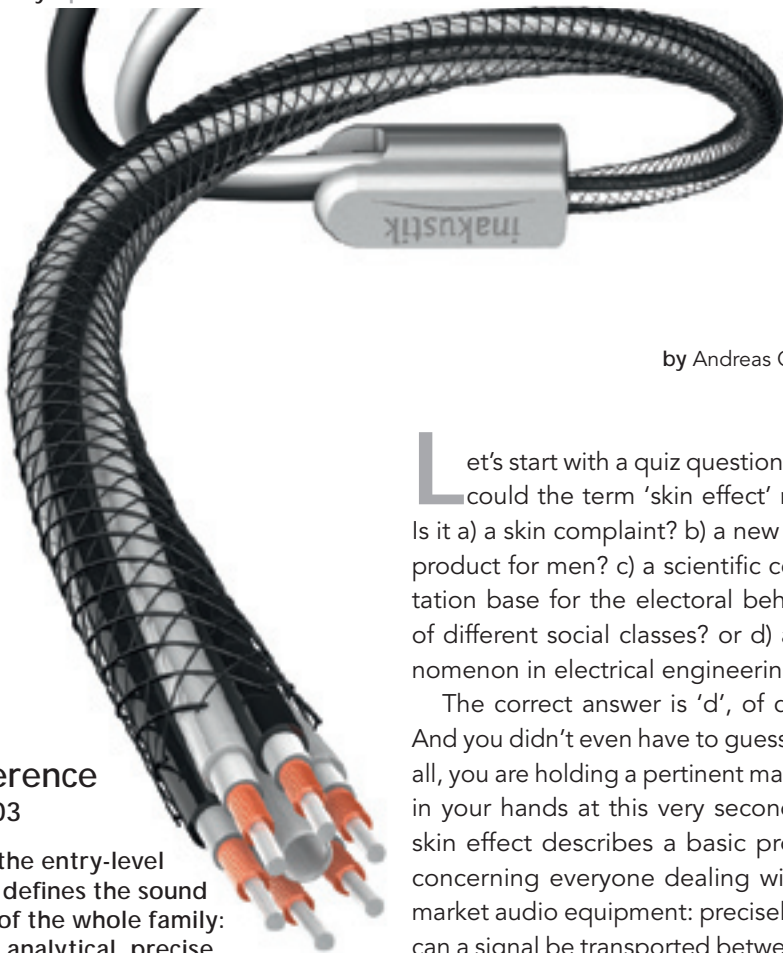






An Honest Soul

It seethes beneath this surface:
The in-akustik developers make
signals rush through a revolutionary
new construction – with a double waveguide.
Painstaking regulation creates maximum speed.



by Andreas Günther

Reference LS-603

Even the entry-level cable defines the sound ideal of the whole family: open, analytical, precise in the bass range. The fine uppermost grid of polyethylene is more stable than the picture might suggest – and it is ideal for dampening micro vibrations.

Reference LS-1203

Subjectively the most harmonic cable of the new series. Easy to see here: the screw type adapter – which allows subsequent coupling with pin, lug or banana.

Let's start with a quiz question: What could the term 'skin effect' mean? Is it a) a skin complaint? b) a new cream product for men? c) a scientific computation base for the electoral behaviour of different social classes? or d) a phenomenon in electrical engineering?

