
THE PERFECT IMAGE
GERMAN PHYSIKS©
HIGH END TECHNOLOGY

HANDMADE IN GERMANY

THE COMPANY

Our Philosophy

German Physiks is a specialist manufacturer dedicated to the production of the highest possible quality loudspeakers based on solid engineering principles and meticulous attention to detail. This is why we spent two years developing our own unique bending wave driver technology before it was put into a commercial product.

This novel technology sets us apart from other loudspeaker makers and enables us to achieve new standards of transparency, speed and musicality.

Successive refinements of this technology have brought us ever closer to our ultimate goal of faithfully recreating a musical performance and this is a quest we continue to pursue.

German Physiks – the Story

Although the first loudspeaker to bear the German Physiks name appeared in 1992, the history of the product predates this by several years.

In 1978 Peter Dicks, engineer, mathematician and sociologist, was a very frustrated man. Dicks, who had no professional involvement in audio engineering at the time, had become fascinated with certain fundamental problems of audio transducer behaviour. After years of mathematical modelling and physical experimentation, he had created a design that he believed decisively surpassed the then state of the art. By 1980 Dicks had succeeded in developing an extremely impressive sounding prototype based upon his innovative design concepts. He had also developed a complete theoretical model of the device's operation. He expected these at the very least to elicit some degree of interest from the loudspeaker manufacturing industry. To his dismay, the numerous driver manufacturers he contacted throughout Northern Europe all responded with either condescension, or disinterest.

It was only in the early 90s, after a series of prototypes had been heard by a number of audiophiles, that Dicks was finally contacted by a medium sized German company called Mainhattan Acustik, run by Holger Mueller, an audiophile and IT expert. They made high quality loudspeakers employing conventional drivers and sold moderately well in Europe and the Far East. In contrast to the rest of the European loudspeaker industry, Mainhattan showed the first real interest in his work. Mueller was intrigued from the start. The prototype which Peter Dicks had developed was on the face of it a derivative of a design for which Mueller already had the highest regard, the famous Walsh Driver, invented by the respected American engineer, Lincoln Walsh. Mueller himself owned a pair of Ohm F loudspeakers that used an early version of the Walsh driver and had always felt that the design had enormous untapped potential. As he examined Dicks's prototype and pored over the detailed design notes, he saw that much of that potential had now been realised.

Mueller agreed to license the design, and thus German Physiks was born. The company's first task was to turn Dicks' prototype into a commercial product. For the next two years they pursued that task together, patiently extracting every improvement in performance that the Dicks Dipole Driver, or DDD, as the new design was called, was capable of.

Not satisfied with superb laboratory measurements and the unbridled enthusiasm of his listening panels, Mueller initiated an exhaustive life testing program to ensure the absolute reliability of the driver under the most severe conditions of use. In parallel, Dicks worked on fine tuning the maths and the physical realisation, while Mueller worked on the aesthetics and industrial design, because he believed that the design of the driver must strongly express the company's commitment to innovation through engineering and overall elegance of visual form.

Finally in 1992, Mueller was satisfied and the first loudspeaker to use the DDD driver came off the production line. This was the Borderland and it was marketed under a new brand name: German Physiks.

The Borderland met with immediate approval, quickly gaining sales in the Far East, a region that had historically been an excellent but demanding market for high-end audiophile products.

In 1993, with sales continuing to rise, Mueller established a new company to exclusively manufacture the German Physiks range of loudspeakers.

A TECHNICAL MILESTONE: THE DDD-DRIVER

At first glance the German Physiks DDD driver looks like a conventional piston cone driver. It has a voice coil/magnet assembly that serves as the actuator and it has a cone, though this is longer and narrower than usual. The shape is where the similarity with a piston driver ends.

With a piston driver, when the voice coil moves, the entire cone moves together with it – or that is what we want it to do. This is why the cone and voice coil structure is made as rigid as possible. The sound wave that a piston driver produces moves in the same direction as the movement of the cone – figure 1. This is why piston drivers are generally placed facing towards the listener.

The DDD Driver

The DDD driver, despite its apparently simple appearance is rather more complex. It has four modes of operation and in essence works as a mechanical 4-way system.

1. The lower frequency end of its operating range can be described with Small/Thiele resonant parameters.

2. In the next frequency band up to the Coincidence Frequency, it works like a piston driver.

3. Next, an overlapping band follows, where pistonic movement is progressively replaced by bending waves, until all the radiation is generated by bending movement in the cone. Due to dispersion and the cone's special shape, the Coincidence Frequency is spread over an extended frequency range, rather than occurring at one frequency like the Dipole Frequency. From the upper edge of the Coincidence Frequency band, it works like a pure bending wave converter, where the velocity of the travelling waves in the cone increase with frequency.

4. The last mode of operation starts above the bending wave band at the Dipole Frequency, when the first standing wave occurs and modal break-up begins.

By optimising the key properties of the cone material, i.e. thickness, elasticity and specific weight, together with the cone's bending stiffness, which is achieved by selecting the correct cone-angle, all four frequency bands may be very closely balanced.

The last two modes cover the bulk of the DDD driver's operating range and are what differentiate it from conventional drivers. In these two modes, when the voice coil moves, the whole cone does not move together with it, as the open end of the cone is terminated by a stiff suspension and semi-rigidly attached to the driver chassis. Instead the motion of the voice coil causes a wave to travel from the top of the cone down to the open end. This occurs because unlike the piston driver, the DDD driver cone is made from a very light and flexible foil – 0.025 mm thick titanium or 0.15 mm thick carbon fibre. While the shape of the cone gives it rigidity at rest, it is relatively easy to excite waves in the cone material. The clever part is controlling these waves.

In very simple terms, the motion resulting from the bending waves can be compared to that of the bell of a jelly fish when it is swimming. The actual situation is rather more complex, as the angle of radiation with respect to the cone wall becomes progressively more acute with increasing frequency due to dispersion of the bending waves.

The motion resulting from the modal break-up is more difficult to describle simply. In both cases, the sound wave is radiated sideways from the driver as shown in figure 2. For this reason the DDD driver is always mounted vertically.

Advantages of the DDD Driver

Mounting the DDD driver vertically provides an additional advantage that is arguably just as great as the unrivalled linearity of the design itself. That is, it is a nearly ideal point source with an omnidirectional radiation pattern.

The DDD driver propagates sound in a uniform spherical pattern. The frequency and phase responses are uniform from all listening angles, which is never the case with multi-way cone and dome loudspeakers, nor with dipole electrostatics or ribbons.

An omnidirectional radiator has three audible advantages:

1. The window in which stereo imaging will be perceived is considerably widened, and "head in a vice" listening constraints are much relaxed.

2. The loudspeaker's behaviour tends to be much more predictable from room to room, because the reflected sound is timbrally matched to that of the direct sound.

3. The sound of an omnidirectional loudspeaker has decay characteristics more closely resembling large room reverberation than is the case with the narrowly focused output of typical monopole direct radiators. The sound has a naturalness about it that powerfully suggests the experience of a live musical performance.

It is possible to approach such a radiation pattern with arrays of conventional drivers and certain types of diffusers and horns, but only the DDD driver achieves perfect omnidirectionality at all frequencies and at no penalty.

The cone itself ideally has an extremely high stiffness to mass ratio, but because it is very thin and because its moving mass is extraordinarily low, so also is the bending resistance. Consequently, the cone can be excited into bending modes quite easily, particularly when the velocity of the waves on the diaphragm is higher than the velocity of sound in the surrounding air and consequently the wave energy will detach from the cone surface.

When the cone is bent by the voice coil, the voice coil sees only a very small increase of mass from the cone. Rather than being mass loaded, it is loaded instead by the differential stiffness per specific weight of the cone-material and secondarily by the radiation resistance of the air load on the cone. Essentially, the voice coil is exciting shock waves across the surface of the cone, which in turn excites motion in the air. As distinct from a conventional cone, there is almost no mechanical inertia to overcome.

In a real sense, the acoustic behaviour of the system is much closer to that of an electrostatic membrane loudspeaker than to a mass loaded cone, to which this driver bears a misleading external resemblance. The moving mass of the German Physiks DDD driver is under three grams, less than that of most tweeters, and yet its ability to displace air is roughly equivalent to that of a 6.5-inch woofer. While it shares the cone shaped diaphragm of the latter, its behaviour could not be more different.

Conclusion

At a stroke most of the limitations of conventional drivers have been eliminated. The combination of high displacement, low mass, and high acceleration allows the DDD driver to operate linearly over nearly the whole of the audible spectrum and to achieve excellent impulse response, low distortion and a flat phase response into the bargain. The German Physiks DDD driver truely is revolutionary.

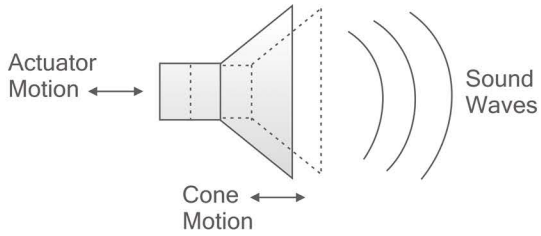


Figure 1

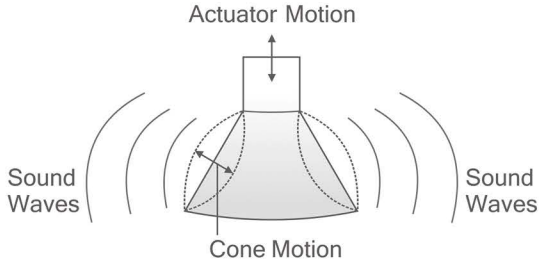


Figure 2

CROSSOVER AND CABINET DESIGN

Crossover and Cabinet Design

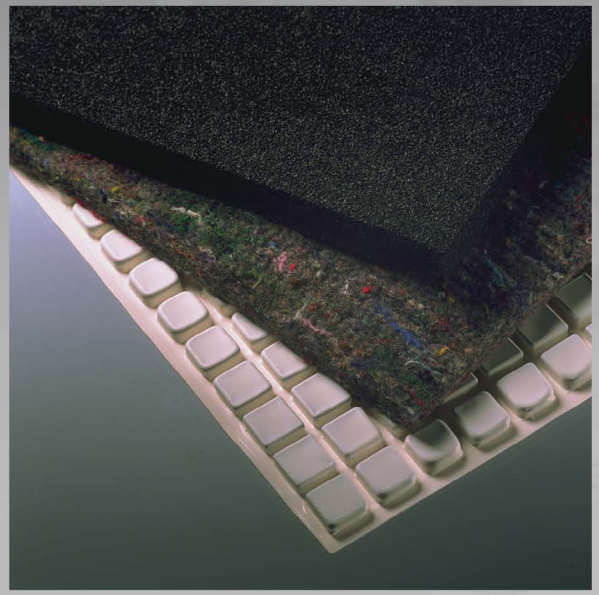
In all our models except the Unicorn, which is horn loaded, the DDD driver is loaded into a sealed chamber. In addition, with the exception of the Unicorn, all of our loudspeaker systems are augmented with integral sub-woofers.

Extensive listening tests and detailed measurements have revealed that cabinet resonances, which result in the re-radiation of sound through the walls of the cabinet, is one of the principle causes of degradation of the sense of realism and perceived resolution in a loudspeaker system. To minimise these resonances, we damp the walls of our cabinets with a highly effective material called Hawaphon®. This consists of a polymer sheet containing a matrix of small cells filled with fine steel shot. It adds mass to the panels to reduce the resonant frequency and the ability of the balls in each cell to move against each other, provides a very effective way of converting vibration energy into heat. Originally developed as an anti-surveillance measure for use in military and government buildings, Hawaphon® achieves a broadband attenuation of structure-borne sound of more than 50dB, which is a remarkably high figure. Loudspeaker enclosure panels treated with Hawaphon® generate almost no spurious output.

