



The 6.5m height measurement Robot



The exterior and interior of the 3D SoundLab



The Iosono Fohhn rack

Making an impact

Fohhn has been quietly growing its reputation and business for the last two decades, but recent developments and facilities have made a definite impact. **Richard Lawn** reports

MANY OF TODAY'S LOUDSPEAKER

manufacturers need to emulate their high SPL systems in order to make a marketing impact. However, you don't necessarily need to scream and shout to make yourself heard. Fohhn AG for example has been quietly going about its own business in an efficient yet unimposing manner for over two decades. Like the German town of Nürtingen that it heralds from, Fohhn's quietly industrious nature has attracted increasing interest from those admirers seeking quality rather than glossy hype.

Founder and current executive director Jochen Schwarz has charted Fohhn's course since 1993, initially engaging its manufacturing towards the production of Dolby-approved cinema speaker systems and column speakers for fixed installations. Two decades on and Fohhn is still primarily developing speakers for these verticals, but the road has hardly kept to a straight path, taking some diversions along the way. However, the development of the Airea digital audio-network system together with the construction of a SoundLab drew long overdue attention towards the German manufacturer.

Whilst producing OEM products in its formative years for several well-known audio companies, Fohhn also recognised a gap in its domestic market for the development



Managing director, Jochen Schwarz and marketing director, Uli Haug

of battery-powered, portable wireless loudspeakers. The Easyport speaker series remains a consistent seller, but it's Fohhn's pioneering developments with DSP and beam steering software that has allowed the company to focus on its true course of expertise.

By 2006, the Fohhn Audio System had been developed, combining amplification, DSP and speaker technology, which could be remotely

controlled via its own software. Christened the Linea Focus Series at the launch in 2008, these beam steering speaker systems made a very positive impression amongst the consultants, systems integrators and venue owners who specified them, leading to international awards and accolades being presented to the company.

Spurred on by this success, the Focus

Modular beam steering systems and a range of beam steering subwoofer arrays followed. 'The excellent audio quality and the possibility of operating the beams in real time has earned us respect from many venues including theatres and conferencing applications,' explains sales and marketing director, Uli Haug. 'Our pedigree is in cinema and live sound, so we understand what it takes to make a very good pro audio system - we're not coming from the 100V background.'

Whilst R&D, warehousing, sales and administration is located at one address in Nürtingen, production and assembly has been kept separate just a kilometre away. It is a perfect arrangement. Although all the products are designed and assembled at their respective locations, Mr Haug is keen to point out that most of the component manufacture is out-sourced locally. 'Around 70 per cent of the components such as the wood, aluminium and electronics are sourced from companies in the south west of Germany. For example, our pre-mounted electronics are produced just 15km away. Stuttgart is the home of Mercedes and is blessed with very high tech companies supplying the auto industry. Many of our suppliers use high-tech machinery and advanced electronics. The need to compete and do this in-house isn't necessary when you have world class manufacturers on your doorstep. The distances are minimal and the quality control cannot be bettered.' Adding customised Italian drivers to its intricate designs, leaves Fohhn to do what it does best -

develop new technologies and products.

Loudspeaker production today combines both electronics and software development, for which both departments combine during pre- and after-sales support. Carpentry too is a unique feature in which the multi plywood birch wood cabinets incorporate rounded corners. Robots have been programmed to ensure consistent soldering and welding joints, whilst the electronic boards are pre-tested prior to assembly. Great attention to detail has been placed in every aspect of the cabinet design. Each fully assembled speaker is quality controlled in a computer aided measurement chamber prior to shipment, whilst all the amplifiers are burned-in during an automatic 24-hour test procedure. Once assembled and thoroughly tested, each product is affixed with a barcode onto the rear of the cabinet during quality control. If a fault does develop later in the speaker's life, then the error can be traced back in the production cycle as the bar code contains all the information logged during its assembly.

Eleven Fohhn employees are dedicated to R&D roles, specialising in pioneering DSP, digital amplification, acoustics, mechanical construction, software and networking. We are a loudspeaker producer that wants to bring something unique to the market, so it's important that we commit a large proportion of our workforce towards driving new products to market,' further explains Mr Haug. We have to continually re-invest in new people and new technology to stay ahead of the market.'

