Many Audio Physic loudspeakers feature the following technologies:

- **Push Push**

  Audio Physic’s three-way and three-and-a-half way loudspeakers are equipped with side firing woofers. Our loudspeakers keep a narrow baffle design, which allows for superb spatial imaging. The drivers are operating in phase (all woofer cones move simultaneously in the same direction, either inwards or outwards). Forces acting on the cabinet are nearly cancelled out with this effective — so-called push-push configuration — and precise, low-resonance sound reproduction is achieved.

- **Vibration Control Terminal: VCT**

  Cables not only carry electrical signals, unfortunately they also carry mechanical energy that moves at its strongest in the opposite direction to the signal. Therefore, vibrations picked up and measured on a loudspeaker cabinet can be followed back to the source of the signal. Audio Physic has developed the Vibration Control Terminal in order to eliminate such unwanted vibrations. The massive aluminum construction is additionally damped and fitted with a neoprene gasket for elastic suspension ensuring that the binding posts are effectively decoupled from the cabinet.

- **Active Cone Damping**

  Active Cone Damping (ACD) was first developed and implemented by Audio Physic in order to avoid resonances associated with metal cones. A silicone/rubber ring is mounted on the outer ring of the cone where it directly applies pressure on the cone. This is a highly effective means to eliminating the otherwise unavoidable ringing and therefore removes the metallic sound.

Audio Physic designs loudspeakers in the following configurations:

- **2 Way**

  A two-way system is designed to include two different types of drivers dividing the audio spectrum into two bands — one driver (with center loudspeakers often two) covers the bass/midrange whereas the other one handles the highs. The crossover frequency is normally set between 2000 Hz and 3000 Hz.
2½ Way

In the case of a two-and-a-half way loudspeaker, a woofer is added to the two-way system where it covers the bass frequencies up to approx. 500 Hz and operates in parallel with the woofer/midrange driver.

3 Way

A typical three-way design operates with three different types of drivers dividing the audio spectrum into three bands. Normally it features one or more woofers, one midrange driver and one tweeter. It is common to set the crossover from the woofer to the midrange driver between 150 Hz and 300 Hz whereas the crossover frequency from midrange to tweeter is normally set between 2000 Hz and 3000 Hz.

3½ Way

When it comes to a three-and-a-half way design, a three-way loudspeaker is supplemented by an additional woofer/midrange driver covering the upper bass / lower mid frequencies up to approx. 500 Hz operating in parallel with the midrange driver.
The Hyper-Holographic Cone Midrange Driver

Hard shell – soft core: an awesome midrange driver and exclusive design by Audio Physic!

It has been commonplace for many years to manufacture driver baskets consisting either of plastic or metal. However there is a well-known German proverb saying that double stitching lasts longer. We took this to heart, doubled our efforts and designed the hyper-holographic cone midrange driver, HHCM in short, a novel basket construction using a combination of aluminium and plastic.

Aluminium is stiff and conducts heat better than plastic material which, in turn, allows for a much higher internal damping. Both characteristics are important in loudspeaker manufacturing. Provided that the two materials are efficiently combined, their properties complement each other in such a way that damping of resonances is perfectly coupled with mechanical and thermal stability.

The two materials are used where they do their best in what they are best at doing. Moving parts such as the diaphragm, the surround, the centering device and the voice coil are held in proper alignment by a plastic inside basket designed to achieve a maximum degree of damping inside (marked in red in the illustration). The powerful neodymium magnet is encased in an outside basket made of die-cast aluminium.

Let us look at the advantages: the generated heat is efficiently dissipated by extensive cooling fins whereas remaining vibrations are transmitted to the mounting ring via slim stiff bridges.

Such a double-basket construction makes a lot of sense. Basket and cabinet resonances are effectively kept away from the driver diaphragm while at the same time the thermal behaviour of the midrange driver significantly improves.

Special attention is also given to the aluminium diaphragm itself which takes full advantage of Active Cone Damping II implemented to avoid ringing resonances frequently associated with stiff diaphragms. A U-shaped elastic ring is designed to fit snugly around the rim of the cone, causing the diaphragm to tighten. Therefore, resonances having an adverse effect on the sound quality can be prevented right from the start.

All these measures have only one goal in mind: to achieve a perfect marriage of ultimate resolution performance and absolute freedom from coloration.

In addition to achieving outstanding measurement results, the HHCM truly lives up to its name, reaching a superior subjective level of reproduction quality.

Never before has music been reproduced with such holographic quality!
The Hyper-Holographic Cone Tweeter II

The tweeter that you can’t hear!

Back to the Future II

Cone tweeters, notorious for being used in cheap loudspeakers picked off the supermarket shelves, went out of fashion years ago. New lightweight, soft materials were implemented to reduce the overall moving mass, however these materials also required a new geometry to ensure stiffness and stability: The dome. With the introduction of new, stiff and yet lightweight materials, the use of dome-shaped tweeters is becoming questionable. Soft domes tend to wear out at an early stage where the movement at the rim is different from the movement occurring in the interior zone. As a result, the dome starts "to ring" where it adds its own audible colorations to the signal.

Instead of hearing the music, you hear the sonic signature of a ringing tweeter. Light, stiff membrane material does not need to struggle with the tradeoffs involved in using domes – therefore, in the case of midrange drivers, the use of domes has practically dissolved into thin air over the past couple of years. AUDIO PHYSIC took the next logical step by further exploring the subject of cone membranes in tweeter systems. Already the first samples convinced the audience with their holographic reproduction displaying an unparalleled degree of plasticity.