To damp resonances of the air within the cabinet, the whole inside of the cabinet is lined with a 1 cm thick layer of high density felt. This is achieved by fitting pieces of felt that are precisely cut to fit each panel, rather than just inserting a roll of felt into the cabinet. Our approach takes longer and costs more, but we believe it produces better results.

As an option, we offer an ultimate level of cabinet construction using dual laminations of resin impregnated, bi-directional woven carbon fibre, bonded to an MDF core. This together with Hawaphon® damping achieves a level of vibration suppression that we believe leads the industry. Carbon fibre cabinets are significantly more expensive to build, but the improvement in performance they yield is not subtle. For the most dedicated audiophile, for whom even the slightest compromise is unacceptable, our carbon fibre cabinets are the only choice.

German Physiks passive crossovers are the product of extensive computer modelling using our own in-house developed design software. To date, over 20,000 copies have been sold to customers including many world famous companies, both within and outside of the audio industry. We take the same no compromise approach in the design of our crossovers as we do in the design of our drivers and cabinets. Components are selected first and foremost for their technical performance, with cost a secondary consideration. For this reason, the custom electronic crossover for our Gaudi is a fully mono design, with a separate power transformer for each channel. These units are meticulously engineered and all components are generously rated to ensure stable operation and long life. The result is a crossover that is free of the veiling that less well-engineered designs exhibit.



HIGH END SOUND

360° Radiation with Perfect Spatial Location

We use our unique DDD driver in all our loudspeakers. The DDD driver is able to handle nearly the entire audio spectrum and by radiating this evenly around the loudspeaker in an omnidirectional pattern, it produces an enveloping sound field that is closer to real life.

This creates detailed and realistic stereo images that have excellent width and depth, but most importantly can be enjoyed from a wide range of positons in the room. In order to enjoy the best sound, you are no longer constrained to a small "sweet-spot" the way you are with most conventional loudspeaker designs. It also enables the loudspeakers to disappear.

This provides two important benefits. Firstly listening becomes a very relaxed experience, as you do not have to make an effort to stay in the "sweet-spot". Secondly, it allows several people to enjoy the music with you simultaneously. Listening to your audio system need no longer be a solitary experience.

Because of the excellent phase linearity of the DDD driver, all German Physiks loudspeakers can reproduce the tonality of musical instruments with great accuracy. This combined with the coherence that comes from the DDD driver's very wide operating range, gives German Physiks loudspeakers a sound that
is very natural, very open
and most important of all,
very musical.

Please contact your nearest German Physiks dealer and hear for yourself how we do things differently.

GAUDI MK II

Originally conceived as a custom made one-off for demonstrating our most advanced loudspeaker technologies, the Gaudi proved such a sensation at industry presentations and prompted so many sales inquiries, that we decided to make it a regular, albeit limited, production product. While all German Physiks loudspeakers are similarly accurate in reproducing the essential sounds of individual instruments due to their common use of the DDD driver, the Gaudi is unique in its ability to convey musical dynamics from the faintest pianissimo to a full orchestral crescendo. The Gaudi is necessarily costly, but offers a level of performance that is simply unavailable elsewhere.

The State of Our Art: The Gaudi MK II

Each cabinet uses four DDD drivers in a line array. The array is fitted to a telescopic arm, which is driven by linear actuators, allowing it to be precisely physically positioned in relation to the bass enclosures for optimal phasing. The user can adjust each side from their seat using a wireless remote control.

The Gaudi's DDD drivers cover an exceptionally wide frequency range: 180Hz to 24kHz*. This eliminates the mid-band crossover point that most conventional designs have and allows the Gaudi to create convincingly real, well-focused, three-dimensional stereo images. Because the DDD driver is omnidirectional, these stereo images may be enjoyed from a wide range of positions in the room and not just from a small "sweet-spot". This allows a much more natural and relaxing listening experience and is particularly beneficial when listening for long periods.

The Gaudi's DDD drivers provide exceptional clarity and resolution of low-level detail. The extremely wide dynamic range they offer ensures there is no sense of compression, even when playing at the highest levels.

Their excellent phase linearity enables the Gaudi to reproduce the timbral character of each instrument with great accuracy.

The bass system uses eight 6-inch metal cone drivers for the mid-bass and four 12-inch honeycomb flat cone drivers for the low bass, to provide a response down to 15Hz. Careful design ensures that the bass remains well controlled and clean at all times. It is also extremely agile, ensuring perfect integration with the DDD drivers.

The ability of the Gaudi to capture not only the precise timbres of individual instruments, but their full dynamic range is astonishing and comes remarkably close to fooling the ears of even experienced listeners.

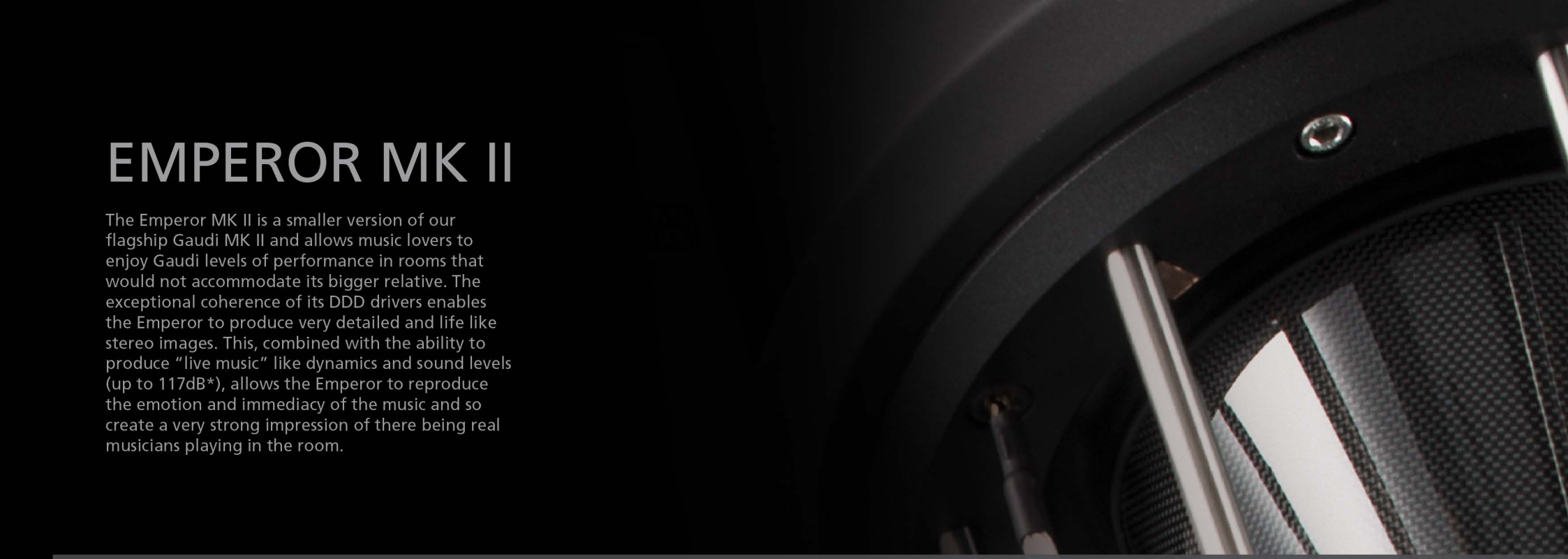
The Gaudi must be tri-amped and it is supplied with a high quality electronic crossover as standard. This provides comprehensive adjustment of all key parameters.

Each set of Gaudi's is custom made to the specific requirements of the individual customer. The cabinets are made to meticulously high standards. We even veneer the inside faces to ensure long term stability. They are available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a high gloss carbon fibre finish, as well as a number of satin and high gloss automotive paint finishes. To provide the ultimate level of quality, all our cabinets are carefully hand polished.

* Carbon fibre DDD driver version.

EMPEROR MK II

The Emperor MK II is a smaller version of our flagship Gaudi MK II and allows music lovers to enjoy Gaudi levels of performance in rooms that would not accommodate its bigger relative. The exceptional coherence of its DDD drivers enables the Emperor to produce very detailed and life like stereo images. This, combined with the ability to produce "live music" like dynamics and sound levels (up to 117dB*), allows the Emperor to reproduce the emotion and immediacy of the music and so create a very strong impression of there being real musicians playing in the room.



A Step Closer to the Music: The Emperor MK II

The Emperor uses the same four DDD driver array as the Gaudi. This is fitted to a telescopic arm, which is driven by linear actuators, allowing it to be precisely positioned in relation to the bass enclosures for optimal phasing. The user can adjust each side from their seat using a wireless remote control.

Because the Emperor's DDD drivers cover a very wide frequency range (180Hz to 24,000Hz*) the mid-range cross over point found in conventional loudspeaker designs is eliminated. This gives a much more coherent and natural sound. It also enables the Emperor to produce extremely realistic and convincing stereo images that are precisely defined and have excellent width and depth.

The DDD driver is omnidirectional, so these excellent stereo images can be enjoyed from a wide range of listening positions, unlike conventional loudspeakers, which have much smaller "sweet spots" due to the tendency of their drivers to beam the sound. This allows a more relaxed listening experience, as you don't have to worry about sitting in exactly the right position in order to enjoy the best sound.

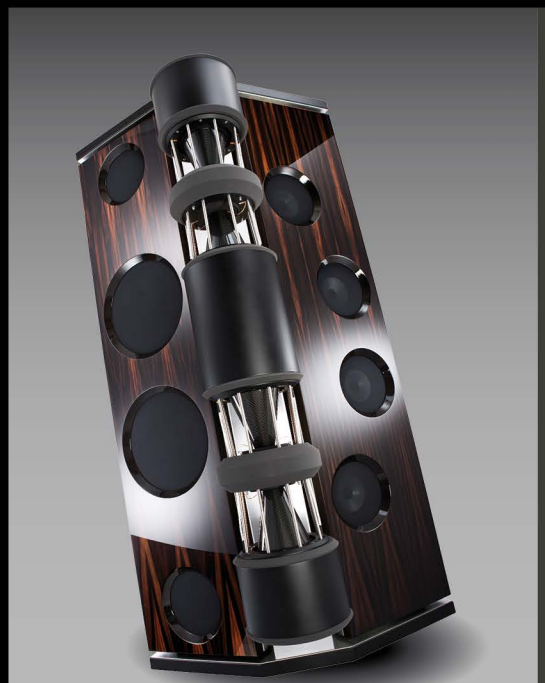
The Emperor's DDD drivers provide exceptional clarity and resolution of micro-detail and this is maintained at all levels. Their extremely wide dynamic range ensures there is no sense of compression, even when playing at the highest levels. Their excellent phase linearity enables the Emperor to reproduce the timbral character of each instrument with great accuracy.

The Emperor's bass system uses four 6-inch woofers and two 12-inch sub-woofers and takes the response down to 18Hz. It provides the ideal balance of speed and weight to seamlessly merge with the DDD drivers and also ensure that there is no smearing of the music's timing or pace.

In its standard form the Emperor is supplied with an externally housed passive crossover. A high quality electronic crossover is also available to allow active operation. This maybe fitted when the Emperor is supplied, or later as an upgrade.

