

## WBT GETS RELIGION

**W**ell, perhaps religion isn't the right word, but this famous German connector manufacturer has long kept the faith, and brought both disciples and apostles together (include us in both of those categories). The faith: a connector must connect under pressure, else it isn't truly connected at all.

Now there is a new article of the faith: a connector must have enough metal to get the job done, and not a molecule more.

Gabriele Hofmann is vice-president of WBT, responsible for sales and marketing. We talked with her about the company's "nextgen" minimum-metal connectors.

**UHF:** How old is WBT now?

**Hofmann:** It's exactly 19 years old, it began in 1985.

**UHF:** And how did it start? Was there a strong public demand for a better connector?

**Hofmann:** I don't think so. The company grew out of the experiments of Wolfgang Thörner. He realized that the connectors of the time were not up to the

quality of the equipment available. He saw that the quality of amplifiers, CD players and loudspeakers was constantly improving, and that this was true even of mass-market products, but that connectors were not improving accordingly. He therefore began looking closely at connectors, especially RCA connectors, because there was not even a standard size. He searched for a solution in that area in particular, and he created the famous WBT-0100. This first connector was solid and made perfect contact with the jack. Consumers had a good chance of installing the cable solidly, since it was easy to solder, it used Teflon as an insulator, and it was adjustable.

**UHF:** Because of the collar...

**Hofmann:** Yes, you could tighten the collar by turning the outside sleeve. This clamping device was the subject of WBT's first patent.

**UHF:** Was there an initial resistance on the part of manufacturers to this new connector that was, inevitably, expensive?

**Less metal...does it result in more sound?**

**Hofmann:** It took some years to convince dealers and the audio industry that this new sort of connector was an essential component of a quality product. What's interesting is that it was initially the consumer who first adopted these phono and banana plugs, and convinced dealers to pick them up. The improvement was audiophile-driven.

**UHF:** So initially WBT connectors were perceived as a sort of tweak.

**Hofmann:** Yes, exactly. Then the dealers followed, realizing how much interest there was. The industry reacted years later, because the dealer demand was there.

We're often asked why we go to shows and explain to consumers the details of crimping and the like, instead of staying in our role of supplier. But we know where we've come from, and we know how the different sectors of the industry — consumers, dealers and manufacturers — interact.

**UHF:** One price you've paid as a result of your success is that your products are widely imitated.

**Hofmann:** Yes, and it's not a problem we had anticipated at all. We hadn't expected that the way we build our connectors would be so popular that our Taiwanese and Chinese friends would want to adopt our designs too. Our RCA connectors have been especially copied. I can't count how many times we have resorted to lawyers. It's less of a problem now, but we have had to fight to insure that a connector that looks like a WBT also has WBT quality.

**UHF:** Which is not always the case.

**Hofmann:** In the case of copies, certainly not. Some consumers have actually returned to us products that turned out to be counterfeits, even though they had paid WBT prices.

**UHF:** You've also been attacked by competitors whose designs are different from yours, and who claim that what you make is not the best, that your locking system is not a good idea.

**Hofmann:** Not really.

**UHF:** We're thinking about Tiffany, for instance.

**Hofmann:** (laughs). Yes, but we haven't been much attacked by anyone else. The industry adopted us because using WBT connectors meant one less problem.



There were such wide size tolerances in RCA plugs in particular, that our adjustable connectors offered the only way to insure a tight connection.

**UHF:** *How much importance do you give to metallurgy, the quality of metals used?*

**Hofmann:** A great deal. But we especially emphasize mechanical integrity. We believe in a tight contact plus a good basic material, which is to say a material that has the greatest conductivity possible. Most of all, whatever the material, it must make contact under the greatest possible pressure, and the most constant pressure. We've always used materials that allowed us to put together a mechanically complex structure. It's always been a copper alloy.

Our Midline connectors contain somewhat less copper than our Topline connectors, for reasons of economy. But we do consider the best materials to be either copper or pure silver, which offers the highest conductivity. Our sandwich spade, which came out in 1998, is made of either pure copper or pure silver. We will shortly be launching a binding post made from pure copper also. We tried to use the same materials in our RCA connectors, but the mechanical requirements made that impossible. The parts in an RCA plug are much smaller.

