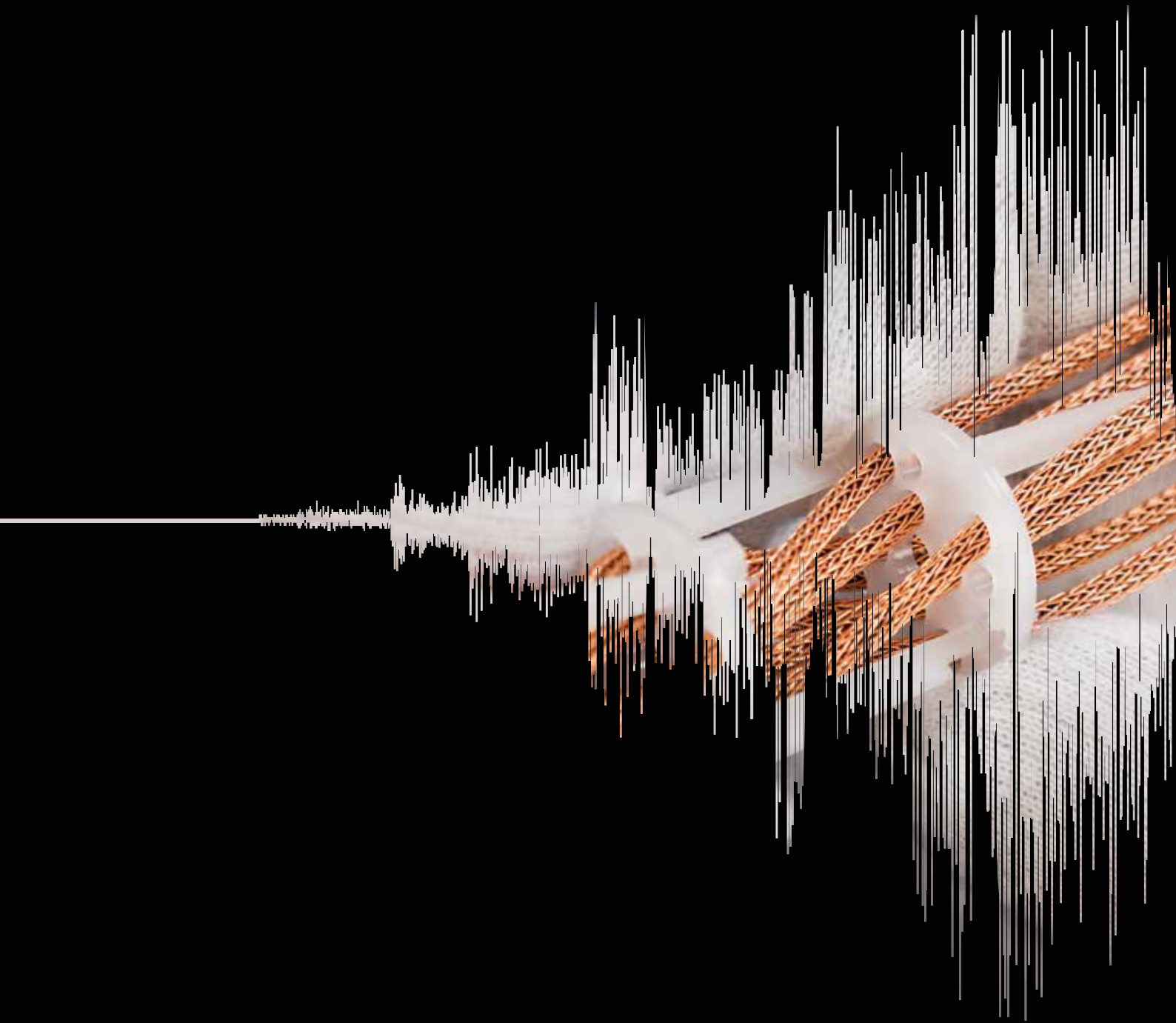


REFERENZ SELECTION

HANDMADE CABLES



inakustik

KABEL | LAUTSPRECHER | MUSIK

FOR THE SENSES

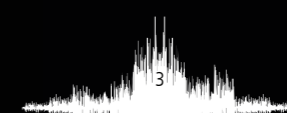


REFERENZ SELECTION

True sound experiences captivate, give you goosebumps or move you to tears. But only cables that have been perfected down to the last detail are able to transport this truly sensuous pleasure without interference. We at in-akustik are pioneers in perfect signal transmission, helping to convey the finest nuances that appeal to all senses. We put passion, ambition and love into the development and production of our cables, which are known throughout the world for outstanding quality. The ultimate proof for this is Referenz Selection. Dynamics, power and precision cannot be more clearly sensed with any other product range. That's why these cables are only available in select specialised stores.

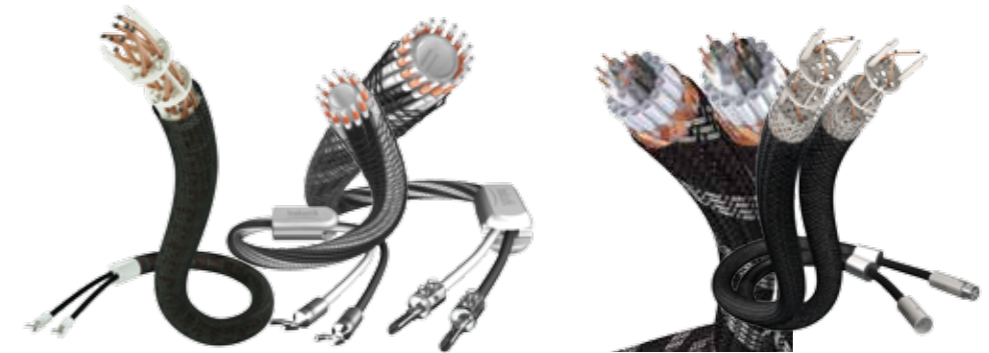
⊛ "The authentically innovative structure of in-akustiks new interconnect Referenz NF-2404 has propelled it right to the top of the class. Listening to this air cable will take your breath away!" Stereo 09-2015

Background	4
Our Philosophy	8
Key Technologies	10
Speaker Cables	14
Cable Bases	23
Gel Absorber	24
BiWire Jumper	25
Audio Cables	26
Phono Cabel	32
Digital Cable	34
Power Bar	35
Product Overview	36





PERFECT SOUND BEGINS IN THE MINE

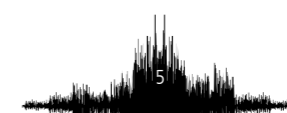


It is a long way from the sound source to the ear. It starts somewhere in the world in one of the mines in which copper ore is mined. From there the material is delivered to Germany, liquefied in melting pots in copper smelting plants in northern Germany and separated from impurities like phosphorus and iron. Only then is it poured into bars. But the raw copper is not yet suitable for electronic applications.

In order to create the purest possible, most conductive copper, the valuable raw material must first be placed in an electrolysis bath. The oxygen-free copper is again melted down, poured into a copper wire approximately 10 millimetres thick and wrapped into coils. In strict quality control tests, material samples are then examined and sorted according to their purity.

For Referenz Selection, only select, highly pure batches are used. Only after this pure material is found in elaborate processes is the copper drawn to the required diameter in several stages in the wire-drawing mill and later provided with our DUO-PE II insulation in a German cable mill. After that it is stranded with air-filled PE tubes and enveloped with the PE network jacket. And after all of this has happened, it comes to us – to in-akustik in Ballrechten- Dottingen – for the final steps and finishing.

✪ Many elaborate separation processes are needed to make conductive copper from copper ore. For Referenz Selection, only highly pure batches are used.