Each set of Emperors is custom made to the specific requirements of the individual customer. The cabinets are made to meticulously high standards. We even veneer the inside faces to ensure long term stability. They are available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a high gloss carbon fibre finish, as well as a number of satin and high gloss automotive paint finishes. To provide the ultimate level of quality, all our cabinets are carefully hand polished.

* Carbon fibre DDD driver version.




Flat
+2 dB
+4 dB
- 2 dB
High Frequency Level
- DDD +

LORELEY MK III

The Loreley is designed to bring you closer to the concert experience. It uses the same four DDD driver array as our flagship Gaudi model to provide an exceptional transient response, whilst maintaining great transparency and clarity across its dynamic range. Like the Gaudi, the Loreley is capable of reproducing sound levels up to 120dB*, which allows live music dynamics to be more realistically reproduced. At the same time it can accurately reproduce the low-level detail and delicate nuances that are the essence of musical expression. To give authentic weight and body to the low bass found in large-scale orchestral works and to produce this at realistic levels, each loudspeaker uses two 12-inch woofers and four 10-inch passive radiators.

Your Own Concert Seat: The Loreley MK III

By using four of our DDD drivers, the Loreley is able to offer a stunning transient response that takes you a step closer to what you would hear in the concert hall. Together with the DDD driver's exceptional clarity, this provides a very musical and involving performance that can draw you into the music.

The DDD driver's excellent phase linearity ensures that the timbral character of each instrument is accurately reproduced, bringing you yet closer to a real performance.

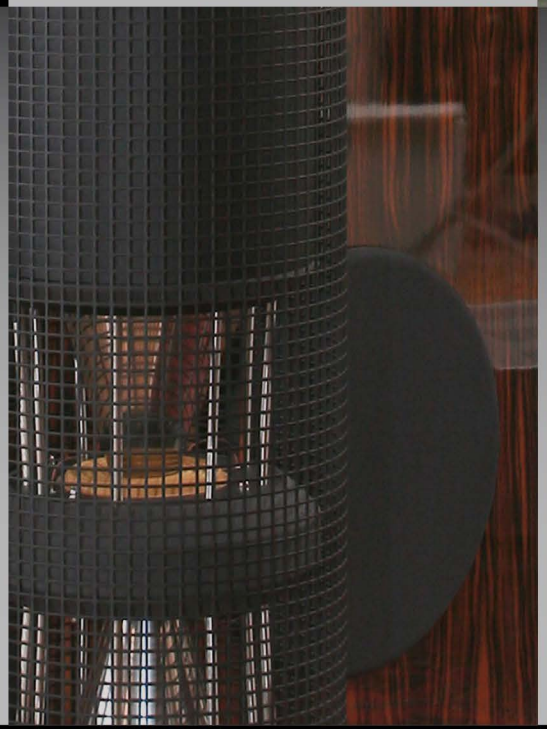
The Loreley's DDD drivers cover an exceptionally wide frequency range: 180Hz to 24kHz*. This eliminates the mid-band crossover point that most conventional designs have and allows the Loreley to create well-focused, three-dimensional stereo images that can be almost palpable in their reality. Because the DDD driver is omni-directional, these stereo images can be enjoyed from a wide range of positions in the listening and not just from a small "sweetspot". This allows several people to enjoy these loudspeakers at the same time and also produces a more relaxed listening experience.

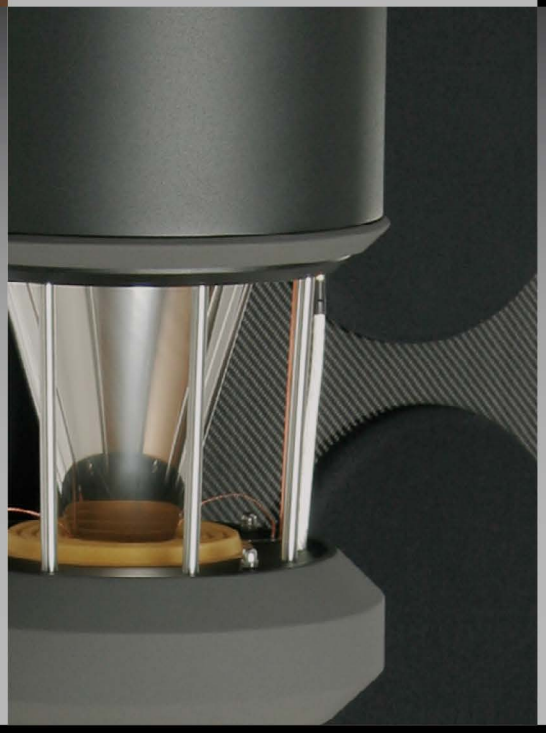
Each loudspeaker uses two 12-inch inverted dome drivers, which have a maximum excursion of 3-inches. Distortion levels are typically one tenth of those of conventional 18-inch sub-woofers at comparable output levels. Superior transient response is achieved due to the massive rare earth magnets used and to the high stiffness of the domes. These are augmented with four 10-inch passive radiators. The result is a bass system with a very extended and very clean response down to 21Hz, that also possess the necessary speed to join seamlessly with the DDD section and so provide an extremely smooth and coherent sound.

The standard Loreley is supplied with a passive crossover that is fitted with controls to allow the upper and lower frequency responses to be adjusted to better suit the user's listening room. It may be driven with a single power amplifier, but bi-amping will provide a significant improvement in performance. The Loreley can also be ordered with an active crossover that allows an even higher level of performance to be realised.

The Loreley's cabinets are finished to the same exacting standard as the Gaudi. They are available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a high gloss carbon fibre finish, as well as a number of satin and high gloss automotive paint finishes. To provide the ultimate level of quality, all our cabinets are hand polished.

*Carbon fibre DDD driver version.





PQS - 402

The design brief for the PQS-402 was to produce a listening experience comparable to that of our Loreley model, from a loudspeaker with a smaller cabinet. In the PQS-402 we have come very close. As well as the usual impressive German Physiks attributes, the PQS-402 also boasts a very wide dynamic range that comes close to its larger stable mate. The PQS-402 uses two 10-inch woofers and four 8-inch passive radiators to produce prodigious amounts of deep and well-controlled bass, that at the same time has the speed and finesse to perfectly match with its twin DDD drivers. The result is a loudspeaker that can do equal justice to full-scale orchestral works, or a solo voice.

A Step Closer to the Music: The PQS-402

The PQS-402's twin DDD drivers create impressively detailed and realistic stereo images that can be enjoyed from a wide range of positions in the room, not just from a small "sweet-spot". This broad-imaging capability is due to the DDD driver's omnidirectional radiation pattern. This also ensures that the tonal balance remains very even as you move around the room, rather than being correct in the "sweet-spot" and then progressively rolled off as you move away from this position. This allows several people to enjoy these loudspeakers at the same time and also produces a more relaxed listening experience.

Due to their low moving mass, the DDD drivers offer extremely fast transients. This together with their inherently low distortion and excellent phase linearity ensures that instruments and voices are heard with impressively accurate attack and timbre. The overall effect is more like listening to real musicians than a recorded recreation. This is further enhanced by the PQS-402's very high maximum output level (118dB*), which allows a closer approach to live music dynamics, without compression.

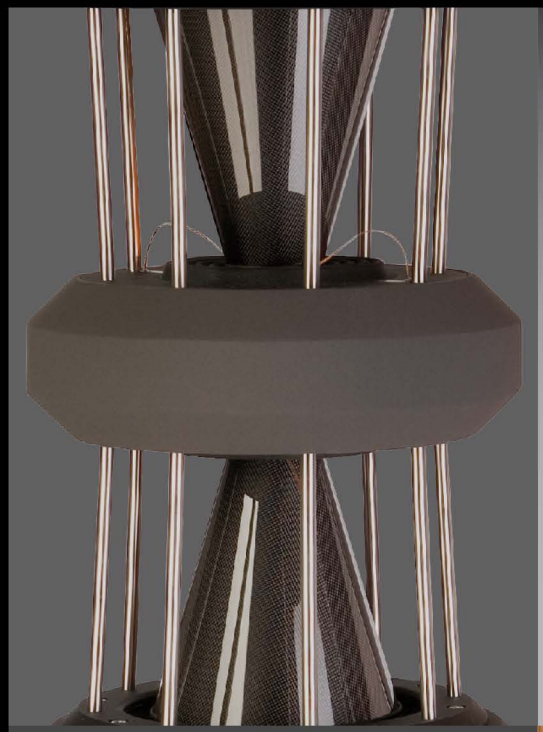
To reproduce low bass at the levels required to match the two DDD drivers and that also has the necessary speed to ensure seamless integration, the PQS-402 uses two separate bass cabinets, each equipped with one 10-inch active driver and two 8-inch passive radiators.

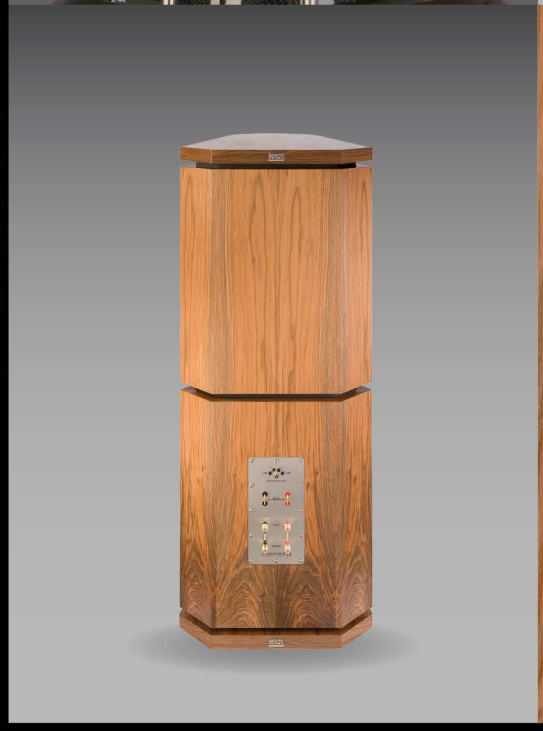
The high sound level capability of the PQS-402 meant that extra care had to be taken with the design of the cabinets to minimise resonances. Rigidity is ensured by the use of heavy MDF panels with internal bracing at key points. Hawaphon® damping material applied to the inside surfaces of the cabinets, very efficiently converts residual vibration to heat.

Low and high frequency controls are provided to allow the PQS-402 to be adjusted to better suit the user's room.

The PQS-402 is available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a high gloss carbon fibre finish, as well as a number of satin and high gloss automotive paint finishes. To achieve the ultimate level of perfection, all our cabinets are hand polished.

*Carbon fibre DDD driver version.






Flat
+2 dB
- 2 dB
+4 dB
High Frequency Level
Reduce
Low Frequency Level
- DDD +
- WOOFER +
GERMAN PHYSIKS
Handmade in Germany

PQS - 302

The PQS-302 is based on our PQS-402 and is designed to enable the quality of reproduction provided by its much larger brother to be enjoyed in medium sized rooms. It is an exceptional loudspeaker, producing realistic and detailed three-dimensional stereo imaging, excellent dynamics and of course our trademark fast, deep and well-controlled bass. Naturally it also offers the finesse and transparency that all German Physiks loudspeakers are famous for. It combines these attributes with the ability to produce sound levels up to 112dB*. Such is its excellence, that the top German high-end audio magazine Stereoplay, uses the PQS-302 as the reference for all of their loudspeaker reviews.

