening experience, which means that there should be only small corrections or none at all. Diversions from a regular steady flow of the power frequency response tough should be corrected fully or partially depending on the room.

All the filter functions of the Mytho can be adjusted through 12 DIP-switches on the back panel. A level control +/-6dB as well as a balanced analog input with a XLR/jack combination connector can also be found here. A digital input, which would make sense in view of the DSP system, does not exist so far.

Lab Test Results

Let's have a look at the other lab results of the Mytho 6. Picture 1 shows the frequency and phase responses. The first is shown without and with 1/3 octave smoothing. Even without smoothing the curve looks quite regular. Expressed in numbers this means a frequency response of 42 Hz to 22.8 kHz (-6 dB) with a maximum deviation of +/- 1.7 dB. Only the membrane resonance of the metal dome at 26.4 kHz sticks out – but this is far away from the hearing range. Still it should be avoided to use this frequency unnecessarily, since this could result in intermodulation products within the audible spectrum.

The results for maximum level is also very convincing. Both curves in picture 2 are smooth and without weaknesses, resulting in an average use level calculated as the average at 3% distortion between 100 Hz and 10 kHz of 105.2 dB. In the bass range this value, now calculated for 10% distortion (red curve) between 50 and 100 Hz is 98.5 dB. As the power frequency response implied, the projection character of the Mytho 6 is very

smooth in both planes with an opening of 118° horizontally and 96° vertically. In the vertical isobarics the narrowing at 1.56 kHz, which leads to the small dip in the power frequency response can be seen quite clearly. The noise level of the Mytho 6 is 28.7 dBA at a distance of 10 cm and is therefore slightly noticeable in quiet surroundings at short distances.

Listening Test

For our listening test we chose a typical nearfield positioning with a distance of about 2 m. Thanks to the flexible and safe stand of the cabinet the positioning is quickly done. The acoustic impression of the Mytho can be described as „pleasing“, „smooth treble“ and „powerful in the bass range“. The source sounds are positioned precisely and stable in the sound picture. The playback of vocals is also natural and excellent. A slight muddiness in the bass can be noticed, but it can be corrected with the filters. The potential levels are high for a nearfield monitor. It had to be noticed though that the internal limiter did not always react perfectly to overload,

which then led to noticeable distortion in some cases.

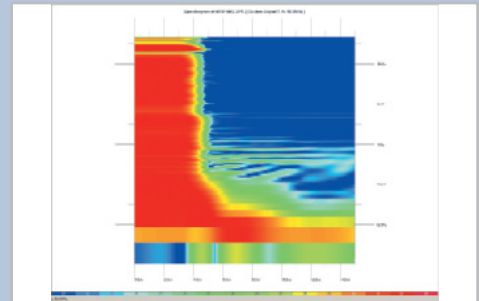
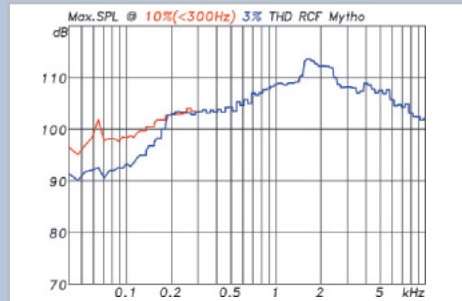
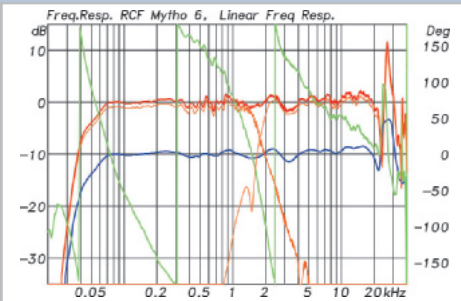
Conclusion

With the Mytho the great Italian manufacturer RCF is now entering the market for studio monitors with an initial offering of two models. The huge experience of 60 years of developing speakers and electronics were brought into the design, which directly led to a highly professional product. The Mytho 6 delivered for our tests delivered excellent results in every aspect from frequency response to maximum levels and directivity. The listening impression was also a very pleasing and matched the lab test. The only criticism could be the lack of a digital audio input. The package is available at a price of € 2,098 per pair, which is a very reasonable pricing for such a well-equipped high-quality monitor in international comparison.