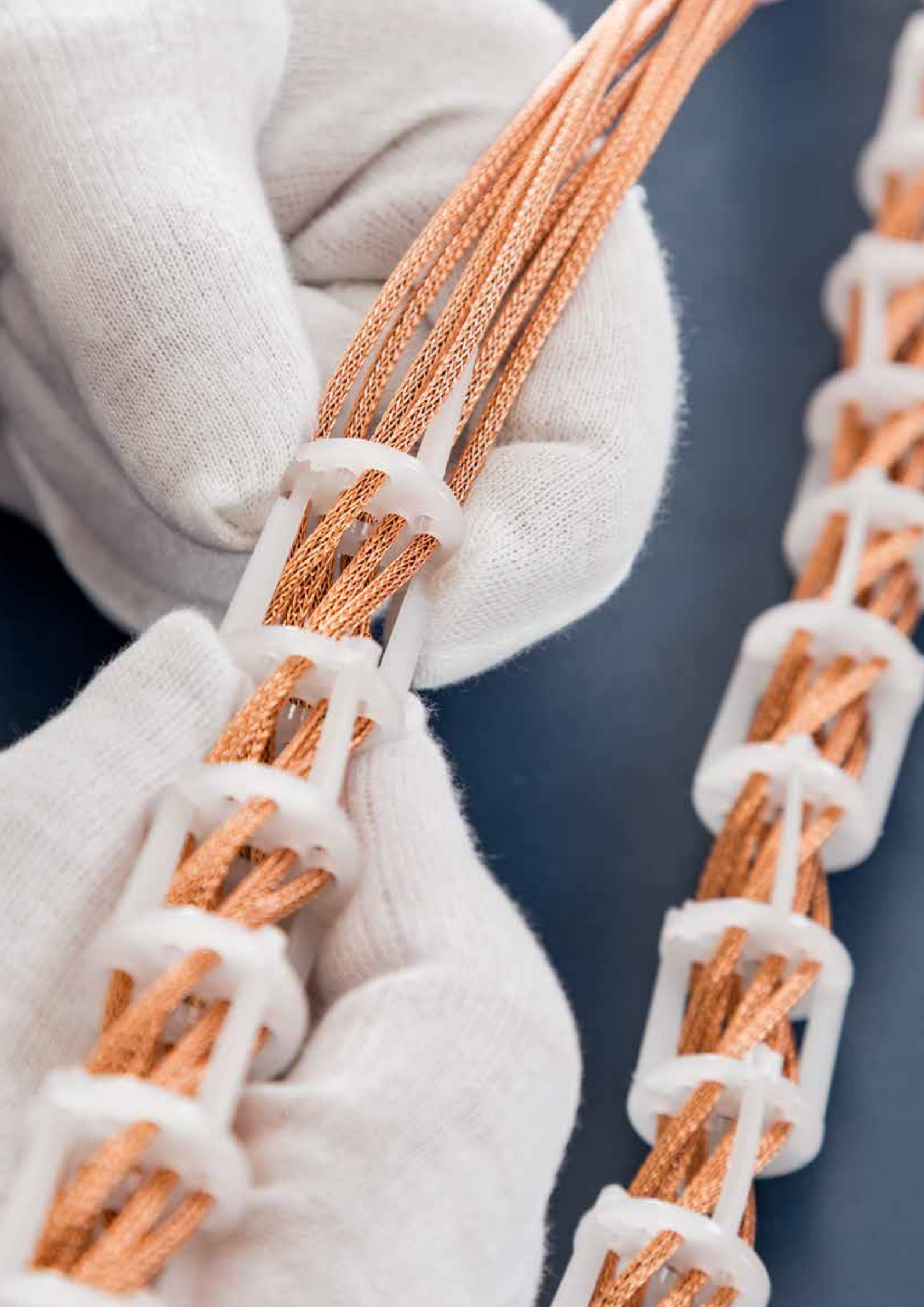
HANDMADE

We have long set the bar very high in regard to quality, because cables and connections are extremely sensitive. Physical phenomena that arise during the transmission of signals can only be controlled with technical finesse and the best materials. For this reason all cables are manufactured in a German cable mill and finished by us in Ballrechten-Dottingen in elaborate manual work. Some production steps are carried out in close cooperation with the Caritas workshops in our neighboring town Heitersheim.

For our Referenz Selection cables, we also offer an after sales service. For technical questions regarding the product or the right cable connection, please contact our support team directly. You can contact our experts Monday to Friday from 9–12 a.m. and 13–17 p.m. on the telephone number +49 (0) 7634 5610-70. In addition, we grant to all Referenz Selection cables extended warranty to 5 years. Please follow the instructions on the warranty card supplied with the product.



⊛ A Referenz Selection cable is manufactured in many manual steps that are often meticulous and elaborate.



PHYSICS NOT VOODOO



In physics lessons they taught us that an electric circuit only needs two wires – one for positive and one for negative. The lamp lights up and everything's fine. A standard lamp isn't any brighter or an iron any hotter if it has a different lead.

However, there are crucial differences between simply supplying power and highly complex information transfer. A loudspeaker cable is great example of this. It has to carry both energy and information. Loudspeakers can also be moody little beasts, with a very dynamic electrical life of their own. They behave differently for every tone and volume and have to be constantly kept in check by the amplifier. This means the signal on a loudspeaker cable is a jumble of tiny to huge levels, alternating current and voltage of different frequencies and phase levels. To faithfully transmit the extremely fine details that define sound and space and give the music feeling, the cable has to metaphorically keep the speaker as close as possible to the amplifier.

Elsewhere in the hi-fi chain, cables have to deal with other phenomena and overcome different challenges. This means the cables must be designed differently so that the system doesn't just sound good, but the components are able to perform at their very best.

What must these cables be like? A more detailed look at the electronics literature reveals that two simple wires are not enough. Cables act like filters that have to be tuned.

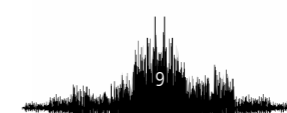
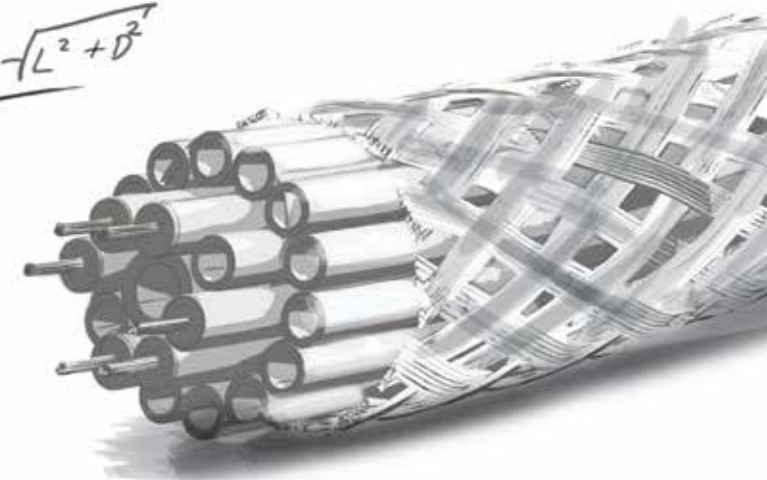
However, it's a long way from theoretical models and sketches to actual products. Samples are manufactured and optimised. Materials, design and manufacturing processes are coordinated, and tools and test equipment are built. Because we have our own cable factory and produce in-house, we can try out the craziest and most innovative ideas. This means we have built up plenty of expertise and experience over the years. Now, we can develop components using 3D CAD.

All this has led to another milestone in the history of our developments: the Air-Helix.

Wachsmann

Holger Wachsmann
Product development

$$L' = \sqrt{L^2 + D^2}$$



"A REAL INNOVATION IN CABLE DESIGN" STEREO 09-2015

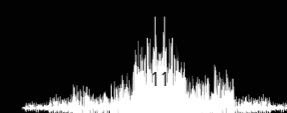
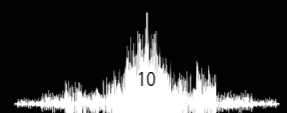


WHOLLY UNIQUE AIR HELIX DESIGN

The air-helix construction is wholly unique. We have developed a special clip to ensure air insulation that is as close to perfection as possible. A large number of these clips form the supporting structure on the inside of the cable. This holds the signal conductor free in the air in a helix form and guides it through the cable at defined intervals. The flexibility of this construction is attained with two bridges that hold the clips together evenly and at exact intervals. The Cross Link Super Speed waveguides are threaded and fitted with clips by hand with extreme care in our own manufacturing unit. Afterwards the air-helix created in this manner is given its PE network jacket – again by hand. Finally the rhodium-coated plugs are fitted and the cable function is tested

MAKE WAY CROSS LINK SUPER SPEED WAVE GUIDE

The conductors themselves of course also play a major role. The LS-4004 AIR and LS-2404 AIR are made of 24 highly pure copper wires braided on a PE core. An exceedingly thin coating layer on the wires prevents eddy currents inside this Cross Link Super-Speed Waveguide – the rigorous further development of the super-speed waveguide. This conductor is also used in the NF-2404, but it is considerably more effective in the LS-2404 AIR. The reason for this is that by far the largest currents in the entire audio chain flow through the loudspeaker cables. Part of the correspondingly strong magnetic fields are already compensated by the eight wires on their own. This is ensured by the braided and therefore opposed stranding of the individual wires. Their wafer-thin lacquer coating insulates the wires from each other. The structure ensures greater stability and "peace" in the conductor.