A German Reference: The PQS-302

The PQS-302 uses two DDD drivers to provide a very wide dynamic range, while retaining their excellent transparency and resolution. They operate from 170Hz to 24kHz*, eliminating the mid-band crossover point found in conventional designs. This gives improved clarity, revealing more of the music's subtle nuances. It also provides a greater sense of the ambience of the concert venue, creating a more life-like listening experience.

Because of the DDD driver's very wide operating range, the PQS-302 has a great sense of coherence. Their low moving mass provides exceptional transient response, which allows percussion to be reproduced with a realistically sharp attack and gives a clearer sense of timing.

As with all German Physiks loudspeakers, the PQS-302 creates realistic, well-focused, three-dimensional stereo images. With good recordings these can be almost palpable in their reality. Because the DDD driver is omnidirectional, this excellent stereo imaging can be enjoyed from a wide range of positions in the room, not only from a small "sweet-spot". This prevents the fatigue that can occur with long listening sessions and helps to make listening to your music the relaxing experience it should be.

Two 8-inch bass drivers housed in individual reflex cabinets provide bass that is authentically weighty, whilst at the same time being fast and well controlled, with an extension down to 26Hz.

Low and high frequency controls allow the PQS-302 to be adjusted to better suit the listening room.

The PQS-302 is available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a high gloss carbon fibre finish, as well as a number of satin and high gloss automotive paint finishes.
For the ultimate level of perfection, all our cabinets are hand polished.

*Carbon fibre DDD driver version.

stereoplay Referenz
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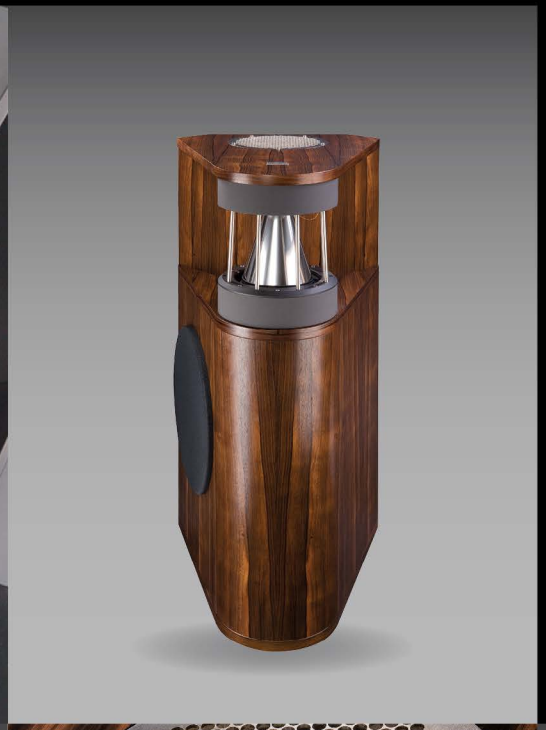


PQS-202 MK II

The PQS-202 MK II is a versatile 3-way design that uses a single DDD driver combined with a 6-inch woofer and a 12-inch sub-woofer. It may be used in high-end 2-channel systems and also as the front loudspeakers in high quality home theatre systems, where its ability to be placed close to the wall allows valuable room space to be saved.

Unconventional: The PQS-202 MK II

The PQS-202 MK II does not do things the same way as conventional loudspeakers. The majority of the sound it produces comes from just one driver, its DDD driver, which covers the range 250Hz to 24kHz*. This gives the sound much greater coherence and clarity than if it were spread over two or more different types of driver.

This very wide operating range eliminates the mid-band crossover point generally found in conventional loudspeaker designs and enables the PQS-202 MK II to produce very realistic and three-dimensional stereo images.

Because the DDD driver is omnidirectional, these excellent stereo images can be enjoyed from a very wide range of positions in the listening room. You don't have to stay in a small "sweet-spot" to hear the best sound. This gives more flexibility in where you sit and is ideal in a loudspeaker that may be used in a home theatre system with several listeners. This also enables the PQS-202 MK II to avoid the fatigue that can occur after long listening sessions.

Modern movie soundtracks are very detailed. There will usually be a large orchestra that on its own covers a very wide frequency and dynamic range, but there may also be complex sound effects sections, as well as multiple voice tracks. The DDD driver's low moving mass gives it exceptional speed, which combined with its low distortion, enables it to clearly resolve all the elements in even the most complex soundtrack, thereby greatly enhancing the total viewing experience.

The DDD driver is phase linear across its operating range, ensuring that the timbral character of each musical instrument is reproduced with great accuracy. This also makes sound effects more believable and is particularly noticeable on complex and very dynamic effects.

A 12-inch driver gives the low bass real slam and body, which is ideal for home theatre use and also adds greater authority to large scale orchestral works. At the same time, the bass is fast and correctly balanced with the rest of the audio range, so the PQS-202 MK II combines muscle with finesse and is able to reproduce music without over accentuating any part of the frequency range.

The special shape of the cabinet, combined with its heavy construction and the extensive use of internal damping, minimise cabinet resonances, allowing the PQS-202 MK II's drivers to provide their optimum performance.

*Carbon fibre DDD driver version.

PQS-100 PLUS

The PQS-100 Plus is a versatile loudspeaker that will give excellent results in both high-end stereo and 5.1 surround systems. When used in 5.1 systems, its excellent bass response obviates the need for a sub-woofer. Its ability to produce detailed and realistic stereo images, which can be enjoyed by many listeners from a wide range of positions within the room, is especially useful in home theatre applications. It is also ideal for centre and rear channel use in multi-channel systems where larger German Physiks models are being used for the main channels.

Versatility Distilled: The PQS-100 Plus

The PQS-100 Plus uses a single carbon fibre DDD driver combined with a downward firing 6-inch woofer. It is physically compact, making it ideal for the smaller room. It is also well suited for use in galleries, shops and other public places where very high quality sound is required and the sound source must be unobtrusive.

Despite its compact size, the PQS-100 Plus is capable of driving even moderately large rooms to quite high levels. Whether used in a small or large room, it produces fast, clean and agile bass, which makes the listener think that a much larger loudspeaker is being played. The high quality of the bass is matched by the performance provided by the DDD driver. This gives the excellent speed, dynamics and resolution that German Physiks loudspeakers are famous for and helps to produce the sense of reality that is the essence of a musical performance.

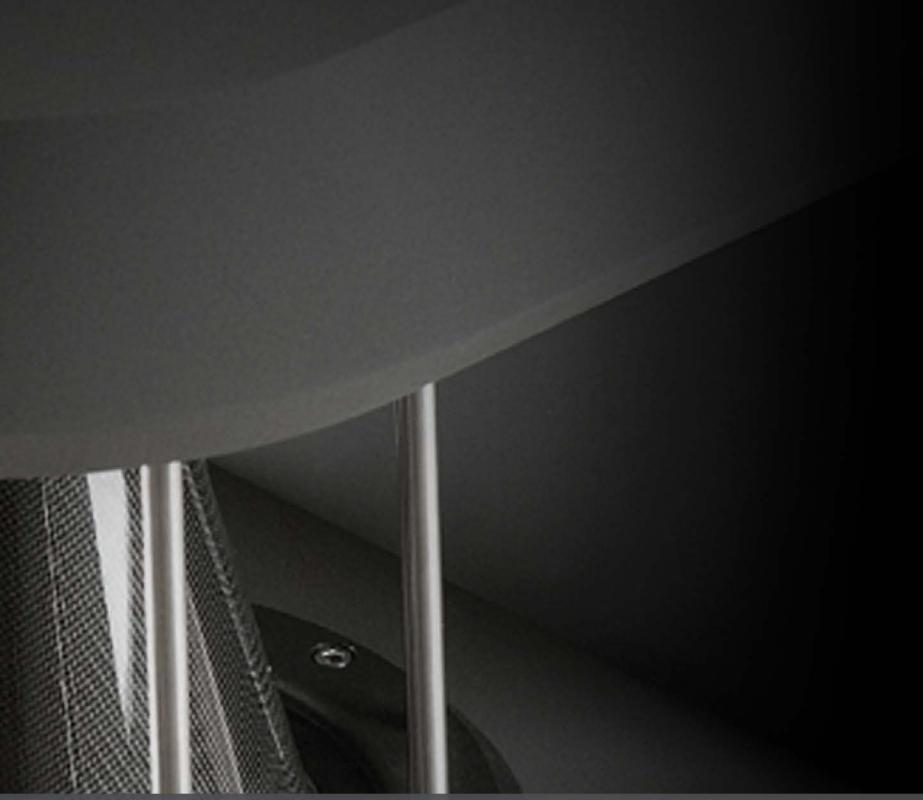
A problem with multi-way loudspeakers is how to integrate the drivers so that the listener is not conscious of different parts of the audio range coming from different parts of the loudspeaker. The PQS-100 Plus solves this problem in three ways. Firstly, its DDD driver covers the range from 120Hz to 24kHz, so the vast majority of the audio spectrum is covered by just one driver. The DDD driver crosses over to the woofer at 120Hz and the ear's ability to spatially locate sounds at this frequency is far less acute than it is in the mid-band region, where conventional two-way designs cross over. Secondly, the woofer is physically located very close to the DDD driver, which further helps to make the two drivers appear as one source. Thirdly, by making the woofer fire downwards, its radiation pattern more closely matches the omnidirectional pattern of the DDD driver.

The main body of the PQS-100 Plus cabinet is finished in carbon fibre, hand polished to a luxuriously high gloss.

The other parts of the cabinet are finished in black and grey Nextel.

Each set of PQS-100 Plus is supplied with special mounting plates to allow them to be easily fixed to the wall. Matching PQS-Plus stands are available as an optional extra. A shorter version of the PQS-Plus stand is available to special order. Please contact German Physiks for details.

SUPER AV AWARDS 2010



PQS-100 / PQS-100 CENTRE

The PQS-100 is a compact loudspeaker intended for use in high-end home theatre systems, where its exceptional resolution and dynamics will greatly add to the enjoyment of movies and music videos.

The PQS-100 Centre is designed for use as the centre loudspeaker in 5.1 home theatre systems. It is based on the PQS-100, but has a slightly large cabinet. This extends the lower frequency limit to 100Hz and allows it to be operated without a subwoofer.

Both are finished in a two-tone black and grey Nextel colour scheme that will match a wide range of interiors.

Stylishly Compact: The PQS-100

The PQS-100's single carbon fibre DDD driver produces detailed and realistic stereo images, which can be enjoyed by many listeners from a wide range of positions within the room. This avoids the one-seat "sweet-spot" stereo image that many conventional loudspeakers produce.

It is designed to be wall-mounted in order to minimise its intrusion into the room and so save space. This also makes it ideal for use in high-end stereo systems in smaller rooms. In addition, it is well suited for use in galleries, shops and other public places where very high quality sound is required and the sound source must be unobtrusive.

The PQS-100 may also be mounted on the PQS-Plus stands, which allow additional flexibility over the positioning of the loudspeaker. A shorter version of the PQS-Plus stand is available to special order.

The PQS-100 Centre

Despite its compact size, the PQS-100 Centre is capable of driving even quite large rooms to high levels, whilst preserving the characteristic German Physiks open and relaxed sound.

Its single carbon fibre DDD driver provides exceptional speed and transparency, which enhances the clarity of movie sound tracks and especially makes the vocal sections easier to follow. A 5.1 system equipped with PQS-100 series loudspeakers will have stunning resolution and dynamics and provide a level of sound quality that will greatly add to the enjoyment of movies and music videos.

