In-akustik

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The factory of the cable manufacturer In-akustik is in the small municipality of Ballrechten-Dottingen in southwest Germany. It sits close to the Swiss border and at the western edge of the Black Forest. Maybe it's the forest air, or all those gateaux they farmed there in the 1970s, but whatever it is, it makes the people of In-akustik extraordinarily passionate about their craft.

I toured the company's facilities towards the end of 2025. The brand – also the German distributor for Audiovector and Primare – has a modern, surprisingly cavernous space (in part because the three listening rooms used for assessment and training are in the basement). In the process, I learned more about audio cables than I thought possible and just how sophisticated the company's cable construction and product-tracking concepts really are.

History Lesson

First, a little bit of history. In-akustik began in 1977. At that time, its products were essentially like regular cables. They had different colours, some with transparent jackets, some with larger cross-sections, and a few with greater flexibility. And it was the success of those more flexible cables that helped the brand get noticed. They were state-of-the-art by the standards of the day.

In 1999, In-akustik took a closer look at the insulation material and its effects. In the past, the company used PVC as an insulation material and later switched to polyethylene. At that time, it also used formed polyethylene to introduce air as a dielectric to improve electrical insulation. In-akustik also developed various conductor shapes, all of which were said to improve the purity of the conductive material. Then in 2011, the company used a polyethylene tube to increase the amount of air in the insulation. So, the use air as an insulation material is not new to the brand.

However, it wasn't until 2015 when In-akustik developed its first AIR technology cable, where it physically separates the conductors, allowing air to act as a true insulator without a polyethylene jacket. That means less material around the wires. In the process, In-akustik developed a helical cable layout, using plastic clips to keep the wires at the correct distance from each other… and to have a lot of air inside.

This development took about two years from the first scratch on the sheet of paper to a realised product. This was no simple undertaking; it meant considering how to make such a cable and how to develop real-world cable flexibility, how to design a wholly new way to assemble a cable. In-akustik also spent a lot of money on the tooling for these plastic parts. This is not some simple cable project, soldering plugs to an off-the-shelf wire.

Three lines

This is not simply an operation in which cables are cut from reels, terminated, »

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» and sent to customers. There are three lines of workstations with complex build manuals for each cable. Each assembly process is supported by a computerised inventory system, so the worker has the right number of components placed in colour-coded parts bins delivered to their workstation. In addition, cable builds often require specialist tools, such as torque-controlled screwdrivers, so the product can be made without either under-tightening (so it falls apart in the user's home) or over-tightening (which shortens the cable's lifespan).

The build time for each cable is carefully assessed. Each one is different; some cables might take just 15-20 minutes to construct. By contrast, one of In-akustik's top-end cables, such as the LS-8005 AIR loudspeaker cable, might take a couple of days or more to construct. These top-end cables are physically and intellectually demanding, too; while in theory everyone can make everything, some workers are more specialised and work on particular cables.

This makes more sense when you look at what goes into the construction of In-akustik's AIR cables. Like many cable brands, In-akustik found air to be the ideal dielectric, but physically separating individual conductors in air is impractical. One bad bend during installation, and at best, the dielectric is compromised. In-akustik cracked the code by feeding the conductors through a series of small spacer discs, which are then linked to create an articulated conductor cradle running the length of the cable. However, to help reject RFI, these conductors are then woven around one another. This means that the position of each conductor changes from one spacer to the next.

The cable can only be made by someone with a very calm demeanour, feeding conductors through different holes in each spacer along the cable's length. Colour-coding helps, but when you have eight similar-looking conductors and an earth wire looping around one another in a very organised pattern that looks to the outsider like chaos… well, I guess you become an expert in knitting or weaving very fast!

Manual

Constructing such cables requires detailed build manuals. These include a complete photo-story of the build-up process, specifying which tools to use at each stage and more. That sort of project takes time and undergoes lengthy revisions to get right. Anyone who built a model aircraft as a boy will feel at home here.

Unfortunately, the contents of these build manuals are a trade secret, so the best we can do is photograph the edges of this kind of manual. But when you consider a cable with a large, »

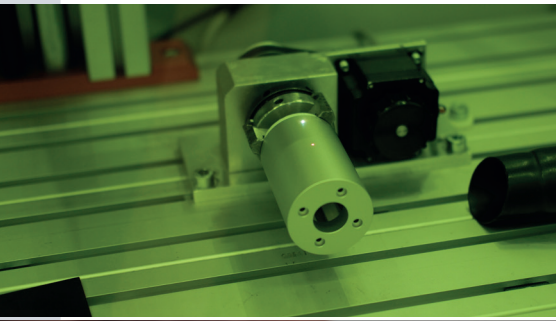








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» air-gapped braid of conductors being drawn together into a loudspeaker spade terminal or a phono plug, you can guess the complexity of the process.

These cables are laid out and assembled on jigs on long tables, carefully terminated, and then precisely and thoroughly tested. Even here, it shows just how uncompromising the company is, as the test equipment rigs are made in-house rather than simply brought in.

Termination, where possible, is performed using cold welding to ensure the cable remains in good condition for as long as possible. Where In-akustik goes above and beyond is that it extends test protocols to high-power tests of power cords during development. While that should be a given, because of what power cords do for a living, destruction testing of power cords is a rare inclusion in the testing practices of rival cable companies.

Manufactory

Aside from drawing the cable itself, In-akustik tries to be as close as possible to being more of a 'manufactory' than just a 'factory'. Practices and processes usually sent out to third parties are performed in-house.

A perfect example of this is the company's braiding machine. This isn't the sort of machinery you find in typical cable factories, and the process is usually outsourced to third parties. Given In-akustik's proximity to the Black Forest and the Jura Mountains, finding companies that make climbing ropes is not difficult. The company that made the braid offered the machinery to In-akustik as it was expanding. However, it came with no instructions, and the team was taught to braid by ropemakers. It's an old and noisy machine, working to a pattern that likely dates back to the Industrial Revolution, but it works well.

At the other end of the scale, In-akustik has invested in state-of-the-art CNC and laser engraving machines, enabling the brand's higher-end models to have their serial numbers laser-etched into the cable's housing. It's fascinating to watch, too.

In-akustik's cables are more than off-the-shelf designs, and the care and attention they show to their cables shine through in everything they make. When it comes to the top-end AIR range, there's a lot to take in. It's a complex build to make a unique cable. But it's something only In-akustik can make! +

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