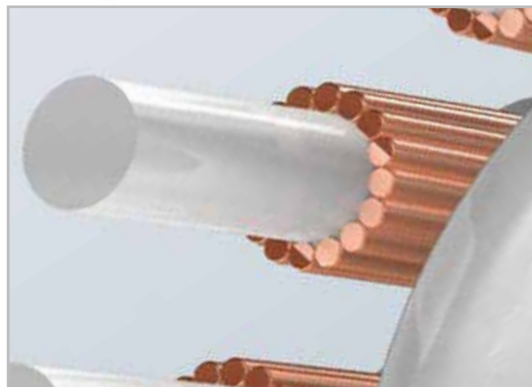
TECHNOLOGY IN ITS FINEST FORM

DOUBLE LAYER MULTICORE



The finding that the loudspeaker cable should primarily have a low inductivity has been optimally implemented in the LS-2404 AIR: The two-layer arrangement of the double-layer multicore allows the conductors to overlap and neutralise the magnetic fields that arise around the individual conductors. This considerably reduces the inductivity of the cable and also allows the high sound frequencies to be transferred without hindrance or time delays.

SUPER SPEED & HIGH SPEED WAVE GUIDE



As the frequency rises, the signal increasingly flows on the conductor surface. The higher the frequency, the lower the effective cross-section, and the greater the resistance. The cable sounds "bass-heavy". The conductors from the Referenz speaker cable have a core made of polyethylene. In this way a circular waveguide is formed and the actual cross-section used is the same for all sound frequencies. On the Super Speed waveguides, a layer of lacquer insulates the copper wires from each other and prevents unwanted eddy currents. The result: a homogeneous, balanced speaker cable with a wide-ranging sound spectrum.

PE-NETWORK JACKET



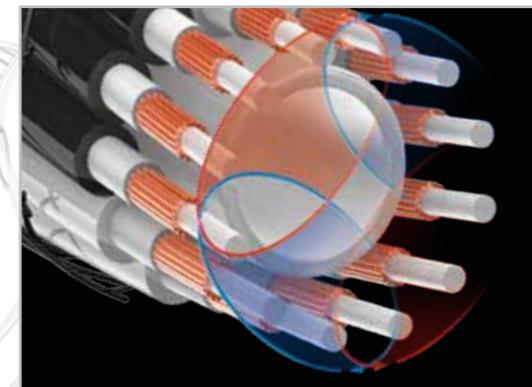
The tightly fitted PE network jacket holds the wires close together and reduces micro-vibrations that arise in the cable from the changing magnetic fields caused by the beat of the music. The cable therefore also transmits high levels and extreme dynamic peaks with absolute precision.

DUO-PE II INSULATION



Theoretically, air is the best insulator, and polyethylene is also excellent in practice. For Referenz cables, in-akustik developed insulation consisting of two layers of polyethylene. The first layer is foamed with air. A second, solid PE sheath is applied over that. This DUO-PE II insulation prevents high capacitance and eases the work for the electronics.

MULTICORE



The flow of current causes magnetic fields to be created in the cable, leading to a partial loss of power. High frequencies are slowed down – and time lag is created between low and high sound frequencies. The circular arrangement of several wires around the polyethylene support causes the magnetic fields of plus and minus conductors to overlap and neutralise each other. The high sound frequencies are transported unhindered and synchronously.

COPPER

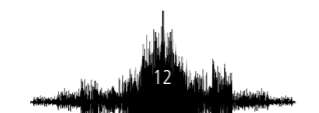


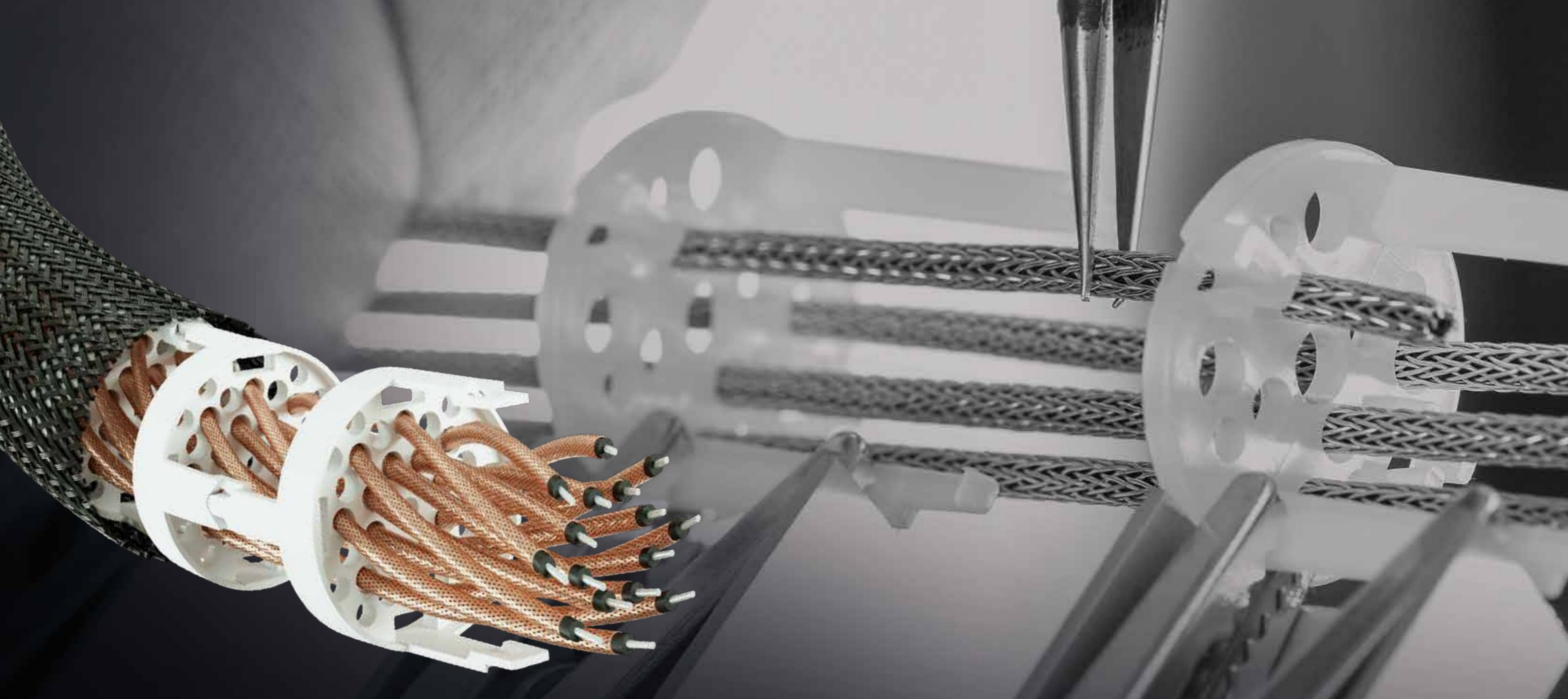
The transmission of acoustic signals is susceptible to many different types of interference: resistance, inductance, capacitance, conductance of the insulation and skin effect have a negative influence on the sound. The conductor material is also very significant. Because every contamination in the conductor material prevents the flow of current, impairing the conductance and increasing the background noise. That's why we use only especially pure, oxygen-free copper (OFC) with a high conductance in our Referenz cables.

$$\alpha = \frac{360}{2}$$

$$E_k = \frac{r}{\sqrt{14} \left(\frac{360}{2} \right)}$$

$$E_1 = E_k - r$$





SPEAKER CABLE

A heavenly CD by legendary artists. Listen and adore. If only it was that easy. By the time the first note reaches your ear, it has travelled a long way. The longest leg being between amplifier and speaker, with any number of obstacles. The signals are vulnerable to many distortions. We can prevent this. Ingenious conductor engineering, complex shielding and only the best materials. And we can also confirm this with independent test results from throughout the world.