The PQS-100 Centre is designed to be wall-mounted in order to minimise its intrusion into the room and so save space. It may also be mounted on the PQS-Plus stand.

CARBON MK IV

The German Physiks Carbon was originally introduced in 1997 and like the Borderland, from which it is developed, is another long running German Physiks success story. The Carbon MK IV uses a single carbon fibre DDD driver and a 12-inch downward firing woofer, coupled with an updated crossover and a new carbon fibre reinforced cabinet, to achieve a level of resolution and dynamics unrivalled in a system of this size. This together with its hallmark musicality and three-dimensional stereo imaging, should ensure that the Carbon MK IV continues to set the standard in its class.

SUPER AV AWARDS 2009

A Highly Polished Performer: The Carbon MK IV

The DDD driver is used on all our loudspeakers, from our entry level Unlimited MK II, to our top of the range Gaudi. It gives them all the same very important advantages and is what sets them apart from the competition. It enables the Carbon MK IV to produce a focused and detailed stereo image that has excellent width and depth. Instruments are correctly sized and precisely placed within the stereo image and their tonal characteristics are reproduced without colouration, due to the DDD driver's excellent phase linearity.

As with all German Physiks loudspeakers, you are not restricted to sitting in a small "sweet-spot" if you want to experience the best sound. Excellent imaging and tonal balance can be heard from a wide range of positions in the room, allowing many people to enjoy these loudspeakers at the same time.

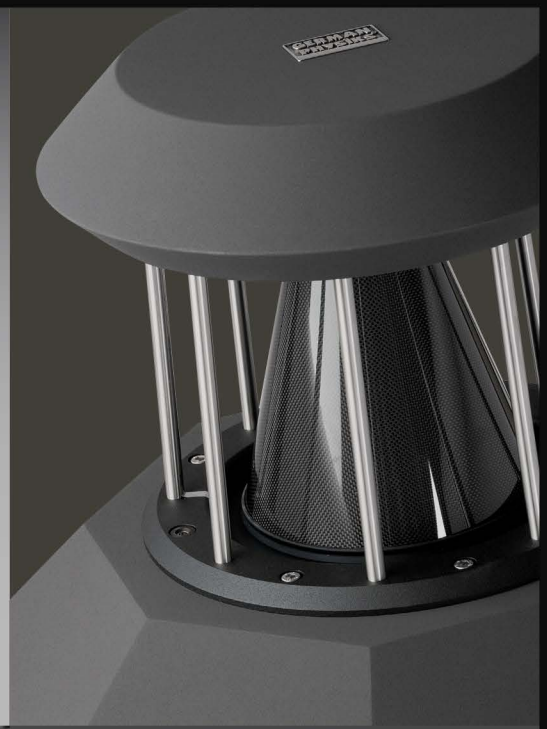
The DDD driver's exceptional impulse and phase response allow the Carbon MK IV to reproduce both the attack of the music and resolve low level detail very accurately. This is essential to faithfully reproduce the delicate nuances and timbral characteristics of a performance and make it sound like music, rather than just good hi-fi. The DDD driver's excellent impulse response also ensures that the stereo image remains clear, focused and stable, even when reproducing complex passages at high levels, such as large scale orchestra.

As with all German Physiks loudspeakers, the DDD driver's omnidirectionality makes the Carbon MK IV less sensitive to room position than conventional designs. This and the loudspeaker's small footprint, make it relatively easy to position in the listening room.

The Carbon MK IV uses a single 12-inch woofer of the same type used in our prestige Loreley model, to produce clean and well-controlled bass down to 28Hz from a relatively compact cabinet.

A high frequency level control on the rear panel allows the user to compensate for the variations in the absorption of high frequencies that occur due to different types of furnishings and room construction.

The Carbon MK IV's cabinet is reinforced with carbon fibre using techniques borrowed from the aircraft industry. It is finished with a multi-layer lacquer and then hand polished to a deep lustre, that highlights the stylish character of the design.




Flat
+2 dB
+4 dB
–2 dB
High Frequency Level
- DDD +
- WOOFER +
GERMAN PHYSIKS
Handmade in Germany

BORDERLAND MK IV

Originally introduced in 1992, the Borderland was our first flagship model. Now in its MK IV form, it remains our most popular loudspeaker. It combines our unique DDD driver with a downward firing 12–inch woofer and a sophisticated new passive cross-over network, to set impressively high standards for stereo imaging, transparency and musicality.

Our Long Running Classic: The Borderland MK IV

Like all of our loudspeakers, the heart of the Borderland MK IV is its DDD driver. This enables it to create detailed and convincingly realistic stereo images that extend beyond the boundaries of the loudspeakers. In the process the loudspeakers disappear and your are left with just the music.

The DDD driver is omnidirectional, allowing these excellent stereo images to be enjoyed from a wider range of listening positions than is generally possible with conventional loudspeaker designs. The DDD driver's omnidirectionality also makes the Borderland MK IV less sensitive to room position than conventional designs. This and the cabinet's relatively small footprint, make it quick and easy to set up in the listening room and you are less likely to need to rearrange your furniture to accomodate it.

The DDD driver's exceptional impulse response and low distortion enable the Borderland MK IV to resolve very fine detail, even on complex high-level passages. It also provides an overall sense of speed and transparency more commonly found in the finest mini monitors. Percussion is portrayed with a stunning level of realism and voices have a clarity and purity that can be breath taking.

In addition, the excellent impulse response allows the music's macro and micro dynamics, to be reproduced without compression. Because the DDD driver is phase linear across its operating range, the timbral characteristics of the instruments are accurately portrayed without colouration. The Borderland MK IV acts like an open window on to your music collection.

The Borderland MK IV uses a single 12-inch woofer of the same type used in our prestige Loreley model. This is coupled with a Helmholtz resonator and gives the Borderland MK IV a degree of bass extension normally associated with high quality component sub-woofers. Most impressive is that this is achieved with a cabinet of relatively modest dimensions, making this an easy loudspeaker to live with.

A high frequency level control on the rear panel allows the user to compensate for the variations in the absorption of high frequencies that occur due to different types of furnishings and room construction.

The Borderland is available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a number of satin and high gloss automotive paint finishes. To achieve the ultimate level of perfection, all our cabinets are hand polished.


GERMAN PHYSIKS

Flat
+2 dB
−2 dB
+4 dB
High Frequency Level
- DDD +
- WOOFER +
GERMAN PHYSIKS
Handmade in Germany
S/N: GP-201132

HRS-120

Based on our top-selling Borderland, the HRS-120 is designed to provide excellent results in rooms of up to 55 square metres in size. It uses a single DDD driver mounted on top of a slim floor standing cabinet, with a downward firing woofer set in its base. These work seamlessly together to create a detailed, three-dimensional stereo image that immerses you in the music. The transparency of the DDD driver opens a new window on to your music collection, by helping to reveal fine details and ambience information that you would normally only expect to hear at a live performance.

Something Special: The HRS-120

The HRS-120's unique omnidirectional DDD driver brings you closer to the music by creating an enveloping sound field that more closely resembles a concert venue. It does this by radiating the sound evenly around the loudspeaker.

The very wide frequency range of its DDD driver, 240Hz to 24kHz*, avoids the need for a crossover point in the mid-band, thereby eliminating the level and phase errors that this can cause from the region where our hearing is most sensitive. This enables the HRS-120 to create extremely realistic and detailed stereo images that effectively allow it to disappear.

Because the DDD driver is omnidirectional, you can enjoy these stereo images from a wide range of positions in your room and not just from a small "sweet-spot", as is generally the case with conventional loudspeaker designs. This makes the HRS-120 ideal for sharing your music with friends and makes listening to the HRS-120 a more relaxing experience, as you do not have to keep checking that you are in the "sweet spot".

The HRS-120's ability to reveal micro-detail draws you into the performance, so that you feel you are listening to real musicians and not just very good hi-fi.

The panels in the HRS-120's octagonal cabinet are smaller and stiffer than those of an equivalent size square section cabinet would be. This reduces cabinet vibration, which would otherwise mask fine detail. Rigidity is further increased by critically placed internal bracing. In addition, a special damping material called Hawaphon® is applied to the inside of each panel. This very effectively converts vibration energy into heat. It also adds mass to the panel, further reducing vibration. The end result is a cabinet that allows the drivers to deliver their full potential.

A high frequency level control on the rear panel allows the user to compensate for the variations in the absorption of high frequencies that occur due to different types of furnishings and room construction.

The HRS-120 is available in a wide range of high quality veneers in both satin and high gloss finishes. We also offer a high gloss carbon fibre finish, as well as a number of satin and high gloss automotive paint finishes. To provide the ultimate level of quality, all our cabinets are carefully hand polished.

* Carbon fibre version.


GERMAN PHYSICS

UNICORN MK II

The Unicorn, like its name suggests is a very rare animal: a single driver loudspeaker that covers the full audio range. It uses one DDD driver to cover the full range from 24kHz all the way down to 40Hz*. The bass has a speed and smoothness of integration with the rest of the audio range that we have yet to hear bettered. The overall clarity, coherence and finesse the Unicorn provides make it a dream for lovers of jazz and classical music. It is also capable of surprising rock music fans.

The Rarest of Animals: The Unicorn MK II

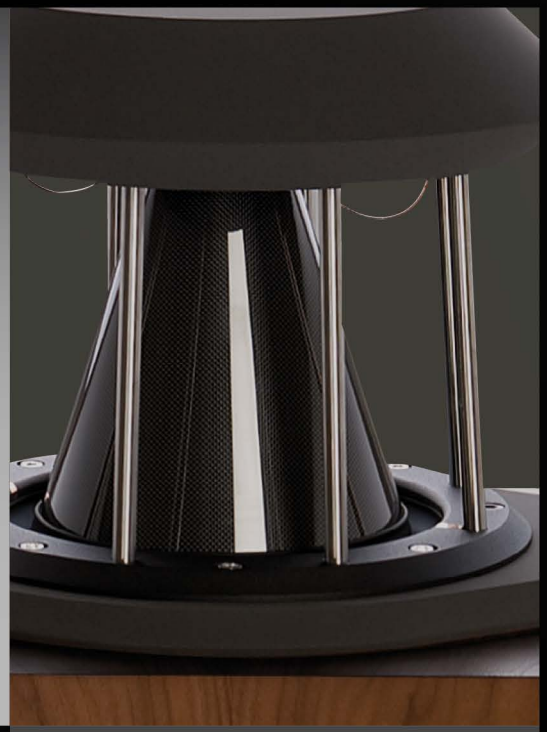
Despite its simple looks, the Unicorn MK II is actually a very sophisticated design. Its single DDD driver radiates the sound directly using bending wave and modal radiation, as it does in all other German Physiks loudspeakers. In addition, a horn system allows the DDD driver's response to be extended down to 40Hz*, but the speed and clarity of the bass gives the impression of even greater extension.

The DDD driver provides the Unicorn MK II with a number of important advantages. Its wide operating range and phase linearity produce well-focused, three-dimensional stereo images. These may be enjoyed from a wide range of listening positions, due to the DDD driver's omnidirectional nature. Its excellent phase linearity also ensures that the music's timbral characteristics are reproduced without colouration. The DDD driver's exceptional transient response and low distortion allow fine detail and micro dynamics to be resolved with great clarity. The excellent qualities the DDD driver shows in its normal modes of operation are exhibited in the bass produced by the horn. It is fast, agile and extremely clean. There is no hint of bloat or overhang and distortion is impressively low. The integration with the rest of the audio band is seamless. Bass, wind and string instruments are reproduced with a degree of fidelity rarely heard outside of the concert hall. If you are a horn loudspeaker aficionado, the Unicorn MK II could be the loudspeaker that you have been waiting for.

