



Audio Physic continues to enjoy a high profile in Germany, the company's home country. Also responsible for the Tempo, which I reviewed last year [HFN/RR, October '95], Audio Physic delivers innovative speaker designs with sound quality placed beyond considerations of size or technical specification.

That is not to say that Audio Physic speakers are low tech — far from it. A high level of skill is shown by the company's designs, but here the technology is at the service of the designer whose intention is a musical performance. Audio Physic speakers generally incorporate customised drive units to help achieve certain specific goals [see box].

Priced at £1749 with the necessary stabilising bases (not shown in main picture), the Spark is an uncompromising design, ultra-modern and almost sculptural in appearance, with a slanted-back attitude and a trapezoidal profile. It stands tall at 980mm and seems almost impossibly narrow at 145mm. Superbly veneered on all surfaces, it looks especially good in a modern setting. In one sense, it's a high performance, floor standing version of the renowned Audio Physic Step.

Stereo focus is maximised by the slim dimensions, while the 7° slant achieves time delay compensation between the drivers, optimising the phase integration on the listening axis. Electrical connection is via gold plated 5-way binding posts, non bi-wired. The base is spike-coupled to the floor.

Designed expressly for this model, the 120mm bass driver has a vacuum moulded clear XP (high polymer) flared cone with a low loss surround, fitted with a 25mm pole, and dual, paralleled section, voice-coil of fairly high inductance. In its

development, the modulation of inductance due to coil position in the magnetic gap was controlled using special 6mm pole extensions and an eddy current suppression ring at the base of the magnet. This is not equivalent to the eddy-current-busting rings of some Scandinavian designs where coil inductance is also minimised. Here the coil inductance is a deliberate component for shaping the response and it isn't considered equivalent to an external discrete inductor. The latter is said not to convey the 'direct coupled' effect.

Above 3kHz, the high frequencies are served by a custom 19mm alloy dome (hard anodised aluminium), and, like the bass unit, built by Vifa of Norway. While the dome has a phase corrector, its 'Q' is fairly low, and the dome resonance itself is way above audibility, at beyond 35kHz.

As promised, this 86dB/W 4 ohm speaker is direct coupled for the bass/mid-range, single strand wiring linking the rear terminals to the driver. For the treble a 2.2µF polycarbonate capacitor suffices, supplanted by a 3.3 ohm attenuator and a small polypropylene bypass for the extreme treble.

The tall enclosure is almost like a pipe. A 40mm thick foam layer lines the top section constituting an acoustic filter for the upper chamber and also helping to control the main vertical standing wave. Bituminous damping quietens the upper panels of the enclosure. Reducing apertures in the cascade of circumferential braces 'taper' the pipe, to further control this otherwise undamped lower section. A fairly large 60mm diameter flared port completes the reflex configuration via an 18cm long duct, tuned to a sensible 45Hz.

On test [see Lab Report] the 86dB/W sensitivity claim was confirmed, noting that this is a 4 ohm speaker actually drawing 2W from the reference 2.83 volts. The

BRIGHT SPARK

German firm Audio Physic

*has a new loudspeaker in the shape
of the slender-baffled Spark*

by **MARTIN COLLOMS**

SUPPLIER

Aanvil Audio,
Woodvale,
Heath Road,
Woolpit
Bury St Edmunds
IP30 9RU
Tel: 01359
240 687

impedance never fell below 3.6 ohms with an average of 6 ohms, rated as a fairly good amplifier load. I do suggest a minimum of 50W per channel and, ideally, 100W of solid-state or load-tolerant valve power.



SOUND QUALITY

After some healthy drive over a number of days the Sparks were tried in my normal arrangement and also in the free space 'wall mounted listener' set up as proposed by Audio Physic. I got good results from both locations with judicious placement. For the best stereo I found the side wall spacing to be quite large at 1.2m, with the rear wall at just 0.5m. Using the AP method, a head spacing relative to the rear wall could be found which gave the best overall balance, especially in the lower mid range. The effect was lively with very little room character apparent.

Choice of ancillary equipment proved uncritical, providing that it was dynamic, fast paced and transparent, these proving to be the fundamental qualities of the Spark. Smaller amplifiers included an Exposure 20, Musical Fidelity A1000 and Naim NAP250, moving up to the Krell KAV-300i. The Golden Tube Audio SE-40 single ended didn't work at all well on this lower efficiency 4 ohm loading. CD sources included the Orelle CD100SE and the Krell KPS20i/l. The latter was clearly an overkill but didn't overwhelm the Spark. A Conrad-Johnson PV12 took input from a Linn LP12/Aro/ Lingo/Koetsu RSII. Cables were by Siltech and van den Hul.

On first firing up, the Sparks gave a big soundstage: spacious, wide, deep and very well focused. With a transparency comparable to more costly audiophile examples, the sound was full of detail. It was punchy, dynamic, crisp, fast, and well timed. Nailing the lie that this results from a bright treble, the Spark got there with a subtle, well

balanced, very smooth and most refined treble — very unTeutonic!