★ "It's difficult to describe – you have to experience it yourself. Or to put it in terms of money, a hi-fi combination worth €20,000 can be improved by 20% simply with the LS-2404 AIR. That amounts to an extraordinary value." *Stereoplay 01-2017*



REFERENZ LS-4004 AIR

With the Referenz LS-4004 speaker cable, we continue the incredible story of their Air Helix technology: To achieve perfect air insulation, the new cable uses no less than 16 Cross Link Super Speed waveguides (rather than eight as with the Referenz Air Helix LS 2404). Obviously, the individual conductors themselves play a key role, too. With the LS-4004, too, these are made of 24 high-purity copper wires, each with a razor-thin lacquer coating for extra insulation and braided around a PE core. This design considerably increases stability inside the waveguide by effectively preventing the formation of eddy currents. (These are caused by the very high currents transmitted on the speaker cables - actually the highest ones within the entire audio path.)

The LS-4004 AIR is a perfect example of a low-inductance speaker cable: The double-layer multicore design leads to a neutralization of overlapping magnetic fields around the individual conductors. This considerably reduces cable inductance, ensuring that all frequencies are transmitted freely and without any latency. Plus a full range of connector options offers maximum flexibility.



KEY-FEATURES

- AIR HELIX DESIGN
- AIR DIELECTRIC
- DOUBLE LAYER MULTICORE
- 16 X CROSS LINK SUPER SPEED WAVE GUIDE
- LACQUERED WIRES
- PE-NETWORK JACKET
- PLUGS MADE OF TELLURIUM COPPER; RHODIUM-COATED
- ANGLE OF PLUGS ADJUSTABLE
- PRESSURE-GROUTED PLUGS



You can find a summary of the various connection options on page 36.

THE PLUGS

We have opted for tellurium copper as the plug base material rather than brass. This is because tellurium copper offers twice the conductivity. Each plug comprises a basic terminal with a spade or BFA banana adapter laterally threaded to it. This connector design provides maximum flexibility with regard to adjusting the angle between the cable and the connector and also mitigates the effects of mechanical forces acting on both the cable and the connector including their contact interfaces. The connector surfaces are rhodium-coated because this extremely robust material ensures optimum contact even after many mating cycles.

A ROCK-SOLID CONSTRUCTION

Between the aluminum splitter and the connectors of the LS-4004 AIR, we have implemented ultra flexible parts molded from a special elastomer. These parts are fixed inside the splitter using a specifically designed plastic plug, thus ensuring maximum cable flexibility even in the connector region. Those molded parts extend to the connector front and enclose the inner connector components, thus emphasizing the plain yet charming appearance of the LS-4004 AIR. The aluminum splitters are screwed tightly with the first clip in the cable. In summary, this creates a visually appealing and mechanically reliable design - consistent from the connectors on the amplifier side to their counterparts on the speaker side.



REFERENZ LS-2404 AIR

The new Reference LS-2404 AIR loudspeaker cable combines the outstanding qualities of its predecessor – the LS-2404 – and the almost legendary NF-2404 audio cable. This has resulted in a loudspeaker cable that not only has the all-important low inductivity necessary for its application, but also low capacity values and low dielectrical losses. Interdependencies have been reduced and the amplifier can function in a more detached manner. Even if this may seem paradoxical: Thanks to the innovative air insulation, high fidelity becomes a simply breath-taking sound experience with this cable.



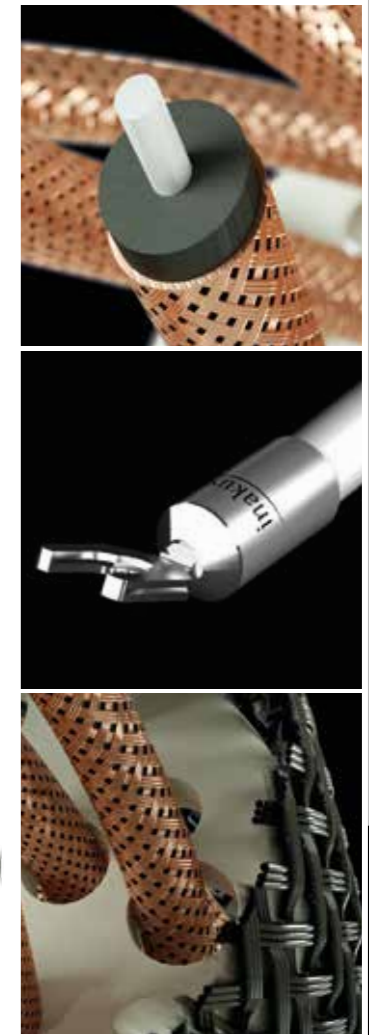
stereoplay
Highlight
Ausgabe 01/17

KEY-FEATURES

- AIR HELIX DESIGN
- AIR DIELECTRIC
- DOUBLE LAYER MULTICORE
- 8 X CROSS LINK SUPER SPEED WAVE GUIDE
- LACQUERED WIRES
- PE-NETWORK JACKET
- RHODIUM-COATED CONTACTS



You can find a summary of the various connection options on page 36.



RHODIUM-COATED CONTACTS

Our technical know-how, which is bundled in Referenz Selection, is also drawn upon for the development of our plugs. Arriving signals are not altered – the sound quality at the end is as pure as at the beginning. For unsurpassed listening enjoyment. This is achieved with the KS-103 cable shoe, for example. The rhodium surface treatment is extremely durable. The contact surfaces and the screw connection are manufactured from a single piece, allowing contact resistance to be avoided. The spade changes shape. The contact surface, which is slitted on the side, changes to a concave shape when the screw connections are tightened, thus preventing the spade lug from sliding out.

CROSS LINK SUPER SPEED WAVE GUIDE

The conductors themselves of course also play a major role. The LS-2404 is made of 24 highly pure copper wires braided on a PE core. An exceedingly thin coating layer on the wires prevents eddy currents inside this Cross Link Super-Speed Waveguide – the rigorous further development of the super-speed waveguide. This conductor is also used in the NF-2404, but it is considerably more effective in the LS-2404 AIR. The reason for this is that by far the largest currents in the entire audio chain flow through the loudspeaker cables. Part of the correspondingly strong magnetic fields are already compensated by the eight wires on their own. This is ensured by the braided and therefore opposed stranding of the individual wires. Their wafer-thin lacquer coating insulates the wires from each other. The structure ensures greater stability and "peace" in the conductor.

REFERENZ LS-2404

In addition to the waveguide design (third Generation LS-1603 & LS-1203), where the individual copper wires are arranged around a polyethylene core, in the fourth generation the copper wires are lacquered as insulation from each other. This prevents chaotic and undefined contact between the copper wires, which might otherwise lead to uncontrolled eddy current. As well as this, the new cables are characterised by extremely low inductivity. A total of 24 Super Speed waveguides are wound through the LS-2404. They form a multi-core structure where the magnetic fields of the forward and return conductors caused by the signal current cancel each other out, thus significantly reducing unwanted inductivity.

KEY-FEATURES

- 24-FOLD MULTICORE
- SUPER SPEED WAVE GUIDE
- LACQUER-INSULATED WIRES
- CONCENTRIC COPPER
- DUO-PE II INSULATION
- HIGH POWER MANAGEMENT
- PE-NETWORK JACKET



You can find a summary of the various connection options on page 36.

REFERENZ LS-1603 SILVER

The LS-1603 Silver controls all facets of the sound spectrum: from the subtle symbol clash of a jazz percussionist to the sententious voice of a female soul singer to the roaring final chord of a symphony orchestra. The basis for this is the specially developed high-speed waveguide technology. Oxygen-free copper (OFC) wires are wrapped around a polyethylene core and provided with the proven DUO-PE II insulation. The LS-1603 Silver has 16 of these high-speed waveguides, which are finely tuned to each other and stranded in groups around a polyethylene support (16-fold multicore).