An externally housed equalisation network allows for a simpler design of cabinet and isolates the network components from microphonic effects that might otherwise degrade its performance. Both high frequency and low frequency level adjustments are provided.

* Carbon fibre DDD version.


GERMAN PHYSIKS



UNLIMITED MK II

This design was first introduced in 2011 as the Limited 11 and only 100 pairs were made. It received several excellent magazine reviews and it quickly sold out. In reply to demand from our customers, we re-introduced it as the Unlimited MK II. It uses a single carbon fibre DDD driver mounted on top of a slim floor standing cabinet, with a downward firing woofer set in its base. The Unlimited MK II provides the famous German Physiks trademark dynamics, transparency and musicality, but at a new lower price point. It is exceptional value for money and makes the unique enjoyment that German Physiks loudspeakers can provide available to a much broader audience.

By Popular Demand: The Unlimited MK II

The Unlimited MK II uses the same DDD driver as our flagship Gaudi model and so provides a real taste of high-end audio nirvana. The DDD driver enables the Unlimited MK II to produce a detailed, three-dimensional sound stage you can enjoy from a wide range of positions in your room, not only from a small "sweet-spot". This allows a more relaxed listening experience and is perfect for sharing your music with friends. Together with the DDD driver's exceptional transparency and its lightning fast transients, this provides the listener with a performance that is both emotionally involving and musically satisfying.

The design of the Unlimited MK II is intended to be both elegant and simple, so that it blends into its surroundings, rather than draws attention to itself. We want the listener's attention to be concentrated entirely on the music. The cabinet has a footprint of only 24 cm by 24 cm (9.5" x 9.5"), so it takes very little space on the listening room floor and is easy to positon. It is covered with an attractive satin textured acoustic vinyl, which is available in white, black, grey and dark brown. This allows the Unlimited MK II to look at home in wide range of interiors. This finish is also extremely durable and will withstand knocks and bumps that would damage conventional wood or paint finishes. An additional bonus is that this material provides a very significant degree of vibration damping, further reducing cabinet resonances and so improving clarity.

Despite the compact size of its cabinet, the Unlimited MK II produces bass that is deep with real weight, but it is also clear, articulate and in time with the rest of the audio range. It is easy to follow the bass lines and drums have an authentic impact to their transients. The correct bass balance is maintained even when listening at low levels, so you can continue to enjoy your Unlimited MK IIs when you would otherwise have to use to headphones.

The Unlimited MK II will provide excellent results with quite modest amplification, so you do not need to invest a lot of money in electronics. However, its DDD driver is very revealing, allowing the Unlimited MK II to deliver excellent results when partnered with high performance systems.

Even though the Unlimited MK II is our entry-level model, we have applied the same meticulous care and attention to its design, manufacture and testing as we have with all of our other products, where we design for a 25 year life.

PION

The German Physiks PION C 250 D and PION C 1200 power filters and PION N 3ZF power cable provide an extremely high level of protection against the large amount of high frequency noise that is almost invariably present on the mains supply. They provide a quieter background and so allow better advantage to be taken of the exceptional resolution that German Physiks loudspeakers can offer.

Purer Power: PION C 250 D and PION C 1200 Power Filters and PION N 3ZF Power Cable

The PION C 250 D is intended to be used as a dedicated power filter for a single source device such as a CD player, D/A converter, preamplifier or other low power audio component. For power amplifiers and other high power devices, we manufacture the PION C 1200.

During the design of the PION range, we examined a large number of commercially available power filters. We found that many caused more problems than they solved. Whilst they removed some noise, they often introduced other undesirable artefacts into their outputs. We found the principle causes of such problems to be the use of an inappropriate filter type and under-specified components. The latter often appeared to be related to the need to keep the cost down.

We took great care with the design of the filter circuit itself and carried out rigorous testing to ensure that the PION filters delivered the required level of performance across a wide range of operating conditions.

Only top quality components are employed. Over-size inductors are used so that they can be operated well away from saturation. The capacitors are operated with large de-rating margins. This ensures optimum performance and also improves the long-term reliability. The final selection of parts was made after extensive listening tests.

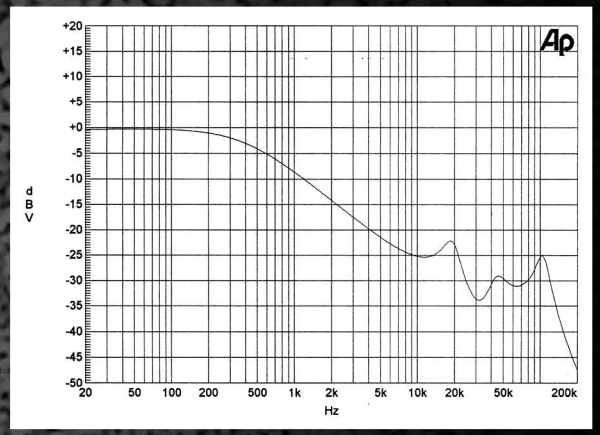
The PION filters are wired with heavy-duty cable and connections are made either with high-pressure screw terminals or soldered joints. No plugs are used, as the increased resistance they introduce would degrade the dynamic performance of the filter.

As well as very effectively preventing mains noise from from entering the component it is driving, the PION filters also prevents noise generated by a component from being passed back into the mains, where it might degrade the performance other parts of the system. This is an important consideration with digital equipment, which can introduce significant amounts high frequency noise into their mains lines.

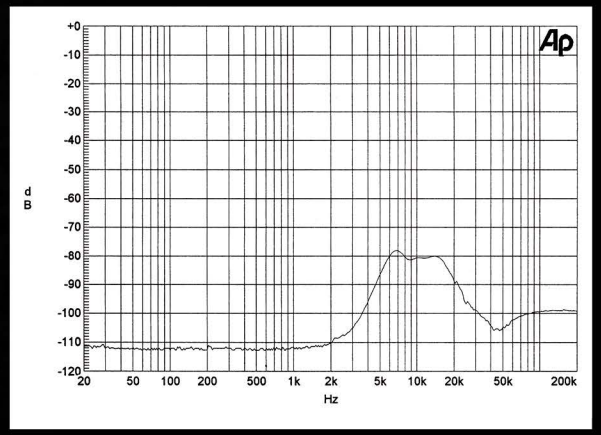
The filter assemblies, as well as the input and output connectors, are encapsulated in a high-density polymer material commonly used in the aerospace industry. This prevents vibration and ensures that the units run silently.

To obtain the full benefit of the PION filters, we recommend using our German Physiks PION N 3ZF power cable.