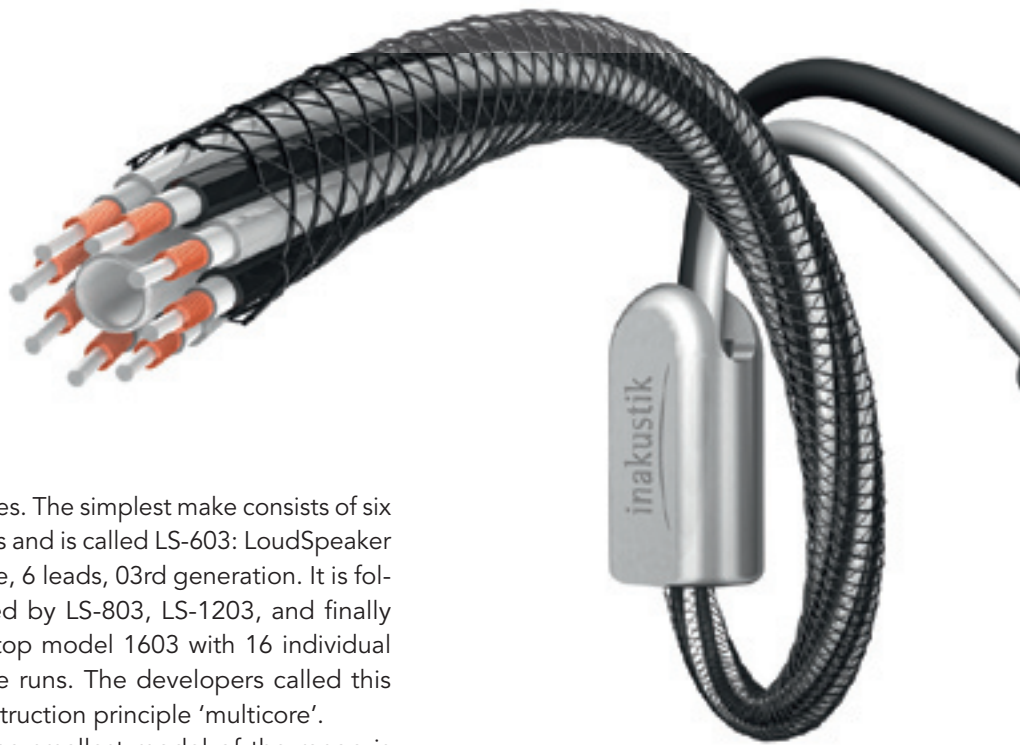
The correct answer is 'd', of course. And you didn't even have to guess. After all, you are holding a pertinent magazine in your hands at this very second. The skin effect describes a basic problem concerning everyone dealing with up-market audio equipment: precisely, how can a signal be transported between the components in the 'correct way'? For, the flux within a speaker cable does not flow evenly across the entire gauge of the cable. At the surface or 'skin' there is an elimination effect. Depending on the frequency in each case, the electron flux is squeezed from the centre to the surface of the cable. The effective cross section is reduced, causing even the strongest, beefiest cable to weaken.

The most efficient solution would be force distribution. Instead of using a single, large conductor, the signal is transmitted to the speaker across several smaller leads. In principle, this is an appealing idea, yet there is an immediate problem, namely the fact that the electrical fields at the outer

skin of the individual conductors have an adverse effect on one another. All in all: In addition to the basic problem of the correct proportions in the signal flux, there is the even more unpleasant debacle of correct timing – all the sound information does not reach the speaker drivers at the same microsecond. The highest frequencies have the most difficult path to go – a veritable obstacle course. The bass is on the winning side in this contest, since low frequencies always get through. But in what quality? That's why most people love bad cables. In the high range everything is softly covered, and the basses go 'wham'. But any finer information is lost. The sound pattern feels wrongly human, it is soft and unfocussed in its contours.

Now, you can either cry over this situation – or re-interpret the latest research findings. The latter is exactly what inakustik did with their new LS series. The best model of the previous generation, the LS-1602, was ostentatiously lauded by AUDIO, and 'given price tag' the vocable sensation was even used. Meaning: The price does not match the sound impression (superb) and the demands of the market (too inexpensive). The buyer is delighted. The journalist is surprised. Especially so, since the enterprise inakustik is located in the high-wage country Germany, in the 'Golden Triangle' between Freiburg, Basel and the Black Forest. Engineers are particularly pricey here if you wish to shield them from the





competitors' grasp. Assumption: So they do the thinking (developing) at their head office in Ballrechten-Dottingen and the doing (producing) in China? No siree: Every cable of the LS series is manufactured at the main operation (see also our detailed report on pages 108/109). So, there remains only one interpretation: The company owners are do-gooders wishing to altruistically make a present to us all. However, even in-akustik won't go that far. It is more a combination of an supply-chain optimisation and image: in-akustik cultivate the image of the up-market, yet affordable audio and video outfitter right down to their own CD and Blu-ray label. A series of high-quality speaker cables is essential – authentic, from their own production and in the signature colours black and white.