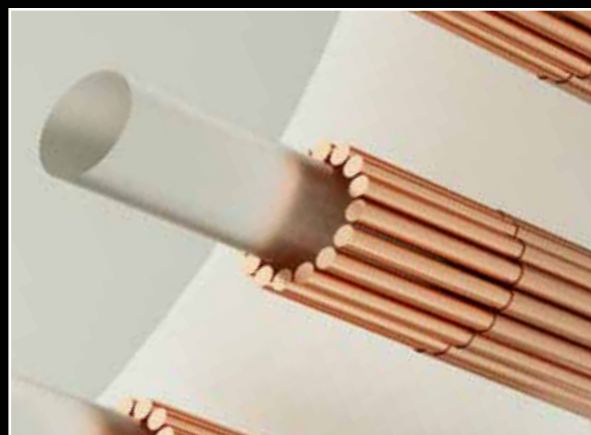


KEY-FEATURES

- 16-FOLD MULTICORE
- HIGH SPEED WAVE GUIDE
- SILVER PLATED CONDUCTORS
- CONCENTRIC COPPER
- DUO-PE II INSULATION
- HIGH POWER MANAGEMENT
- PE-NETWORK JACKET



You can find a summary of the various connection options on page 36.



SUPER SPEED WAVE GUIDE

As the frequency rises, the signal increasingly flows on the conductor surface. The higher the frequency, the lower the effective cross-section, and the greater the resistance. The cable sounds "bass-heavy". The conductors from the Referenz speaker cable have a core made of polyethylene. In this way a circular waveguide is formed and the actual cross-section used is the same for all sound frequencies. On the Super Speed waveguides, a layer of lacquer insulates the copper wires from each other and prevents unwanted eddy currents. The result: a homogeneous, balanced speaker cable with a wide-ranging sound spectrum.



SILVER PLATED CONDUCTORS

To augment the high-speed waveguide conductor design, the surface of each individual copper wire is silver-plated. This is a more conductive material for high frequencies that are carried on the conductor surface due to the skin effect, and the complex music signal is carried with less loss. This is yet another fine-tuning for crystal clear sound.

REFERENZ LS-1603

For Referenz Selection cables, the focus is on neutrality in addition to technical finesse. Sounds are reproduced unaltered. As with the LS-1603. It controls all facets of the sound spectrum: from the subtle symbol clash of a jazz percussionist to the sententious voice of a female soul singer to the roaring final chord of a symphony orchestra. The basis for this is the specially developed high-speed waveguide technology. Oxygen-free copper (OFC) wires are wrapped around a polyethylene core and provided with the proven DUO-PE II insulation. The LS-1603 has 16 of these high-speed waveguides, which are finely tuned to each other and stranded in groups around a polyethylene support (16-fold multicore).

KEY-FEATURES

- 16-FOLD MULTICORE
- HIGH SPEED WAVE GUIDE *
- CONCENTRIC COPPER
- DUO-PE II INSULATION
- HIGH POWER MANAGEMENT **
- PE-NETWORK JACKET



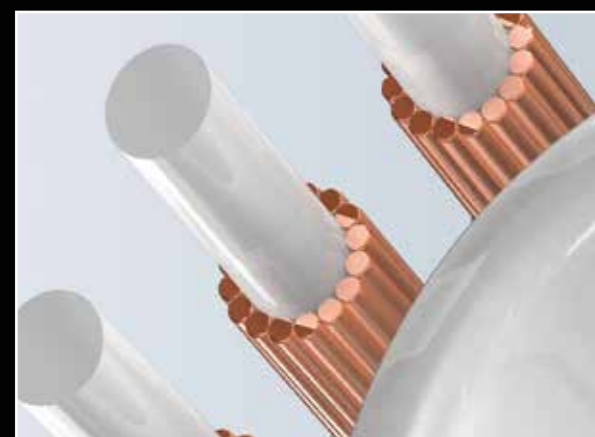
You can find a summary of the various connection options on page 36.

REFERENZ CABLE BASE

The Referenz Cable bases are specifically designed cabling-support systems for the finest stereo systems. The base incorporates absorber gel, too, plus extra rubber bands accommodating the freely suspended cables. This way, Referenz Cable Bases not only absorb vibrations but consistently isolate your cables from the floor, reducing unwanted capacitance and minimizing the load of the electronic system.

KEY-FEATURES

- MECHANICAL AND CAPACITIVE CABLE DECOUPLING
- SUITABLE FOR CABLE DIAMETERS OF 10 – 25MM
- HIGH-TECH GEL PAD INSIDE THE BASE
- RUBBER BANDS HOLDING THE CABLE
- OPEN OR CLOSED CABLE SUSPENSION
- DIAMETER: 47 MM
- TOTAL HEIGHT: 48 MM
- HEIGHT LEVELS: 25 / 33 / 44 MM



HIGH SPEED WAVE GUIDE *

As the frequency rises, the signal increasingly flows on the conductor surface. The higher the frequency, the lower the effective cross-section, and the greater the resistance. The cable sounds "bass-heavy". The conductors from the Referenz speaker cable have a core made of polyethylene. In this way a circular waveguide is formed and the actual cross-section used is the same for all sound frequencies.

HIGH POWER MANAGEMENT **

The signal current produces magnetic fields around each conductor, which pulse in time with the music. If the conductors have not been stabilised, microvibrations occur. The tightly fitted PE-Network Jacket holds the wires close together and reduces microvibrations. Even at high volumes, the cable transmits extreme dynamic peaks with absolute precision.



DECOUPLING: LESS TROUBLE, BETTER SOUND

Referenz Cable Bases are highly versatile because they support various cabling diameters and floor gaps as well as open and closed cable suspension. With open suspension, the cable rests on a rubber band and allows for mounting at three different heights; with closed suspension, cables are fixed using two rubber bands above and below. This approach is advantageous in that minor movements (for example, when aligning your speakers) will not result in the cable falling from the Base—it is fixed in a defined position. The innovative cable supports thus ensure effective mechanical and capacitive decoupling of your RCA, XLR, and phono cables from the floor. A particularly interesting application of Referenz Cable Bases is the decoupling of your phono cables. This is essential because otherwise vibrations would travel to your tone arm and on to your sensitive pick-up system.

REFERENZ GEL-ABSORBER

High-end and hi-fi systems are a combination of highly precise and delicate devices. That all components can work without interference, just like sensitive measuring equipment they need to be kept free of vibrations and shocks as far as possible. Vibrations are caused in different ways and they can be transmitted by structure-borne and air-borne noise. The combination of air-borne and structure-borne noise causes all of the components of the hi-fi system to vibrate mechanically. Experiments have shown that this is a considerable impact on the sound. The Reference Hightech Gel Absorbers form a solid sound basis that is available as a combination set for all weight classes. They have a special gel at their core that absorbs vibrations. This set contains 12 gel pads for various weight classes for the optimum tuning and decoupling of the devices and loudspeakers.

KEY-FEATURES

- HIGHTECH ABSORBER GEL
- TOP AND BOTTOM PART MADE FROM STAINLESS STEEL
- 12 (3 X 4) HIGHTECH GEL PADS IN THE SET
- COVERS FOUR WEIGHT CLASSES FROM 5 TO 40 KG
- FELT PADS AND ADHESIVE PADS INCLUDED
- DIMENSIONS APPROX. 45 X 11.5 MM (D X H)



QUALITY NOT QUANTITY

The weight of the devices influences the effectiveness of the absorbers or the absorbent material. In particular the damping ratio alters depending on the frequency and the self-resonance. Therefore it makes sense to adjust the absorber to the weight of the respective component:

- Gel pad / device weight (per set of 4)
- Green*: up to 5 kg (up to 1.25 kg / absorber)
 - Blue: 5–10 kg (1.25–2.5 kg / absorber)
 - Green: 10–20 kg (2.5–5.0 kg / absorber)
 - Black: 20–40 kg (5.0–10.0 kg / absorber)

* Due to the resonance response, we recommend this gel pad for use in two weight classes.

REFERENZ BIWIRE-JUMPER

High-end bi-wire jumper based on the LS-1603; LS1203 or LS-803. Fitted with the KS-103 Reference spade lug or BFA Banana. The rhodium surface treatment is extremely durable. The contact surfaces and the screw connection are manufactured from a single piece, allowing contact resistance to be avoided. The spade changes shape. The contact surface of the spade, which is slitted on the side, changes to a concave shape when the screw connections are tightened, thus preventing the spade lug from sliding out.