The bass was open, powerful and rich, its timing a touch slowed by a mild excess (almost a boom) in the bass. For my taste it could be a touch drier, but any interference with the port results in a loss of dynamics, and coherence with the mid. Damp the port, and the whole sound dried out. Careful speaker and listener placement generally sorted out the bass. Driven hard over 60W there was some loss in bass definition and dynamics. However, it was seriously loud, producing an overall level well beyond expectation for such a compact arrangement, if not up to the demands of the largest listening rooms. Good in-room bass was present to 35Hz, a fine result. Through the mid it sounded open, vital and very communicative, drawing parallels with Epos designs. There was also some forwardness to the upper mid, emphasising drum percussion and clarinet, but not excessively so, and this was less apparent in the AP free field arrangement.

CONCLUSION

A great loudspeaker, full of detail and energy, the Spark sound jumps right out of the box. It goes louder and deeper than it has any right to do, and it is surprising to find such a big and spacious soundstage emanating from such a slim enclosure. Transients are excellent, rock and classical tracks are handled equally well with a vital, rhythmic and communicative character. (However, it is worth checking that the upper mid emphasis doesn't react adversely with your chosen electronics.) Forget specifications and price, just use your eyes and ears to judge this thoroughly modern and highly musical design. Products like this make speaker reviewing a pleasure. ✚



AUDIO PHYSIC SPARK

LAB REPORT

On the optimum axis at one metre (on mid unit, 10° lateral) the reference response [Fig 1] had no gaps, but was characterised by a 2dB plateau in the upper mid, 1kHz to 3kHz. The treble was smooth and well balanced +1dB 3.5kHz to 20kHz, with no visible ultrasonic peak.

The lower mid was mildly depressed while there was actually some bass lift in this design. The big port lifts the output by a couple of dB above reference level in the 50Hz range. Spurious port output is held to -20dB or better. With that mild bass lift the output was well extended for the class, to -6dB at a low 35Hz.

Off-axis, the family of forward responses [Fig 2] was nicely integrated laterally and below axis, the dotted curve showing the 6kHz dip above axis, an unlikely angle in practice for such a tall floorstander. Nevertheless, the upper mid prominence was still an overall feature. Pair matching was excellent, +0.3dB overall.

For the in-room response — the RAR [Fig 3] — the bass peak was clearly evident at +5dB, 50Hz, for a full room average. Specific placement can significantly ameliorate this effect. Note also the upper mid prominence, a definite characteristic of this design. The nicely integrated treble was both

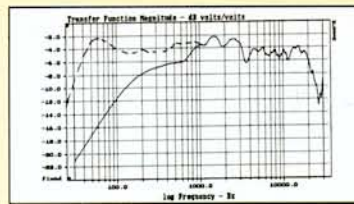


Fig 1. Audio Physic Spark: frequency response on axis at 1m, with LF nearfield correction (dashed line)

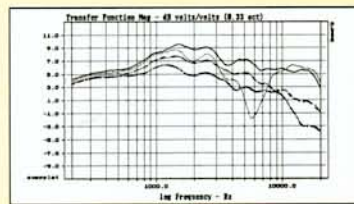


Fig 2. Audio Physic Spark: response family at 2m, axial (solid trace), 15° vertically off-axis (dotted), 30° laterally off-axis (short dash), 45° lateral (long dash)

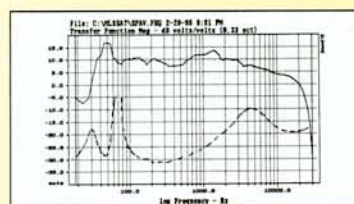


Fig 3. Audio Physic Spark: room averaged response (top), impedance versus frequency (bottom), zero ohm base line, 2 ohms/div

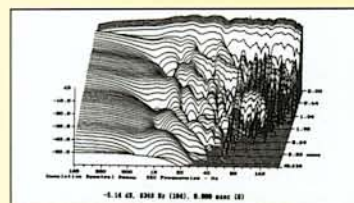


Fig 4. Audio Physic Spark: MLSSA waterfall of energy decay, 0.2ms rise time

well balanced and very smooth.

Charted for a waterfall presentation of energy decay versus frequency the 5dB/div display showed an excellent result with a very rapid initial decay. For the longer term 10dB/div [Fig 4]

presentation there was evidence of a more complex behaviour with a ridge at 6kHz perhaps associated with the upper extreme of the mid range unit. With no crossover in this section, this sort of result is quite typical.

DRIVER LICENCE

Audio Physic characteristically customises the drive units in the speakers it builds. In particular, in recent years there has been a definite trend towards shorter, simpler crossover networks. These generally lead to the elimination of the bass section of the crossover network and the reduction of the filter part of the tweeter to a single high quality capacitor, selected for its specific sonic signature.

There are precedents for such an approach, for example as seen in the Mordaunt Short direct-coupled designs of the early 1980s and of course Robin Marshall's ground-breaking Epos designs. The Spark designer Joachim Gerhard chose this minimalist route as a basis for specifying the detailed design of the two drive units.

Test results	Audio Physic Spark
Dimensions (hwd, mm)	980x145x220
Recommended amplifier power per channel	50-100W
Recommended placement	free space
Frequency response within 3dB (2m)	60Hz - 22kHz
Bass frequency rolloff (-6dB) at 1m	35Hz
Bass frequency extension (typical in room)	33Hz
Voltage sensitivity (ref 2.83V) at 1m	86dB/W
Approximate maximum sound level (pair at 2m)	101dB
Impedance minimum/typical/ease of drive	3.6 ohms/fairly good
Forward response uniformity	very good
Typical price per pair (inc VAT)	£1749