

This could be just about any parts-warehouse, but the long shelves at BTB in Fürth, extending up to head-height, house hand-labeled boxes containing all kinds of tubes. Here in the treasure vault of the company, it seems at first glance like there is nothing special, but our host gets tears in his eyes when looking at some of his special treasures.

Or maybe he is simply overwhelmed by the sheer quantities: “We have a total of about one million tubes in stock,” Michael Kaim tells us, as we take a picture of him with an old Telefunken medium-wave transmission tube dating back to the end of the 1920s (see picture).

The device above tests preamp tubes using stimulation via a wooden stick to assess microphonic sensitivity. The speaker reproduces any signals. On the right, EL34s in resistivity measurement. ▼

Kaim became addicted at the tender age of eleven, built his own tube devices, and got more and more into the subject: after technical studies and various jobs in the electronics industry, he built up BTB on his own, starting in 2002. Buying up the inventory of other tube providers which had given up, for instance for age reasons, the company rapidly became the largest domestic tube supplier for makers of HiFi components and guitar amps, as well as individual customers.

BTB mainly obtains goods from three large manufacturers: Shuguang in China, Reflector in Russia and Slovakia’s JJ Electronic, with a total of about five million tubes a year. “About half of them are needed for new devices, the rest goes to repairs and restoration”, Kaim says, pointing out that his warehouse is currently so well-stocked because he feared there could be a delivery bottleneck due to the Ukraine crisis. For that reason he put in

a large order, for instance for the new, increasingly popular KT150 performance tube – used, for instance, in the Ayon Spirit III and Octave V80SE power amps.

But BTB is more than just a middle-man and shipper of “hot bottles”. All incoming vacuum tubes are inspected upon receipt: not every single one – the numbers are too big for this – but at least random samples from each batch, which can reveal potential problems. There are measurement and test devices all around the busy company, and notes on stickers providing information about technical parameters. “If something’s not right we have no qualms about returning an entire shipment,” Michael Kaim explains, and we don’t doubt his resolve. His suppliers

Packaged like treasures, these powerful Type 845 performance tubes reach the customer (below). Shipping is the central business area of BTB. ▼





respect the standards he demands, and thus make sure the quality is right.

There's a rumor in the tube scene that everything used to be better – the old 'things aren't what they used to be' idea – but while this specialist doesn't agree, he says manufacturers are under a tremendous amount of pressure to meet steadily increasing demand while having to make ensure they're still providing high quality. Add to that, that tubes have become much more affordable in the meantime. "In the 60s, an EL34 cost about 15 Marks, equivalent to about 15 Euros today, and people do earn a lot more these days. On the other hand, this means that the manufacturers are supposed to provide the same quality at about one-fifth of the former price. This is difficult, even if labor prices for production are lower in the Far East or Russia."

Quality vs. supply pressure

The few remaining factories should be able to produce even better tubes than

decades ago but, due to the enormous pressure, a lot of mediocre products are delivered - sufficient certainly for average amps but not for listeners with high-end tastes and amps. For this reason, BTB begins its actual measurements piece by piece on top of its initial inspections of incoming goods: there are two selection steps, and some HiFi manufacturers still make their own subsequent selections.

Michael Kaim does not deny that the tube market overall is only a fraction of what it used to be: "Good," he says, adding that otherwise the EU might poke the tube industry with its strict requirements for the power consumption of electric devices, however disdainful a term 'device' may seem for a high-quality vacuum tube amp. "Our niche existence protects us from the bureaucracy!" laughs Kaim, and let's hope it stays that way!

Between 2005 and 2012, tube sales increased strongly, not only at BTB, but have been growing more slowly since then. Kaim, who has many HiFi studios

▲ The company has a measurement station with high-quality equipment by Audio Precision. BTB employee Norbert Dürr checks a batch of older Telefunken preamp tubes. Are they still good?

among his customers, believes that one reason for the success is the availability of often very affordable tube devices from China which were "simple and decent" and thus served as "gateway drug" to the tube segment. "Anyone who has his first positive experiences with the sound or even discovers a certain love for tubes is likely to move up to higher-quality components." That's the way it was for him, and this music lover definitely sees parallels to the rampant vinyl hype. "Of course, nostalgia is part of the deal with tubes but the sound is at least just as important among fans."