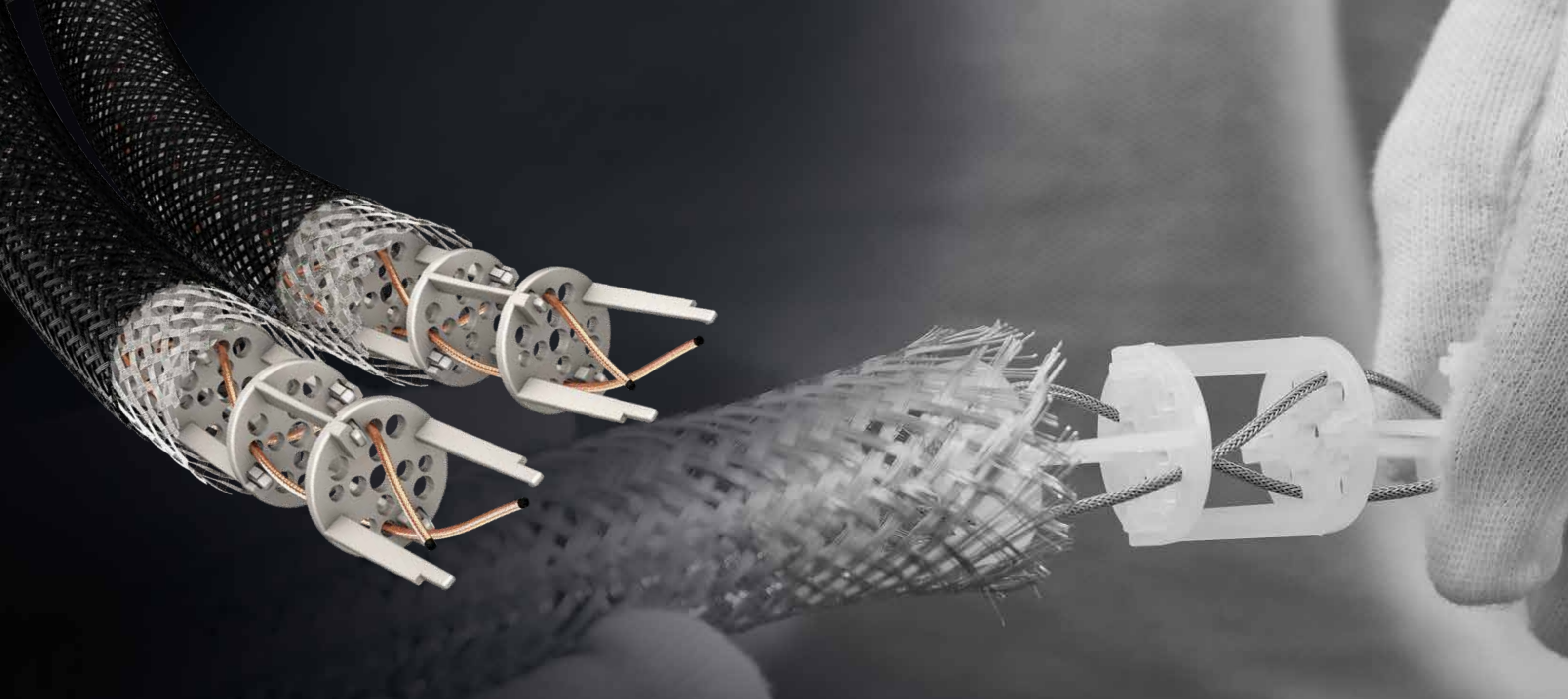
KEY-FEATURES

- 16-FOLD; 12-FOLD OR 8-FOLD MULTICORE DEPENDING ON THE VERSION | LS-1603; LS-1203 OR LS-803
- HIGH SPEED WAVEGUIDE
- CONCENTRIC COPPER
- DUO-PE II INSULATION
- HIGH-POWER-MANAGEMENT
- PE-NETWORK JACKET



RHODIUM COATED CONTACTS

The rhodium surface treatment is extremely durable. The contact surfaces and the screw connection are manufactured from a single piece, allowing contact resistance to be avoided. The spade changes shape. The contact surface, which is slitted on the side, changes to a concave shape when the screw connections are tightened, thus preventing the spade lug from sliding out.



AUDIO CABLE

Every sound begins quite small. Such as a CD or DVD player to send only weak signals. The first steps are therefore particularly vulnerable. Electromagnetic interactions let the delicate tones come easily stumble. Not so with our Audio cables. The in-akustik Referenz cable while helping the small pulses, unadulterated to come up to the amplifier. With intricate designs, select materials and thicker shielding. So every note comes out great.

“With a real innovation in cable design, In-Akustik’s brand-new Referenz NF-2404 equipment combination jumps straight into the premier league – by keeping the conductors at a distance from each other, it gives the music space to breathe.” *Stereo 09-2015*

“The NF-2404 Air RCA cable has magical cubic metres more than a competitor model. A clear vote for the in-akustik alternative.” *stereoplay 01-2017*



REFERENZ NF-2404 AIR

Breathtaking sound through air insulation - On their way to perfect insulation we have realized many innovative designs - for example, the DUO PE insulation or the PETS (PE tube support). The NF-2404 Air is another milestone along this route and an absolute world first in the cable sector. Normally the conductors are kept apart by filling and insulating material of variable quality. But in the NF-2404 Air, the conductors run through a successive chain of clips that form an inner framework and give the NF-2404 Air extraordinary flexibility for a high-end cable.



KEY-FEATURES

- AIR HELIX DESIGN
- EXTREMELY LOW CAPACITIES THANKS TO AIR DIELECTRIC
- CROSS LINK SUPER SPEED WAVE GUIDE
- BRAIDED SHIELD MADE OF LOW-OXIDATION COPPER
- PE-NETWORK JACKET
- RHODIUM-COATED CONTACTS



You can find a summary of the various connection options on page 36.



GAP RCA PLUG

This newly developed high end plug enables a symmetrical connection to be made up to the terminals of the equipment. Thanks to its two-piece earth ring, this RCA plug has three contacts, exactly like an XLR plug. The screening and negative conductors are only brought together again when at the terminals of the equipment.

HANDMADE

Just like all loudspeaker and audio cables from the Referenz series, the NF- 2404 is entirely made in Germany. The clips are meticulously assembled by hand at the on-site factory and then threaded into the Cross Link Super Speed waveguide. The resulting Air Helix is then provided with a shield and the PE network jacket and finally fitted with GAP-RCA-II or XLR plugs.

REFERENZ NF-1603

Due to the large effective overall surface of the six high-speed signal conductors, the Referenz NF-1603 becomes a powerful high-end link. At the same time, the DUO-PE II insulation and the air-filled PE tubes reduce unwanted capacitance and enable the signal source to work comfortably. The GAP II screening of the NF-1603 is a combination of lacquer-insulated wires and an aluminium-coated film with an air gap. The screening prevents the formation of interfering eddy currents. Another highlight of the third-generation is the GAP II cinch plugs, which ensure three-way symmetry in this connection. As an alternative, this cable is also available as an XLR version. The PE network jacket also prevents micro-vibrations.

KEY-FEATURES

- TRIPLESYMMETRICAL DESIGN
- HIGH SPEED SIGNAL CONDUCTOR **
- DUO-PE II INSULATION
- 16-FOLD PE-TUBE INSULATION
- GAP II SHIELDING *
- PE-NETWORK JACKET



You can find a summary of the various connection options on page 37.

REFERENZ NF-1203

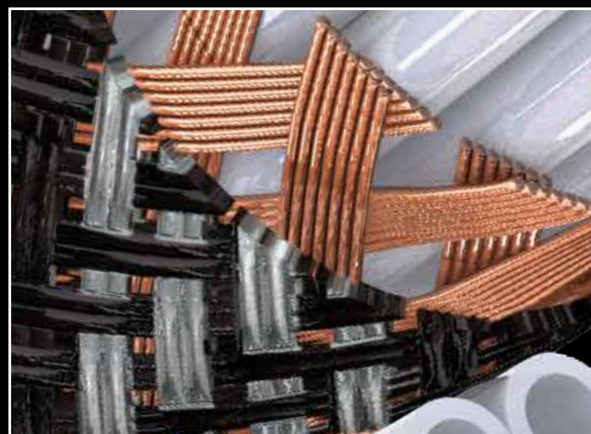
Four high-speed signal conductors provide the signal transport for the NF-1203. The DUO-PE II insulation and the air-filled PE tubes reduce undesired capacitance. The GAP II screening of the NF-1203 consists of lacquer-insulated wires. It prevents the formation of interfering eddy currents. The PE network jacket also prevents micro-vibrations. Another highlight is the solid Referenz XLR plugs, which round out the two-way symmetry of this connection. As with the NF-1603, the NF-1203 is available either with GAP II cinch plugs or as an XLR version.