What the customer should never do, we did: we cut, clipped and destroyed the black-white outer shell of the new LS series. To get a deeper insight. The outermost shell is merely a mesh of polyethylene. However, the word 'merely' is out of the question: in-akustik have deliberately chosen this open, but very tightly laced mesh structure in order to reduce micro-vibrations between the individual leads. It is these leads that give the members of the product family their

names. The simplest make consists of six leads and is called LS-603: LoudSpeaker cable, 6 leads, 03rd generation. It is followed by LS-803, LS-1203, and finally the top model 1603 with 16 individual cable runs. The developers called this construction principle 'multicore'.

The smallest model of the range is designated purely for single-wire tailoring, all other models can be wired up separately within the cores and can thus also function as bi-wiring cables. Per standard, three metres per stereo side are pre-assembled, but of course, in-akustik also supply customised items. Everything is properly packaged including cotton gloves – a detail that is by no means obligatory in this price segment. A practical advantage not to be underestimated: in-akustik optionally ship their LS series either with a screw-in adapter open to any type of application, or with cable lugs or with bananas according to the 'British Federation of Audio' standard. The 'screw type' is available with gold-plating, the bananas and lugs are rhodium-plated.

The crucial conducting material is oxygen-free copper, in accordance with the internal in-akustik rules. They call it 'Concentric Copper': Rather than being randomly bunched, the leads are individually and accurately placed around a core of polyethylene. This procedure is supposed to ensure perfect running precision, i.e. accurate timing of the signal.

Reference LS-803

From eight leads upwards, in-akustik also offer tailoring from single to bi-wiring on request. The pros insert a splitter of massive aluminium between the supply and return conductors.

Reference LS-1603

The flagship with respect to price, weight, value – and quite clearly also in respect to sound. To properly group the 16 individual leads, in-akustik use a hollow core of ten millimetres in the centre.

”

Holger Wachsmann,
in-akustik product development

‘Those who know what can be achieved with the right materials and an excellent cable architecture, can turn out results that are measurably better.’



Open game: in-akustik offers the choice between their own brand of cable lugs and bananas according to BFA standard (British Federation of Audio). Both are rhodium-plated. If you want to keep it really open: in-akustik also tailors a screw-in connection – for BFA, flexible pin and cable lug adapters.



And now for the real show-stopper: The rules of the 'concentric copper' are raised one dimension further by in-akustik. The orderly arranged individual leads are themselves placed around a core of polyethylene that is hollow within – in electrical terms a dummy core. A view at the cross section reminds one of a Mandelbrot set: a strictly mathematical system, the geometrical appearance of which is highly aesthetic.

Of course, this fascinating image is

not an end in itself. What the developers wish to achieve by this arrangement around a dummy core, is the elimination of magnetic fields occurring during signal flux around the individual leads. Positive poles overlap with negative poles in a pre-defined way and, hey presto! green light for all parts of the signal. Which brings us back to the skin effect and, more specifically, to its consequences, which in-akustik wish to eliminate in their entirety via this principle.