**UHF:** *And therefore more fragile.*

**Hofmann:** Exactly. We've been around for two decades, and people expect our products to be stable and to work perfectly. So designs take a little longer at WBT than at certain companies that don't have this history and responsibility.

**UHF:** *WBT connectors have always been high-mass, but your nextgen connectors contain much less metal. It's a new departure.*

**Hofmann:** Absolutely. You could even say it is for us a major step forward in a totally different direction. We've been happy with past designs, and we've kept using pure copper or pure silver conductor materials as the goal. However we know that, when you have a hot lead with a massive ground surrounding it, the electrical field can cause a magnetic field, and vice versa. Our experiments indicated that, if you just open the closed circle of metal around the hot lead, you avoid eddy currents.

And it has been possible to use pure

copper or pure silver, and make a connector with 75 ohm impedance, at the same time. The impedance of a connector is determined by its geometry.

We're proud of the fact that, with our nextgen WBT-0110 plug and WBT-0210 RCA jack, we can offer connectors which make a perfect match, especially with digital cables.

**UHF:** *The nextgen connectors must be soldered. WBT has always favored crimping.*

**Hofmann:** Absolutely, and we still do, particularly with speaker connections, where proper soldering is sometimes difficult to accomplish. Our best Topline RCA connector is the 0108, which is a crimp-type connector, but with the nextgen crimping hasn't been possible as a first step.

Still, we haven't halted our development. Our original RCA connectors were solder types, and the crimping system was developed only later. With the nextgen it's more complicated, because we're no longer using an alloy, but pure copper, which is a very soft material. So making a crimping connector, with fine threading and tiny screws...that won't be easy. Take a look inside one of the nextgens, and imagine connecting a crimped wire in there.

**UHF:** *It would be difficult.*

**Hofmann:** You see, the metal parts

inside the nextgen are essentially just a small extension of the wire itself. Perhaps Mr. Thörner will find a solution, but we have to consider the possibility that the nextgen idea will stop here.

**UHF:** *Will there be nextgen bananas or binding posts?*

**Hofmann:** Certainly. The pure copper banana has long been on our drawing board. However WBT has a great many manufacturers among its clients, and so our first point of focus has been the binding post. That will be next, and the banana will follow. However we need to design it so that anyone can easily solder to it. That means using a material that won't melt, but also one that is very rigid, because it will make up the body of the connector. We use Ultramid for the body of our nextgen RCA's, because it's very strong, and inside we use Dyneon, which resists heat.

And of course we have maintained the principle of the collet-chuck device, which can be tightened. The collet is made of aluminum and magnesium, but it is electrically insulated from ground. However it helps protect the hot lead against external interference.

So we've made what we think is the ideal compromise, minimizing the metal used in the ground lead, but without abandoning shielding.



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# MAKING THE CONNECTION

**D**o all cables sound the same? Hardly, and we've known that for years (like all cash-strapped audiophiles, we wish it weren't true). Now here's another question: do all *connectors* sound the same?

We know the answer to that one too, and it's *no*. To begin with, some connectors are tight, and others are loose. You can spot this by ear. It's one reason we have long been fans of the locking connectors of WBT.

But there is more to a connector than its tightness. The materials used also matter, and we've heard horror stories about the recycled materials used in some connectors made to *look* like famous-brand upscale connectors. Now the spotlight has been thrown on another aspect of audio connectors: how *much* material — specifically metal — they contain.

Consider this. Audio cable designers are picky not only for materials used for their cables (oxygen-free copper, single-crystal strands, pure silver, Teflon, etc.), but also their geometry. If you accept the claim that a cable's geometry matters, it becomes evident that most connectors violate cable geometry in major ways. Wouldn't the cable sound better if its connectors were closer in construction to the wire itself?

Two manufacturers have adopted the view that most connectors contain way too much metal. The first of these is Australia's Eichmann, whose Bullet Plug was first on the market with a body that is mostly plastic (it also makes a low-metal banana). And now the venerable WBT has launched its own line of minimum metal connectors, under the name "nextgen." Interviews with key people from both companies can be found on preceding pages.