KEY-FEATURES

- DOUBLESYMMETRICAL DESIGN
- HIGH SPEED SIGNAL CONDUCTOR **
- DUO-PE II INSULATION
- 3-FOLD PE-TUBE INSULATION
- GAP II SCREENING *
- PE-NETWORK JACKET



You can find a summary of the various connection options on page 37.



GAP II SHIELDING *

The standard shielding of conventional audio cables function like short-circuited secondary circuits. Eddy currents could occur and alter the music signal. The dynamics are diminished and the hi-fi system sounds flat. The GAP II screening consists of lacquer-insulated wires. It prevents the formation of interfering eddy currents.



HIGH SPEED SIGNAL CONDUCTOR **

The Reference audio cables NF-1603 and NF-1203 have fine stranded signal wires, with each individual wire having a lacquer coating. This coating insulates the wires from each other which creates a larger effective conductor surface. It also prevents eddy currents between the wires. A conductor that can also pass on extremely dynamic signal sequences very quickly and precisely.

REFERENZ PHONO-2404

Nowhere else in the audio world are smaller currents used. And they must be forwarded perfectly. The signal level of an MM or MC system is extremely sensitive, at just a few thousandths of a volt. Additionally, the systems have an inductive character. In combination with the cable capacity, they form what is known as an oscillating circuit, which favours specific frequencies. If these frequencies are unfavourable due to excessively high capacities, this has a major effect on the harmony of the sound. Extremely low capacities and dielectric losses are only two advantages of Reference Phono 2404. They form the basis of your unadulterated enjoyment of your vinyl treasures. There is no finer resolution for the sound of good LPs.

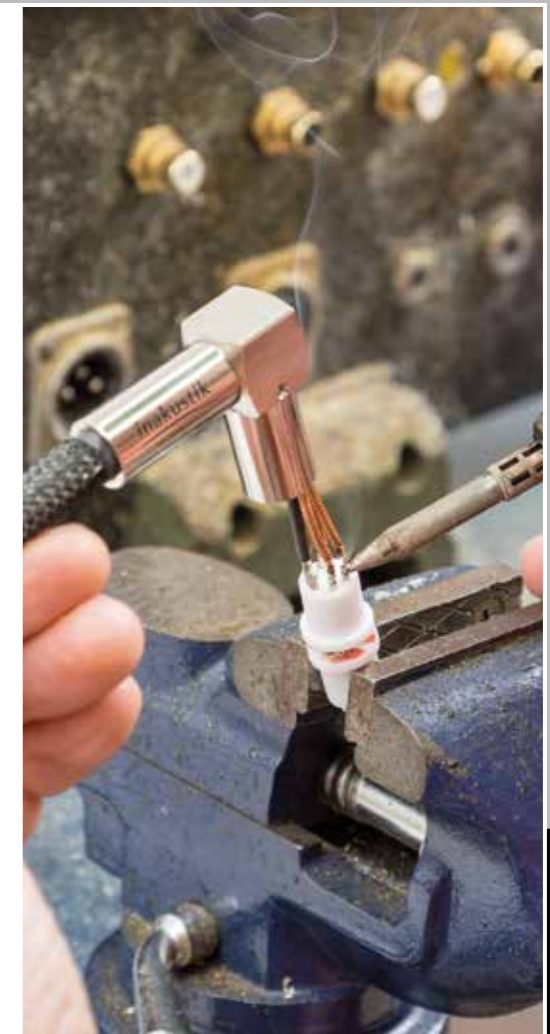


KEY-FEATURES

- AIR HELIX DESIGN
- EXTREMELY LOW CAPACITIES THANKS TO AIR DIELECTRIC
- CROSS LINK SUPER SPEED WAVE GUIDE
- PE-NETWORK JACKET
- RHODIUM-COATED CONTACTS



You can find a summary of the various connection options on page 37.



VINYL TREASURES

The good old LP sounds more alive than ever. Even experts would not have thought this demand possible. The sales of LPs are rising just as surprisingly as those of record players. A boom. But how can the sound be improved? For example, using a new, superior cable between the pick-up arm and the phono amplifier. We at in-akustik have created a new cable for excellent sound – the Reference Phono 2404.

ADDITIONAL PRODUCT DATA

- Symmetrically constructed channels
- Signal-free protective cover
- Braided shield, oxidation protected
- Rhodium-coated contacts
- Earth cable

REFERENZ DIGITAL 2404

The air-helix construction of the Reference Digital-2404 is wholly unique. We have developed a special clip to ensure air insulation that is as close to perfection as possible. A large number of these clips form the supporting structure on the inside of the cable. This holds the signal conductor free in the air in a helix form and guides it through the shielding at defined intervals. The flexibility of this construction is attained with two bridges that hold the clips together evenly and at exact intervals. With coaxial cables, the shielding is usually used as an earth conductor. The Reference Digital 2404 RCA on the other hand has a double-symmetric structure and has two positive and two negative conductors. This means that the shielding is completely separate and the signal remains free of interference.

KEY-FEATURES

- AIR HELIX DESIGN
- EXTREMELY LOW CAPACITIES THANKS TO AIR DIELECTRIC
- CROSS LINK SUPER SPEED WAVE GUIDE
- DOUBLESYMMETRICAL DESIGN
- PE-NETWORK JACKET
- RHODIUM-COATED CONTACTS



You can find a summary of the various connection options on page 37.



ADDITIONAL PRODUCT DATA

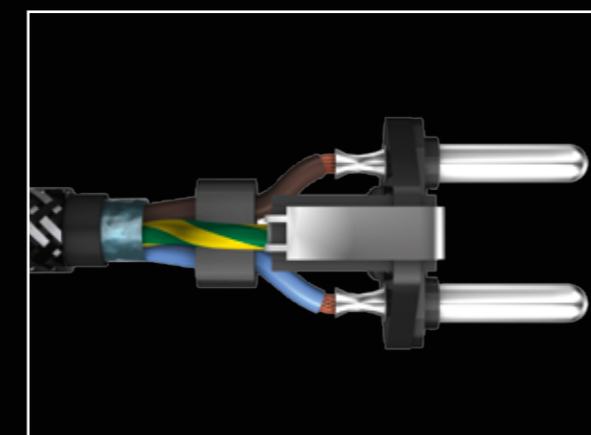
- Signal-free protective cover
- Braided shield, oxidation protected
- Rhodium-coated contacts
- GAP-RCA II plugs or XLR plugs
- Impedance 75 Ohm (RCA) / 100 Ohm (XLR | AES-EBU)

REFERENZ AC-2502-SF8

Power cables are being used as data cables more and more often. In doing so, high-frequency signals are superimposed on the mains voltage. Standard power cables also function like antennas, which receive radio frequencies from mobile phones or PCs. These signals land in the hardware as interference. Additionally, there are voltage fluctuations in the mains and transition resistance which takes power out of HiFi systems during dynamic peaks. The in-akustik mains cables and power strips filter the current and deliver "clean" currents for your HiFi system. Use of the best materials and excellent workmanship guarantee maximum dynamics, even e.g. loads. Complete screening and a special filter prevent radio frequencies from being received which would turn the cable into an aerial.

KEY-FEATURES

- POWER BAR (8 MM²) FOR EVEN POWER DISTRIBUTION
- 3 X 2.5 MM² CABLE, MYLAR FOIL SHIELDED
- 1,5M | 3,0M CABLE
- FULLY SHIELDED METAL HOUSING
- OVERVOLTAGE PROTECTION
- IN-PLUG FILTER IN THE AC PLUG; 2Y-FILTER IN THE POWER BAR
- FOIL SHIELDING AND ADDITIONAL SHIELDING WIRE
- ADDITIONAL MAINS FILTER
- VDE, CE, ROHS CONFORM



IN-PLUG FILTER

A ferrite filter is integrated in the plug of the power bar. This In-Plug Filter blocks interference from the network directly at the socket. The filter is manufactured from a special high-density ferrite that works extremely effectively in the smallest of spaces. A further advantage is that both the live wires of the power cords are led directly through this ferrite. Power losses through additional nips or solder points are eliminated.

2Y-FILTER

The 2Y-Filter is made of two capacitors which discharge interferences from the main conductors to ground. This filter works parallel to the conductors so that there are no additional losses.