Much brainpower, much order, high ambitions. Can you acoustically detect these factors? Yes, you can – but with a much more comfortable, honest break. Because in logics, for the smallest of the cables (430 euros for three stereo metres) to achieve even the proportionally appropriate fraction of sound quality of the super cable (around 1400 euros for three stereo metres), all the factors have to answer 'yes'. Fortunately, this is not the case. Even the LS-603 defines the sound advantages of the family – the preference for speed. The spatial information, in particular, is 'on the spot'. Marianne Faithfull had agreed to have microphones and engineers present at a live event in 1996 in Paris. '20th Century Blues' – an audience, a small room, applause, even – on the extreme right – a slightly annoying photographer whose camera wasn't properly dampened. The CD virtually throbs with atmosphere, with a knobby upright piano and a beguilingly throaty female voice. In our test, the LS-603 distributed all this information, yet, it failed to completely achieve the velvety character that is presented only one level higher by the



A feast for the eyes: in-akustik package their Reference cables together with comprehensive technical documentation

LS-803. The testers anticipated the rate of increase within the family – and were surprised by the LS-1203. There was not merely a bit more of all the good genes of the cable family displayed here – mainly the richness of the piano sound increased. The room information, the bright illumination, remained exemplary – the presence of dynamic information in the middle basses increased.

The crown had to be eked out, of course, by the LS-1603. The surprise here: the high willingness for analysing never appeared too cool. The in-akustik masterminds also state that the high range reproduction, in particular, benefited from the struggle against the skin effect: this was plausible, but by no means the greatest moment of this super cable. The dominating impression was rather one of harmonic consistency. In our test, we went to the utmost. An SACD recording of 'Bluebeard's Castle' with Ivan Fischer, accompanied by the best Philips sound engineers. This composition was structured by Bela Bartók as a mixture of cantata, opera, a one-hour psychological drama between man and woman – and

an immense outbreak of dynamics. One of those recordings that – some decades ago – would have to be delivered accompanied by a warning notice. You could even accuse the super-fortissimo with double brass of an intention to kill: There was certainly more than one chasis breathing its last – and more than one component losing its image as a potential test winner. Because the foremost thing a good chain has to do in spite of all its brute power is transmit the musical sense. The LS-1603 does exactly this – no show, yet the readiness for a quick presence. In our test, the LS-1603 mastered the Bartók breakout in an open manner, and when handling the immense leap in dynamic, the information of the recording room was maintained. The resilience of a sophisticate.

Are there any limits? Of course there are. But they lie outside the cable. The LS-1603 does not forgive bad mastering. A carelessly digitalised string group remained obtrusive, heartless and cruel. The LS-1603, on the other hand, was honest to the skin – and under the skin.



Test-CD M. Faithfull: 20th Century Blues

One of those almost lost CDs in the catalogue, when, after all, it is a matter close to the heart: Marianne Faithfull sings live - great, raw songs from an equally raw century; wonderful, her Pirate-Jenny adapted from Brecht & Weill.



The author Andreas Günther

The ideal source? No question of faith. Andreas Günther rotates Vinyl and makes networks stream – only his CD collection becomes more and more idle. His preferred way of listening is via a tube combo. At the final stage he likes coaxial drivers best.

in-akustik – the Reference LS series

Prices for 2 times 3 metres, cheapest and most expensive make in each case.

Four contacts to choose from:
Easy Plug, BFA banana, cable lug,
Screw Type

LS-603

Easy Plug, Single Wire: 430 EUR
Screw Type, Single Wire: 520 EUR

LS-803

Easy Plug, Single Wire: 670 EUR
Screw Type, Single-BiWire: 845 EUR

LS-1203

Easy Plug, Single Wire: 1.090 EUR
Screw Type, Single-BiWire: 1.260 EUR

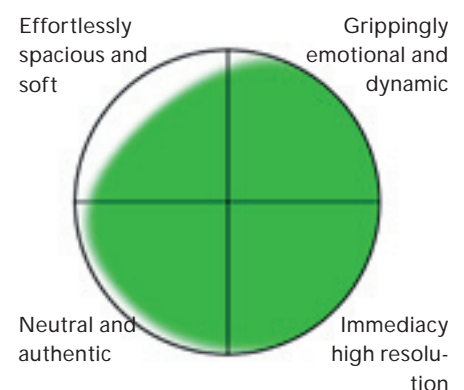
LS-1603

Easy Plug, Single Wire: 1.520 EUR
Screw Type, Single-BiWire: 1.690 EUR

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Internet: www.in-akustik.com

AUDIophile Character



AUDIophile Potential



Recommendation

First you are amazed by the high analysis – a feature of all the members. The higher the level from which you select within the family, the more body and deep range presence you will purchase. Exemplarily replicable, and very reasonable with respect to pricing.