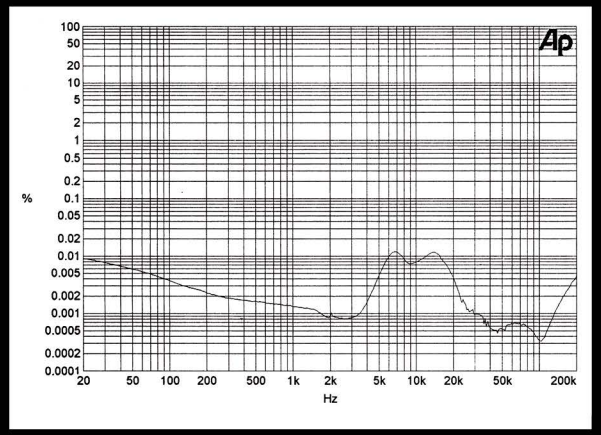
FREQUENCY RESPONSE

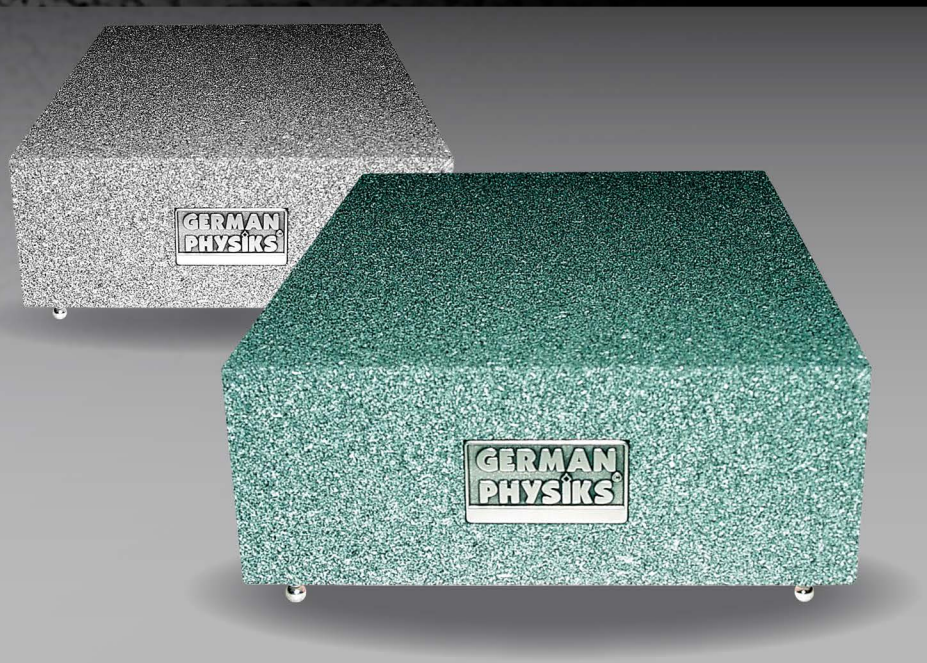


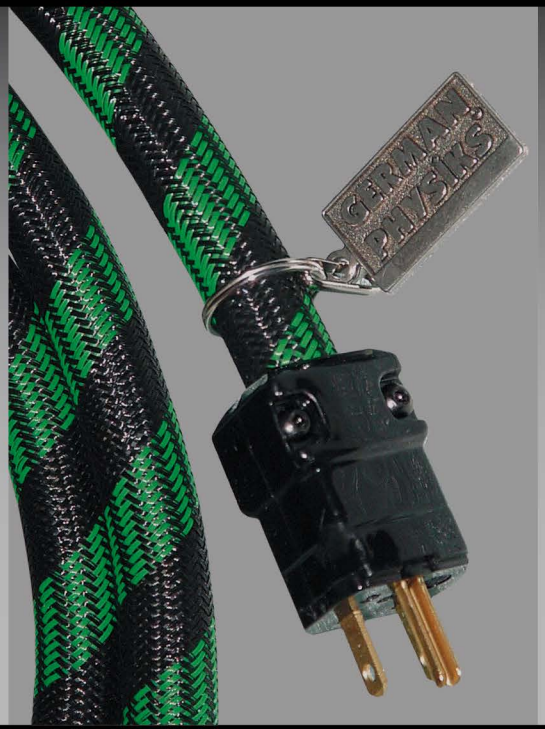
THD + N vs FREQUENCY

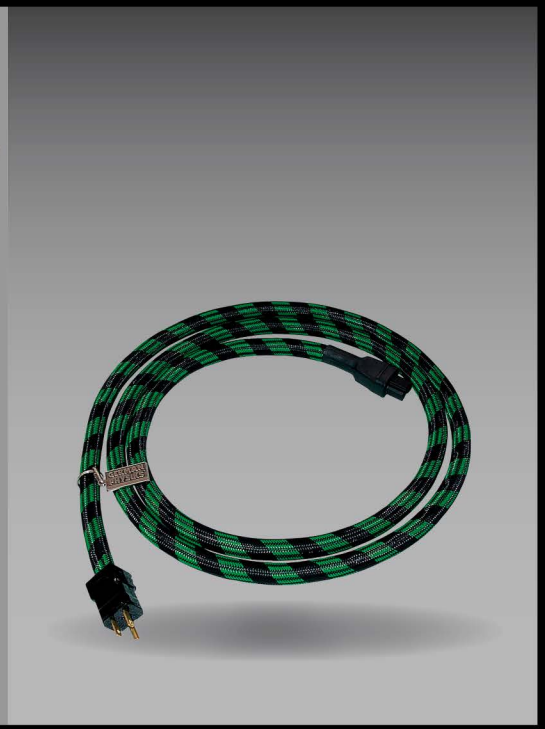


THD + N vs FREQUENCY





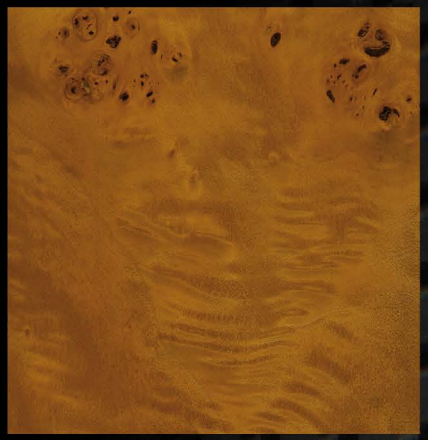




FINISHES

We use only high quality veneers on our loudspeakers. These are carefully selected and matched by hand. Most veneers are available in both satin and high gloss finishes. The high gloss finish is a multi-layer lacquer that is hand polished for perfection. We can also match the colour of the veneer to a sample supplied by the customer. In addition we can offer any RAL colour in both satin and high gloss finishes.

Pappel Burl
High gloss only



Pappel Cluster Cognac
High gloss only

Walnut Burl
Satin and high gloss

Walnut Cluster
High gloss only

American Cherry
Satin and high gloss

European Walnut
Satin only

Macassar
Satin and high gloss

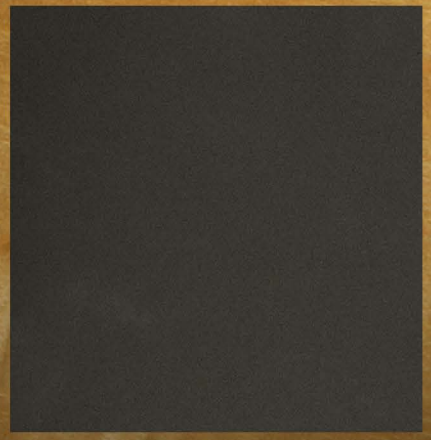
Macassar Ebony
Satin and high gloss

Carbon Fibre
High gloss only

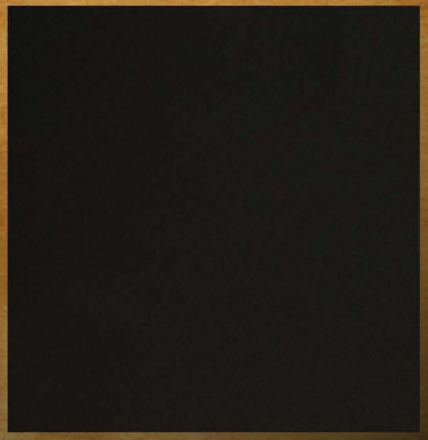
Bubinga
Satin and high gloss

Bubinga Cognac
Satin and high gloss

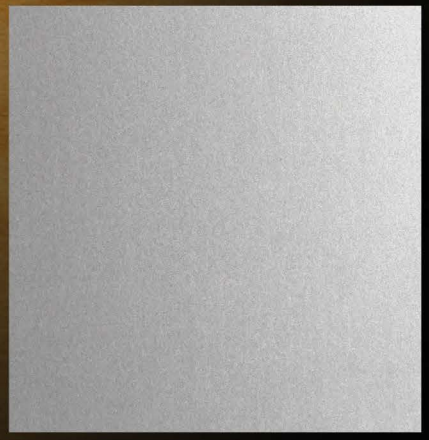
Bubinga Pommele
High gloss only



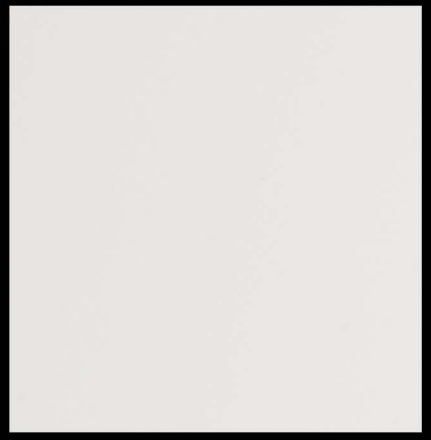
Anthracite Nextel
Satin only



Black Nextel
Satin only



Light Grey Vinyl
Satin only



White Paint
Satin and high gloss

SPECIFICATIONS

	Gaudi MK II		EMPEROR MK III	
Specifications	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	4 Ohms	4 Ohms	4 Ohms	4 Ohms
Frequency Response	15 - 21,500 Hz	15 - 24,000 Hz	18 - 21,500 Hz	18 - 24,000 Hz
Power Handling				
Continuous	1,900 W	2,000 W	950 W	1,050 W
Short Term	3,400 W	3,600 W	1,450 W	1,550 W
Amplification Required With Active Crossover	3 amplifiers per channel DDD Section: minimum 200 W / 4 Ohms Woofer Section: minimum 250 W / 4 Ohms Sub-Woofer Section: minimum 350 W / 4 Ohms		3 amplifiers per channel DDD Section: minimum 200 W / 4 Ohms Woofer Section: minimum 200 W / 4 Ohms Sub-Woofer Section: minimum 250 W / 4 Ohms	
Amplification Required With Passive Crossover	This option is not available		1 amplifier per channel Minimum 300 W / 4 ohms or	2 amplifiers per channel DDD: min. 200 W / 4 ohms Bass/sub-woofer: min. 250 W / 4 ohms
Crossover Points (Passive)	70 Hz & 180 Hz	70 Hz & 180 Hz	70 Hz & 180 Hz	70 Hz & 180 Hz
Crossover Slopes				
DDD Section	12 dB/octave electrical & 24 dB/octave acoustic		12 dB/octave electrical & 24 dB/octave acoustic	
Woofer Section	12 dB/octave electrical & 24 dB/octave acoustic		12 dB/octave electrical & 24 dB/octave acoustic	
High-Frequency Adjustment	-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz		-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz	
Low-Frequency Adjustment			+10 dB, +5 dB & flat centred at 45 Hz	
Sensitivity	88.6 dB for 1 W at 1 m	89.2 dB for 1 W at 1 m	88.2 dB for 1 W at 1 m	88.8 dB for 1 W at 1 m
Maximum Output Level	118 dB	120 dB	115 dB	117 dB
Operating Principle	3-way loudspeaker with a 3-way active crossover and 360° radiation using the DDD driver		3-way loudspeaker with 360° radiation using the DDD driver	
Input Connectors				
Passive Crossover	2 sets of binding posts allowing bi-amping or bi-wiring		2 sets of binding posts allowing bi-amping or bi-wiring	
Active Crossover	Balanced and unbalanced inputs		Balanced and unbalanced inputs	
Drivers	4 x titanium DDD drivers 8 x 6-inch woofers 4 x 12-inch sub-woofers	4 x carbon fibre DDD drivers 8 x 6-inch woofers 4 x 12-inch sub-woofers	4 x titanium DDD drivers 4 x 6-inch woofers 2 x 12-inch sub-woofers	4 x carbon fibre DDD drivers 4 x 6-inch woofers 2 x 12-inch sub-woofers
Dimensions	1,300 mm W x 2,100 mm H x 925 - 955 mm D 51.2" W x 82.7" H x 36.4 - 37.6" D		1,010 mm W x 1,960 mm H x 810 mm D – excl motor & DDD 39.8" W x 77.2" H x 31.9" D	
Weight	Approximately 720 kg (1,584 lbs)		Approximately 425 kg (935 lbs)	
Warranty	5 years	5 years	5 years	5 years

	Loreley MK III		PQS-402	
Specifications	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	3 Ohms	3 Ohms	2.2 Ohms at 1,200 Hz	2.2 Ohms at 1,200 Hz
Frequency Response	21 - 21,500 Hz	21 - 24,000 Hz	25 - 21,500 Hz	25 - 24,000 Hz
Power Handling				
Continuous	950 W	1,050 W	450 W	450 W
Short Term	1,500 W	1,600 W	750 W	750 W
Amplification Required	2 amplifiers per channel DDD Section: minimum 200 W / 4 Ohms Woofer Section: minimum 350 W / 4 Ohms		1 amplifier per channel Minimum: 200 W / 4 Ohms or	2 amplifiers per channel DDD Section: min 140 W / 4 Ohms Woofer Section: min 200 W / 4 Ohms
Crossover Point	180 Hz	180 Hz	215 Hz	215 Hz
Crossover Slopes				
DDD Section	12 dB/octave electrical & 24 dB/octave acoustic		12 dB/octave electrical & 18 dB/octave acoustic	
Woofer Section	18 dB/octave electrical & 24 dB/octave acoustic		18 dB/octave electrical & 18 dB/octave acoustic	
High-Frequency Adjustment	-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz		-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz	
Low-Frequency Adjustment	+10 dB, +5 dB & flat centred at 60 Hz		+10 dB, +5 dB & flat centred at 65 Hz	
Sensitivity	89.2 dB for 1 W at 1 m	89.8 dB for 1 W at 1 m	88.4 dB for 1 W at 1 m	88.4 dB for 1 W at 1 m
Maximum Output Level	118 dB	120 dB	112 dB	118 dB
Operating Principle	2-way loudspeaker with 360° radiation using the DDD driver		2-way loudspeaker with 360° radiation using the DDD driver	
Input Connectors	2 sets of binding posts allowing bi-amping or bi-wiring		2 sets of binding posts allowing bi-amping or bi-wiring	
Drivers	4 x titanium DDD drivers 2 x 12-inch woofers 4 x 10-inch passive radiators	4 x carbon fibre DDD drivers 2 x 12-inch woofers 4 x 10-inch passive radiators	2 x titanium DDD drivers 2 x 10-inch woofers 4 x 8-inch passive radiators	2 x carbon fibre DDD drivers 2 x 10-inch woofers 4 x 8-inch passive radiators
Dimensions	700 mm W x 1,800 mm H x 1,000 mm D 27.6" W x 70.9" H x 30.4" D		620 mm W x 1,560 mm H x 750 mm D 24.4" W x 61.4" H x 29.5" D	
Weight	Approximately 420 kg (924 lbs)		Approximately 165 kg (363 lbs)	
Warranty	5 years	5 years	5 years	5 years