We have samples of connectors from both enterprises, and we devised what we think is an appropriate comparison test. We installed both Bullet Plugs and next-gen RCA plugs on lengths of Wireworld Equinox 5, the latest version of a cable we long used in our own systems, and



which were offered in our Audiophile Store. We also have a length of Equinox 5 with Wireworld's own Silver Pipe connectors, which the company claims sound superior to the WBT-0108 plugs we have long favored.

The listening was done in our Alpha system, with the test cables running between our Linn Unidisk 1.1 player and our Copland CTA-305 preamplifier. The Linn has dual outputs, which made things convenient. We kept our Pierre Gabriel ML-1 reference cable connected to one output, and the test cable to the other, running to a separate input on the preamplifier. That meant we could do quick comparisons.

We should add that we did *not* use this setup as an opportunity to do A-B comparisons, switching quickly from one cable to the other, since we know how easy it is to get fooled on such tests (years ago we used such a test to "prove" that a cassette sounds exactly like the original). It was, however, convenient to return to the reference cable, as we did more than once, to confirm what we thought we remembered hearing. As ever, we found taking detailed notes (about the music, not merely the sound), was most helpful.

We used two selections for all of these cable evaluations. One was the *Sanctus* for a cappella choir from Opus 3's SACD version of *Musica Sacra* (CD19516). The other was *The Best Thing for You Would Be Me* from Margie Gibson's wonderful *Say It With Music* CD (Sheffield CD-36).

## The Wireworld Silver Pipe

Wireworld was long happy about our Audiophile Store offering its Equinox cable (we started in 1995), and even quoted our review on its on-line site, but David Salz was also disappointed that we were listing it with WBT locking connectors, and never with the original connectors. When Equinox III was replaced by Equinox V (skipping over version four), the company sent us not only a length of bulk cable for us to try, but also a factory version with its new connector, claiming superiority over our vaunted WBT-0108.

We initially assumed that the Silver Pipe was yet another off-the-shelf connector, but it's clearly more ambitious than that. The collar and central pin are oxygen-free copper, not brass (or worse!), and they are silver-plated. The dielectric is Teflon, just as it is on several of the company's cables. And the central pin is, as the connector's name suggests, a hollow pipe, to minimize metal content. There is no tightening mechanism, but it was clear that the fit was much snugger than it had been with any of the previous Wireworld phono connectors we had tried.

The finished 1 metre cable is listed in the 2003 catalog at US\$194.95, but may have changed since. Bulk Equinox is listed at US\$60/meter, not including termination charge.

Physically, Equinox V strongly resembles the older version, though it is clearly more flexible. Each cable contains 78 copper strands that are individually coated with enamel, to make it into what is essentially a Litz wire, with no jumping from strand to strand. The geometry is what the company calls Symmetricoax: the inner conductor is wrapped about a central tube, then Teflon is wrapped



about that, and the outer conductor is wrapped about the Teflon.

Wireworld's upscale cables cannot be terminated by most users. The enamel insulation must be removed by dipping the stripped end into molten solder of around 520°C...not far from 1000°F!

All three of us agreed that, on the Gibson song, it was a long step down from our Pierre Gabriel reference to the stock Equinox. For one thing the volume appeared to have dropped. To be sure, this is a subjective effect, not something that would show up on a voltmeter, and it could even be an improvement, *if* the cable otherwise sounded better.

But it didn't. Sibillance, though not actually objectionable, was less natural, the words less clear, the string bass less weighty. Everything seemed smaller.

Albert complained of a lack of body to the choir in the *Sanctus* as well. The result was that the men, who initially come in *behind* the women, were all but inaudible. And we were rather too aware of all the "S" syllables in the piece.

True, this cable costs a fifth the price of our reference cable. However we long used Equinox ourselves, and we didn't recognize its sound. Would the cable do better with different connectors?

We were hoping so, and our optimism would be rewarded.

### WBT-0110 nextgen

The company insists on banishing upper case letters from the name of its new line, and we acquiesce with the greatest reluctance. Connection is by soldering, since the crimping system of the WBT-0108 would add a lot of metal. What metal is left is now gold-plated copper, not gold over brass or copper alloy. Just one of the jaws of the plug collar is metal, the others being plastic. The centre pin is a hollow tube.