Drill and Drive

The best high-end cable? It's not the price that counts. Quality of the source material, of course. And most of all: the absence of coincidence.

by Andreas Günther

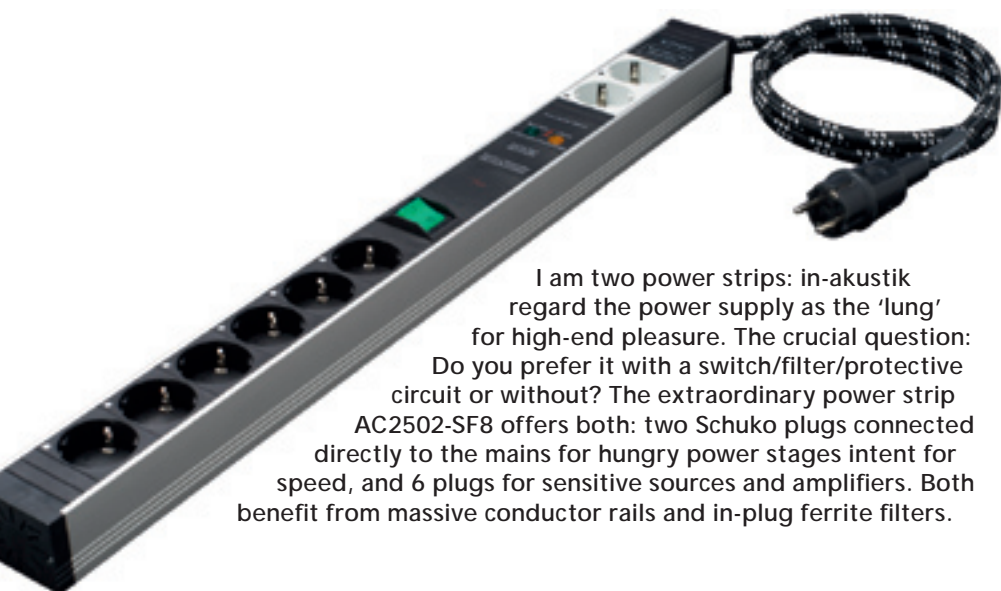
How are high-end cables made? Seemingly a question for engineers. First, however, a question for economists, for every product in an economic, global world has to pay. Otherwise it would be a cultural artefact, and the manufacturers would act as non-profit

philanthropists. But that would be asking too much, even with a reputable company such as in-akustik. Although the rates for the Reference series are surprisingly reasonable.

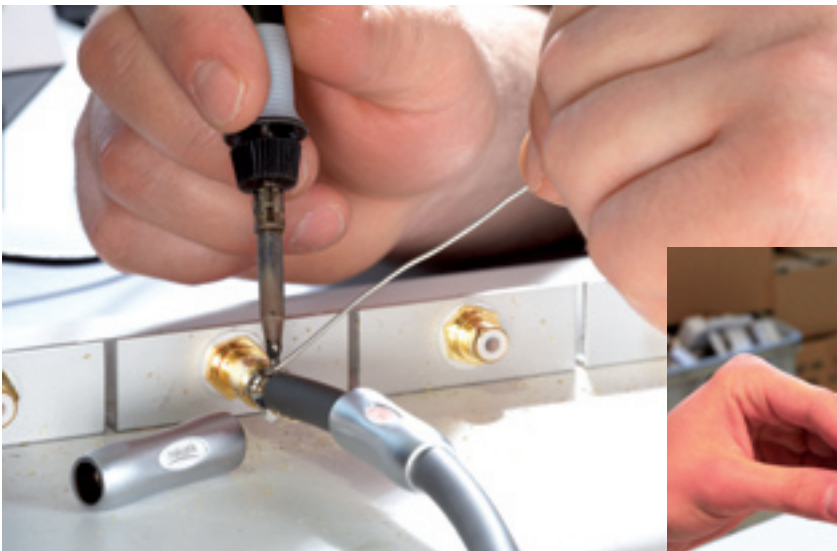
The economical logic: in-akustik is part of an independent, unconventional (be-