REFERENZ SELECTON



SPEAKER CABLE	LS-4004 AIR	LS-2404 AIR	LS-2404	LS-1603 Silver	LS-1603
Air Helix Design	x	x			
Low capacities thanks to air dielectric	x	x			
Cross Link Super Speed Wave Guide	x	x			
Super Speed Wave Guide			x		
High Speed Wave Guide				x	x
Double Layer Multicore		x			
Multicore		8-fold	24-fold	16-fold	16-fold
PE-Network Jacket		x	x	x	x
Lacquered wires	x	x	x		
Silver-plated wires				x	
Number of single conductor	16	8	24	16	16
Conductor cross-section	16 x 1,2 mm ²	8 x 1,2 mm ²	24 x 0,74 mm ²	16 x 0,74 mm ²	16 x 0,74 mm ²
Diameter	44 mm	24 mm	24 mm	16 mm	16 mm
High Power Management	x	x	x	x	x
DUO-PE II Isolation			x	x	x
Concentric Copper			x	x	x
Page in catalogue	16	18	20	21	22

CONNECTIONS

Singlewire	x	x	x	x	x
Single-BiWire	x	x	x	x	x
Plugs made of tellurium copper	x				
BFA adjustable rhodium coated	x				
BFA 45° rhodium coated		x	x	x	x
BFA rhodium coated		x		x	x
Spade lug adjustable rhodium coated	x				
Spade lug rhodium coated		x	x	x	x
Easy Plug		x	x	x	x
Screw Type	x	x		x	x
Standard length	2 x 3,0m	2 x 3,0m	2 x 3,0m	2 x 3,0m	2 x 3,0m
Custom-made length	x	x	x	x	x



AUDIO PHONO DIGITAL CABLE	NF-2404 AIR	NF-1603	NF-1203	Phono 2404	Digital 2404
Air Helix Design	x			x	x
Low capacities thanks to air dielectric	x			x	x
Cross Link Super Speed Wave Guide	x			x	x
High Speed signal conductor		x	x		
Braided shield, oxidation protected	x			x	x
Signal-free shielding	x	x	x	x	x
Separate earth cable				x	
PE-Network Jacket	x	x	x	x	x
Construction	symm.	3-fach symm.	doppelsymm.	symm.	doppelsymm.
PE-Tube support		16-fach	3-fach		
DUO-PE II insulation		x	x		
GAP II shielding		x	x		
Diameter	24 mm	11 mm	9 mm	24 mm	24 mm
Impedance					75 Ohm / 100 Ohm
Page in catalogue	28	30	31	32	34

CONNECTIONS

RCA -> RCA rhodium coated	x	x	x	x	x (75 Ohm)
XLR -> XLR rhodium coated	x	x	x		x (110 Ohm)
SME 90° -> RCA rhodium coated				x	
SME -> RCA rhodium coated				x	
SME 90° -> XLR rhodium coated				x	
SME -> XLR rhodium coated				x	
Standard length	0,75m 1,0m 1,5m	0,75m 1,0m 1,5m	0,75m 1,0m 1,5m	1,0m 1,5m 2,0m	1,0m 1,5m 2,0m
Custom-made length	x	x	x	x	x





FOR PROFESSIONALS

The service we provide begins a long time before the start: With the comprehensive technical product and commercial advice and planning of individual projects or training sessions – on request on site at your location. Ranging from the exact understanding of your requirements to the development of specific solutions and concepts to the implementation in our production unit at our company headquarters.



PIEGA & PRIMARE

In July 2014, we became the German distributor of Piega, a high-end loudspeaker manufacturer from Switzerland, and from January 2016 the German distributor of Primare, a legendary Swedish brand for high-end audio and home cinema components.



MANUFACTURED BY IN-AKUSTIK

Around 1300 metres of cable are made every week at our production facilities. Each year we manufacture more than 7,000 special hand-made cables from our Referenz series.



PRESS | MUSIC & MEDIA

"A German music label is making technological history: in-akustik has produced the first German Ultra HD Blu-ray, for a Michael Schenker concert in Madrid."

video-magazin.de | 05-2016



FACTS AND FIGURES

Our 450 m² music and media warehouse currently houses more than 11.000 different items. Our total sales are 15 million so far. Our most successful artists Erich Kunzel (600.000), Friedemann (400.000), Michael Schenker (200.000) and the Blues Company (200.000).

PRESS | CABLE

"The authentically innovative structure of in-akustiks new interconnect Referenz NF-2404 has propelled it right to the top of the class. Listening to this air cable will take your breath away!"

Stereo 09-2015



REFERENZ SOUND EDITION

Welcome to the world of impeccable sound, the "IN-AKUSTIK REFERENZ SOUND EDITION". This remarkable sound carrier made by in-akustik has been assembled with a love of musical detail. RESO Mastering (Referenz Sound Mastering), the new high definition mastering procedure, provides significant acoustic improvements in transparency, dynamics, bass reproduction and depth differentiation. The music becomes more atmospherical and emotional. In order to convey this musical experience appropriately, the recording medium is no ordinary CD, but an HQCD. Instead of ordinary LP vinyl, 180-gram Audiophile Virgin Vinyl is used.

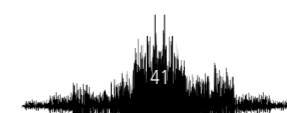


ITEM-NO.	ARTIST TITEL	MEDIUM
0167501	Reference Sound Edition – Great Voices Vol.1	HQCD
01675011	Reference Sound Edition – Great Voices Vol.1	Audiophile Double LP
0167502	Reference Sound Edition – Great Voices Vol.2	HQCD
01675021	Reference Sound Edition – Great Voices Vol.2	Audiophile Double LP
0167503	Reference Sound Edition – Great Cover Versions	HQCD
01675031	Reference Sound Edition – Great Cover Versions	Audiophile Double LP
0167504	Reference Sound Edition – Great Guitar Tunes	HQCD
01675041	Reference Sound Edition – Great Guitar Tunes	Audiophile Double LP
0167505	Reference Sound Edition – Soundcheck	HQCD
01675051	Reference Sound Edition – Soundcheck	Audiophile Double LP
0167506	Reference Sound Edition – Great Women Of Song	HQCD
01675061	Reference Sound Edition – Great Women Of Song	Audiophile Double LP
0167507	Reference Sound Edition – Great Men Of Song	HQCD
01675071	Reference Sound Edition – Great Men Of Song	Audiophile Double LP

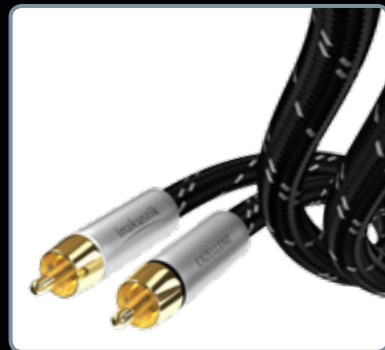
REFERENCE
SOUND
EDITION

RESO
MASTERING

HQ
HiQualityCD



in-akustik headquarters in Ballrechten-Dottingen




IN-AKUSTIK THER'S MORE BEHIND IT

.....
A pure sound, a sharp image and an exclusive feeling of luxury - this is our aim as a company: the best quality for the eyes and ears –for the senses. We have been committed to perfection for more than 37 years – in sound, picture, music & media and exclusive designs. To achieve this, we have laid our focus on in-house product development and the manufacturing of our top quality cables in Ballrechten- Dottingen. Part of this is our exceptional attention to detail – whether this involves the complex cable structures, the stylish spatial concept of AmbienTech or the selection of artists for our own music label. It is this emphasis on the fundamental aspects which has made in-akustik so strong and helped us become a globally active company with international ambition with a hugely impressive product range.
.....

in-akustik GmbH & Co. KG
Untermatten 12-14
79282 Ballrechten-Dottingen
Germany

Tel.: +49 (0) 7634 5610-70
Fax: +49 (0) 7634 5610-80
E-Mail: info@in-akustik.de
Web: www.in-akustik.de

The printed matter we designed to provide information and advice to the best of our knowledge. Any legal obligations, however, may not be derived from such printed matter. Images, particularly relating size and features of the products shown, are non-binding. We reserve the right to make technical and formal changes to our products in the interests of technical progress.

We are member of the
 HIGH END SOCIETY



00789920123