As a sales specialist who knows his range in depth, he believes fears of being unable to find a replacement tube for one's valued, expensive device at some



▲ A selection of popular preamp/power amp and rectifier tubes – 300B, ECC83, KT150, and GZ34 – in stock at BTB, in addition to many others.

point is unfounded: “We can provide any type in use today at the press of a button. And that is already 90 to 95 percent of all requests.” Of course, there are a few exotic ones, like the 6240G once used by Luxman and a few more, but these were fringe areas for which one could find solutions. “If such devices are used, we determine tube types with similar specifications which we can use instead. We simply make an upgrade!”

For instance, in the case of the rare EL503 one would move to the EL509 or EL519, after first checking whether the transformer can deliver the heating power it requires. If it can't, one could move to the EL504, forgoing a bit of power but saving the device. Kaim emphasizes BTB's role in informing the customer of the possibilities and helping him make a decision, and – time permitting – is himself available for questions on the phone. In addition, BTB has its own service shop exclusively for tube equipment, equipped with high-class measurement devices.

Service depending on purpose

This repair station handles not only defective HiFi but also guitar amps for which tubes have always been part of the good tone. The specifications and expectation of

the owners also vary widely. “When I first started, I trimmed guitar amps for optimal linearity and low distortion,” Michael Kaim remembers with a smile. “Oh, you should have heard my customers: they asked whether I had lost my marbles, and complained that their amp sounded completely dead, completely sterile.

“They wanted a ‘dirty’, distorted sound, and for that reason, I only set up guitar amps like HiFi a few times! Since then I always make sure there is some slight asymmetry in the push-pull circuit, in order to achieve the desired effects.”

Depending on the component, Kaim may have to descend into the basement vault of the company, where he has brand new old tubes lying around, some of which have been out of production for decades but are still in demand: “We can deliver anything, starting in the 1940s,” he confirms, “Sometimes even models from the 30s.” With proper storage these tubes could practically last forever: “Due to the vacuum on the inside, the structure encounters basically no degradation at all.”

Okay, but what when they are used? That depends strongly on the conditions and intensity of use, he notes: “Some have a 50-year-old music box whose tubes are definitely no longer new, but still work. Then there are the high-end owners with Class A power amps, who have to change performance tubes every two to three years. Preamp tubes only need to be replaced every five to ten years. In our service office we can find out quickly in what condition the respective tube is, for instance by sending short tone bursts through it and analyzing its peak currents.”

The industry likes to tap into the know-how which Kaim and his team have acquired over decades, for instance if a developer can't get ahead in a project or requires special help because he does not like the distortion distribution, resistivity, or other parameters.

And are there “special” tubes? We're always hearing that some tube types or certain batches of known models, for which fans are willing to put down a lot of money, have virtually “magical” sound characteristics, but Michael Kaim

grimaces slightly: “I know the physics and technology of tubes quite well. There may be things I can hear but can't measure, but I'm happy to leave anything that has to do with ‘auras and esoterica’ to those who like to deal in these terms. This is certainly not the path of BTB.”

And when we scan the address labels on the outgoing packages – the number of shipped tubes per year lies in the six figures – we find names known for such claims. It seems they also only put on pants one leg at a time, even if the label says BTB.

Matthias Böde



▲ One of the most used tubes is the ECC83 – a classical driver double triode for performance tubes – here in the popular „Gold Lion“ variant.



▲ Two desirable pearls in the form of the double triode ECC802S, an especially durable Telefunken tube. It has been off the market for a long time but BTB keeps buying residual stock – at three-figure prices.