cause rare) supply chain. Normally, a company specialising in high-end products orders its basic merchandise, i.e. the conductor leads, from a supplier – across continents in most cases. That's something, in-akustik don't have to do. Since they sit at the source. Or rather: in-akustik are positioned at the inflow of a considerably larger enterprise. in-akustik belong to the same group as Braunkabel, who have a factory of their own. Günter Braun is the managing partner of both companies. The nucleus of the family enterprise was once the toy industry – since 1948 they have been manufacturing model railways under the 'Brawa' brand. Since 1996, in-akustik also belongs to the family.

The advantages: Braunkabel carry out research for and together with in-akustik. In addition, in-akustik have access to the best raw materials of the world market, which Braunkabel can purchase in any grade and refinement – at optimum prices, thanks to their own powerful market position. In the subtext: in-akustik don't have to worry about fluctuating quality from different sources in a global market. Thus, all the cables presented here are 'RoHS'-certified – a directive of the European Union for 'Restriction of (the use of certain) hazardous substances'. Heavy metals are, thus, excluded, as are toxic softener.



I am two power strips: in-akustik regard the power supply as the 'lung' for high-end pleasure. The crucial question: Do you prefer it with a switch/filter/protective circuit or without? The extraordinary power strip AC2502-SF8 offers both: two Schuko plugs connected directly to the mains for hungry power stages intent for speed, and 6 plugs for sensitive sources and amplifiers. Both benefit from massive conductor rails and in-plug ferrite filters.



Better soldering: in-akustik meets the RoHS demands – for instance with lead-free solder joints.



Right down to the smallest detail: Even the shrink tubes are in-house products of in-akustik – anyone wishing to tailor their own cables, may order separately.

The comparison is not far-fetched: The captain of a sailing ship knows how important high-quality ropes are for daily work. Apart from the basic quality of the rigging, the craftsmanship of the ropemakers at their workplace (the so-called Reeperbahn) is also of importance. The same applies to in-akustik: fine raw materials in combination with sublime craftsmanship. Premium leads of oxygen-free copper are carefully spun and drilled. The major enemies in this connection: chaos and arbitrariness. in-akustik prefer

‘Concentric Copper’ – the individual leads are placed around a core of polyethylene. In contrast to ‘chaotic’ leads, where the signals sometimes run around zigzag ways, this procedure is supposed to ensure impulse precision. The same principle is applied on a higher level – the leads themselves are also grouped around a hollow conductor; depending on the level of quality, six, eight, twelve or – with the top version – 16 leads are used. Finally, the overall construction is covered in a grid of polyethylene with

the purpose of minimising micro vibrations. Summing up, this means: maximised absence of coincidence. So, the customer should let himself be ‘incapacitated’ – notionally, these cables are also available by the metre; however, accurate tailoring should be preferred. This is also carried out at the main operation – under exemplary working conditions. Soldering vapour, for instance, is drawn off (as a comparison, you better don’t look at many a cable manufacture in the Far-East or at the kitchen table). <



Hands-on at the customer’s request: Taken for granted, in-akustik tailor individual lengths. Not to be taken for granted: a single to bi-wiring separation of conducting paths. A splitter of massive aluminium is inserted between the supply and return conductors in order to keep inductivity low.