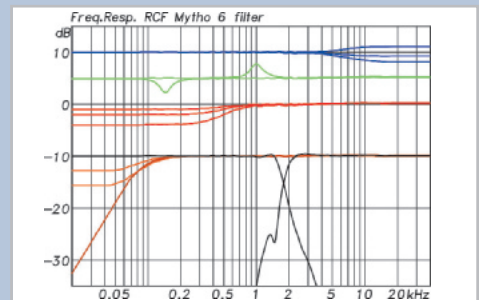
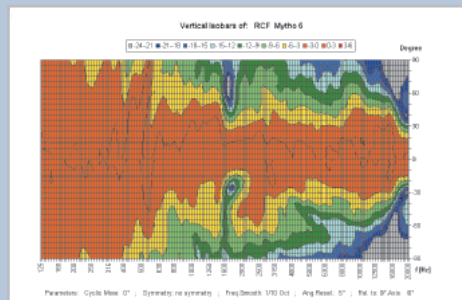
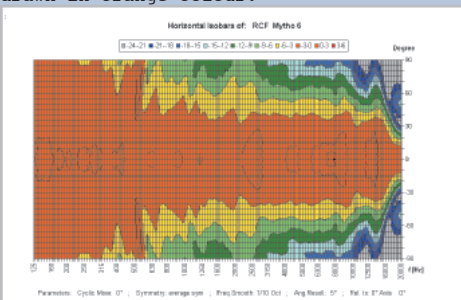
Text and lab tests: Anselm Goertz
 Translation: Alex Merck
 Fotos: Dieter Storck

Overview

Frequency range:
42 Hz – 22.8 kHz (-6 dB)
 Peak-to-valley difference:
3.45 dB (100 Hz to 10 kHz)
 Horizontal opening:
118 degrees (-6 dB Iso 1 kHz to 10 kHz)
 Horizontal standard deviation:
18 degrees (-6 dB Iso 1 kHz to 10 kHz)
 Vertical opening:
96 degrees (-6 dB Iso 1 kHz to 10 kHz)
 Vertical standard deviation:
25 degrees (-6 dB Iso 1 kHz to 10 kHz)
 Maximum usable level:
105.2 dB (3% THD 100 Hz to 10 kHz)
 Bass useability:
98.8 dB (10% THD 50 Hz to 100 Hz)
 Deviation within pair:
0.5 dB (maximum value between 100 Hz and 10 kHz)
 Noise level (A-weighted):
28.7 dBA (at a distance of 10 cm)
 Magnetic screening:
no
 Size:
265 x 370 x 250 mm (WxHxD)
 Weight:
10.5 kg
 Price per pair:
pp. € 2.098,--



Pict.1: Frequency response on axis at a distance of 2 m unsmoothed (red) or smoothed with maximum of 3% THD (blue) and 10% THD 1/3 octave (orange) as well as the corresponding phase response in green. Individual frequency response curves of tweeter and woofer are drawn in orange colour.
 Pict.2: Maximum level at a distance of 1 m at 10% THD (<300Hz) (orange) and 3% THD (blue). The 10% curve was only measured to 300 Hz.
 Pict.3: Spectrogram with decay pattern of the speaker showing few small resonances in the midrange



Pict.4: Horizontal dispersion pattern with dB isobarics (from yellow to light green)
 Pict.5: Vertical dispersion pattern with dB isobarics
 Pict.6: Filter functions of the Mytho 6. Blue: treble tilt, green: desktop-control (145 Hz bell) and linear power response (1 kHz bell), red: bass tilt, orange: bass rolloff and 80 Hz highpass filter, black: woofer and HF speaker individually