Working with spatial audio solutions provider Barco Audio (formerly Iosono), Fohhn opened its 3D audio demonstration facility in 2013. The SoundLab grew out of the planning stages of another Iosono project, for which Fohhn's Linea LX-100 hybrid line source was deemed the most suitable solution on account of its horizontal and vertical beam characteristics. From this project came the idea of the companies working together to create a permanent demonstration facility at Fohhn's headquarters. The Fohhn SoundLab installation combines Iosono's IPC 100 spatial



Fohhn's sales and sound engineers, together with the management team



Acoustical R&D, Tobias Brändle

audio processor with 24 LX-100 loudspeakers arranged in a ring, with a further 18 LX-10 compact speakers ceiling-mounted at a highly precise distance, four AS-40 subwoofers and 12 DSP amplifiers.

The system offers a three-dimensional audio experience that places the listener at the very heart of the sound image. It took 12 months to design and build the 24m by 14m Fohhn SoundLab. The acoustically treated room combines resonators and absorbers that have ensured the reverberation time has been minimised to 0.3s, providing near anechoic chamber results. In addition to a full line up of speaker systems, one of the main focuses of the SoundLab is the 6.5m measurement robot, capable of producing 360-degree polar pattern analysis and calibration.

In his role as head of acoustical R&D, Tobias Brändle oversees research in the SoundLab. Automated measurements such as impedance, amplitude frequency response, total harmonic distortion, spectrogram, horizontal and vertical coverage, together with a full 3D balloon measurement are recorded for EASE data down to increments of 0.5-degrees. Commenting on the reaction to the 3D demonstration facility, Mr Schwarz offers: 'The feedback received so far has been extremely positive - the SoundLab has definitely wowed the eyes and ears of our visitors.'

At the same time, Fohhn has been putting the finishing touches to its own digital audio network system, known as Airea. This innovation was specially developed for those customers who were demanding increasingly compact yet powerful active loudspeakers. Fully networkable and remotely controllable, the Airea system simply comprises of a master input/output module connected to Airea loudspeakers via a single Cat-5/Cat-7 cable in daisy chain configuration. The Airea loudspeakers are all equipped with 2-channel Class-D amplifiers together with DSP, for which the separate amplifier channels enable the speakers to run in bi-amping mode to the LF and HF drivers.

In addition to functioning as the central power supply for up to 32 connected active loudspeakers, the Master Modules can be connected to any digital mixing console, matrix or digital audio network allowing the signal path to remain fully digital throughout the

entire Airea system. As the loudspeakers do not require their own individual power supplies, the size of the Airea loudspeaker models has been reduced to a minimum, for which the power of each master output channel is limited to 200W. The components can be connected via a standard twisted pair network cable carrying power, digital audio signal and remote control information. As a result, cabling infrastructure is minimised, whilst providing individual zones within a venue individually via Fohhn Audio Soft control software. Each loudspeaker has its own ID within the network, so the operating status of each loudspeaker can be seen in real time and its condition is constantly monitored.

The technical support team at Fohhn, including Ralf Freudenberg, Reinhard Klose and Thomas Mundorf, play an important role in providing detailed analysis in advance of a sale as well as after sales support for its clients. In addition, the team also conducts numerous training modules at the manufacturer's headquarters as well as overseas workshops and seminars. Project planning in the form of consultation, on-site inspections, analysis, room simulation and product selection is becoming the norm, whilst a dedicated service team also provides remote assistance in addition to repairs and software updates.

The company slogan of 'sounds perfect.is perfect' has been steadily maintained over these past two decades through constant innovation and continued investment. Its word of mouth endorsements have ensured an ever growing fan club of admirers throughout the Asia Pacific and Middle East. On one hand, innovation plays its part in getting noticed and on another German reliability entices first time buyers to the demonstrations. Sealing the deal is the fact that the technical engineers based in Nürtingen are real people offering abundant knowledge and enthusiasm to their customers. These hallmarks portray a long term growth strategy, yet Fohhn has discretely amplified itself to a global audience in a relatively short space of time despite having spoken softly.

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