WBT has adopted a plastic called Ultramid for the plug body, with another difficult-to-melt plastic called Dyneon around the contacts. Connection is easy, and indeed you can pour on the heat without anything softening. The trademark locking collet may look like metal, but it too is plastic, and tightening it adequately is a two-hand job. Indeed, it is nearly impossible to do if there is another connector in an adjacent jack.



These are not cheap connectors, with a list price, in Canada, of \$180 a box of four. An upscale version using silver instead of copper is close to \$300.

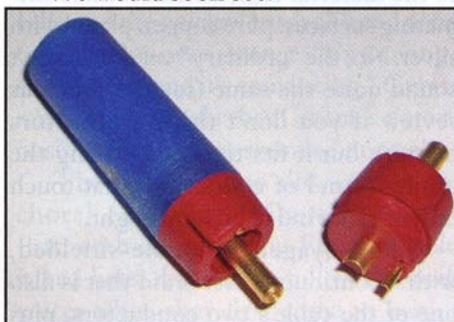
We didn't have to listen very far into the *Sanctus* to hear that the connectors made a huge difference. The depth had returned, and no doubt for that reason the male voices in the background were easy to spot. "There's better separation," said Albert, "not just of individual voices but of the different *timbres* of voices. It's smooth, too, but not because it's hiding anything."

Reine wasn't quite as pleased. Nor was Gerard, who was the one who knew what cable this was. Reine complained that the sopranos had more of an edge. Gerard praised the spaciousness, but still found the "S" sounds not right.

We were impressed with the cable's performance on the Gibson song. Her voice was warm and expressive, with fine detail right down to the nearly inaudible final syllables. The plucked bass was solid.

Those "S" sounds were bothersome, though. Could it be that the wire itself was to blame?

We would soon see.



### Eichmann Bullet Plug

This was, to the best of our knowledge, the first phono connector to be expressly designed with a minimum amount of metal. The metal used is gold over copper, what there is of it.

Like the other two connectors, the Bullet Plug has a central pin that is a hollow pipe. The outer collar is entirely plastic, with only a tiny spring that presses against the jack body. The fit is snug to a fault, and we had difficulty pushing the plugs into the jacks on our Copland preamp.

Connecting to a Bullet Plug is harder than to a WBT. The solder lugs are small, with that of the ground especially tiny. And you have to do your work quickly, because the plastic used will melt if you dawdle (Eichmann suggests inserting the plug into a jack while you work). Speaking of plastic, we wish the colors didn't make them look like something from Toys'R'Us.

The Eichmann plugs are much cheaper than the WBT's, with a Canadian suggested list price of \$65 for a box of four (just over US\$51 at the current exchange rate). The silver version (inevitably called the Silver Bullet, and which comes in more muted colors, happily), is C\$149.

We listened to the Margie Gibson selection, and we listened initially for those troublesome "S" sounds. The finding was not as we had hoped. We were pretty much split in fact. Reine and Albert now noted a certain strangeness in the "S" syllables. Gerard, who spoke last because this was not a blind test for him, praised the sound for its lyrical quality and its abundance of subtle detail.

Reine liked Gibson's delicious glissandos, more apparent with this cable than with either of the other versions, but for the moment she ranked the WBT over the Eichmann (which she referred to only by number, since she didn't know which was which). Albert enjoyed the overall balance between voice and instruments. He thought Gibson's voice seemed "wrapped up" in something, but wasn't initially certain whether that was good or bad.

We then listened to the *Sanctus* on SACD. "From the first measures you



know it's right," said Reine. "This is my favorite." Albert liked the fullness and the smoothness of the voices, as well as the excellent separation of timbres. And yet... "There's a certain coloration to the sound. It makes me think of our reference cable, and I know that sounds

like a good thing, but I don't think the sound is completely neutral."

As for Gerard, he liked the way the sibilance was rendered, as he had with the previous recording, but he missed the depth and roundness of the WBT version.

The final vote was split. After voting initially for WBT, Reine wound up choosing the Eichmann Bullet plug as sounding closest to the reference. Albert and Gerard were not as firm.

There was, however, one consensus: no votes went to the Silver Pipe. 