SPECIFICATIONS

	PQS-302		PQS-202 MK II	
Specifications	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	2.9 Ohms at 26 Hz	2.9 Ohms at 26 Hz	3 Ohms	3 Ohms
Frequency Response	26 - 21,500 Hz	26 - 24,000 Hz	30 - 21,500 Hz	30 - 24,000 Hz
Power Handling				
Continuous	400 W	400 W	300 W	300 W
Short Term	700 W	700 W	600 W	600 W
Amplification Required	1 amplifier per channel Minimum: 150 W / 4 Ohms		1 amplifier per channel Minimum: 100 W / 4 Ohms	
Crossover Point(s)	170 Hz	170 Hz	120 Hz & 300 Hz	120 Hz & 250 Hz
Crossover Slopes				
DDD Section	12 dB/octave electrical & 21 dB/octave acoustic		12 dB/octave electrical & 18 dB/octave acoustic	
Woofer Section	18 dB/octave electrical & 24 dB/octave acoustic		12 dB/octave electrical & 18 dB/octave acoustic	
Sub-woofer Section			18 dB/octave electrical & 30 dB/octave acoustic	
High-Frequency Adjustment	-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz		-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz	
Low-Frequency Adjustment	+10 dB, +5 dB & flat centred at 58 Hz			
Sensitivity	87.5 dB for 1 W at 1 m	87.7 dB for 1 W at 1 m	86.0 dB for 1 W at 1 m	86.0 dB for 1 W at 1 m
Maximum Output Level	110 dB	112 dB		
Operating Principle	2-way loudspeaker with 360° radiation using the DDD driver		3-way loudspeaker with 360° radiation using the DDD driver	
Input Connectors	2 sets of binding posts allowing bi-amping or bi-wiring		2 sets of binding posts allowing bi-amping or bi-wiring	
Drivers	2 x titanium DDD drivers 2 x 8-inch woofers	2 x carbon fire DDD drivers 2 x 8-inch woofers	1 x titanium DDD driver 1 x 6-inch woofer 1 x 12-inch sub-woofer	1 x carbon fibre DDD driver 1 x 6-inch woofer 1 x 12-inch sub-woofer
Dimensions	530 mm W x 1,400 mm H x 730 mm D 20.9" W x 55.1 H x 28.7" D		430 mm W x 886 mm H x 500 mm D 16.9" W x 34.9" H x 19.7" D	
Weight	Approximately 115 kg (253 lbs)		Approximately 73 kg (160 lbs)	
Warranty	5 years	5 years	5 years	5 years

	PQS-100 CENTRE	PQS-100
Specifications	**With Carbon Fibre DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	4.9 Ohms at 200 Hz	7.5 Ohms at 2,600 Hz
Frequency Response	100 - 24,000Hz	120 - 24,000 Hz
Power Handling		
Continuous	60 W	90 W
Short Term	100 W	180 W
Amplification Required	Minimum 20 W / 4 Ohms	Minimum 40 W / 4 Ohms
Crossover Slopes	12 dB/octave electrical & 18 dB/octave acoustic	6 dB/octave electrical & 18 dB/octave acoustic
Sensitivity	85 dB for 1 W at 1 m	84 dB for 1 W at 1 m
Operating Principle	Full range loudspeaker with 360° radiation using the DDD driver	Full range loudspeaker with 360° radiation using the DDD driver
Input Connectors	1 set of banana sockets	1 set of banana sockets
Driver	1 x carbon fibre DDD driver	1 x carbon fibre DDD driver
Optional Accessories	PQS-Plus Stands	PQS-Plus Stands
Dimensions		
Loudspeaker	267 mm W x 305 mm H x 312 mm D / 10.5" W x 12.0" H x 12.3" D	267 mm W x 275 mm H x 312 mm D / 10.5" W x 10.8" H x 12.3" D
PQS-Plus Stand	326 mm W x 1,100 mm H x 370 mm D / 12.8" W x 43.3" H x 14.6" D	326 mm W x 1,100 mm H x 370 mm D / 12.8" W x 43.3" H x 14.6" D
Weight		
Loudspeaker	12.0 kg (26.4 lbs)	11.0 kg (24.2 lbs)
PQS-Plus Stand	10.2 kg (22.4 lbs)	10.2 kg (22.4 lbs)
Warranty	5 years	5 years

SPECIFICATIONS

	PQS-100 plus	CARBON MK IV
Specifications	**With Carbon Fibre DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	5.6 Ohms at 45 Hz	3.7 Ohms at 375 Hz
Frequency Response	45 - 24,000 Hz	28 - 24,000 Hz
Power Handling		
Continuous/ Short Term	190 W / 290 W	300 W / 600W
Amplification Required	Minimum 70 W / 4 Ohms	Minimum 160 W / 4 Ohms
Crossover Point	120 Hz	190 Hz
Crossover Slopes		
DDD Section	6 dB/octave electrical & 18 dB/octave acoustic	12 dB/octave electrical & 18 dB/octave acoustic
Woofer Section	12 dB/octave electrical & 18 dB/octave acoustic	12 dB/octave electrical & 18 dB/octave acoustic
High-Frequency Adjustment		-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz
Sensitivity	86.0 dB for 1 W at 1 m	86.1 dB for 1 W at 1 m
Operating Principle	2-way loudspeaker with 360° radiation using the DDD driver	2-way loudspeaker with 360° radiation using the DDD driver and a Helmholtz resonator bass system
Input Connectors	1 set of binding posts	2 sets of binding posts allowing bi-amping or bi-wiring
Drivers	1 x carbon fibre DDD driver 1 x 6-inch woofer	1 x carbon fibre DDD driver 1 x 12-inch woofer
Optional Accessories	PQS-Plus Stands	
Dimensions		
Loudspeaker	267 mm W x 510 mm H x 310 mm D / 10.5" W x 20.0" H x 12.2" D	404 mm W x 1,229 mm H x 404 mm D / 15.9" W x 48.4" H x 15.9" D
PQS-Plus Stand	326 mm W x 1,100 mm H x 370 mm D / 12.8" W x 43.3" H x 14.6" D	
Weight		
Loudspeaker	21 kg (46.2 lbs)	54 kg (119 lbs)
PQS-Plus Stand	10.2 kg (22.4 lbs)	
Warranty	5 years	5 years

	BORDERLAND MK IV		HRS-120	
Specifications	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	3.5 Ohms at 375 Hz	3.7 Ohms at 375 Hz	4 Ohms	4 Ohms
Frequency Response	28 - 21,500 Hz	28 - 24,000 Hz	31 - 21,500 Hz	29 - 24,000 Hz
Power Handling				
Continuous	300 W	300 W	100 W	110 W
Short Term	600 W	600 W	160 W	170 W
Amplification Required	Minimum 160 W / 4 Ohms		Minimum 100 W / 4 Ohms	
Crossover Point	200 Hz	190 Hz	240 Hz	240 Hz
Crossover Slopes				
DDD Section	12 dB/octave electrical & 18 dB/octave acoustic		12 dB/octave electrical & 36 dB/octave acoustic	
Woofer Section	18 dB/oct. elect. & 18 dB/oct. acoustic	12 dB/oct. elect. & 18 dB/oct. acoustic	12 dB/octave electrical & 14 dB/octave acoustic	12 dB/octave electrical & 12 dB/octave acoustic
High-Frequency Adjustment	-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz		-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz	
Sensitivity	86.0 dB for 1 W at 1 m	86.1 dB for 1 W at 1 m	86.8 dB for 1 W at 1 m	87.2 dB for 1 W at 1 m
Operating Principle	2-way loudspeaker with 360° radiation using the DDD driver and a Helmholtz resonator bass system		2-way loudspeaker with 360° radiation using the DDD driver and a Helmholtz resonator bass system	
Input Connectors	2 sets of binding posts allowing bi-amping or bi-wiring		1 set of binding posts	
Drivers	1 x titanium DDD driver 1 x 12-inch woofer	1 x carbon fibre DDD driver 1 x 12-inch woofer	1 x titanium DDD driver 1 x 8-inch woofer	1 x carbon fibre DDD driver 1 x 8-inch woofer
Dimensions	404 mm W x 1,229 mm H x 404 mm D 15.9" W x 48.4" H x 15.9" D		320 mm W x 1,145 mm H x 320 mm D 12.6" W x 45.0" H x 12.6" D	
Weight	55 kg (121 lbs)	54 kg (119 lbs)	29.6 kg (65.1 lbs)	29.7 kg (65.3 lbs)
Warranty	5 years	5 years	5 years	5 years

SPECIFICATIONS

	UNICORN MK II		UNLIMITED MK II
Specifications	**With Titanium DDD Driver**	**With Carbon Fibre DDD Driver**	**With Carbon Fibre DDD Driver**
Impedance	4 Ohms	4 Ohms	4 Ohms
Frequency Response	55 - 21,500 Hz	40 - 24,000 Hz	32 - 24,000 Hz
Power Handling			
Continuous/Short Term	80 W / 100 W	100 W / 140 W	110 W / 170 W
Amplification Required	Minimum 60 W / 4 Ohms		Minimum 90 W / 4 Ohms
Crossover Point	n/a	n/a	200 Hz
Crossover Slopes			
DDD Section			6 dB/octave electrical & 18 dB/octave acoustic
Woofer Section			18 dB/octave electrical & 18 dB/octave acoustic
High-Frequency Adjustment	-2 dB, flat, +2 dB & +4 dB centred at 8,000 Hz		
Low-Frequency Adjustment	Flat, +1.0 dB, +2.0 dB & +3.0 dB centred at 60 Hz	Flat, +1.0 dB, +2.0 dB & +3.5 dB centred at 60 Hz	
Sensitivity	87.7 dB for 1 W at 1 m	88.0 dB for 1 W at 1 m	88 dB for 1 W at 1 m
Operating Principle	Full range loudspeaker with 360° radiation using the DDD driver		2-way loudspeaker with 360° radiation using the DDD driver and a Helmholtz resonator bass system
Input Connectors	1 set of binding posts		1 set of binding posts
Driver(s)	1 x titanium DDD driver	1 x carbon fibre DDD driver	1 x carbon fibre DDD driver 1 x 8-inch woofer
Finish			Satin finish acoustic vinyl with a choice of four colours
Dimensions			
Loudspeaker	550 mm W x 1,241 mm H x 460 mm D / 21.7" W x 48.9" H x 18.1" D		240 mm W x 1,050 mm H x 240 mm D / 9.5" W x 41.3" H x 9.5" D
External Network Box	270 mm W x 173 mm H x 230 mm D / 10.6" W x 6.8" H x 9.1" D		
Weight			
Loudspeaker	Approximately 56.0 kg (123.2 lbs)		28.9 kg (63.7 lbs)
External Network Box	4.4 kg (9.7 lbs)		
Warranty	5 years	5 years	5 years

AWARDS

GAUDI MK II

Stereo Sound (Japan)
COMPONENTS OF THE YEAR AWARD 1998

PQS-402

Stereo Sound (Japan)
GRAND PRIX 2006 AWARD

CARBON MK IV

Stereo Sound (Japan)
COMPONENTS OF THE YEAR AWARD 2000

BORDERLAND MK IV

Fedeltà del Suono (Italy)
FDS HIFI AWARDS 2008

HRS-120

Fedeltà del Suono (Italy)
FDS HIFI AWARDS 2007

Important Notice

This brochure illustrates our standard veneers. We make every effort to match the finish on a set of loudspeakers as closely as possible to these samples, but because veneers are a natural product, there will inevitably be some minor variation in grain and colour, which is beyond our control and cannot be accepted as a reason for rejection.

While we have made every effort to ensure that the information in this brochure is correct, we can accept no responsibility for any damages or losses that may occur as a result of any errors herein, including, without limitation, indirect or consequential damages, or any damages whatsoever arising from such use.

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PQS-402

StereoMojo (USA)
BEST SOUND AT CES 2007 AWARD

PQS-302

stereoplay Referenz
AUSGABE 09/10

PQS-100 PLUS

HIGH END 2010 (Munich)
„BEST SOUND AT HIGH END 2010"

PQS-100 PLUS

SUPER AV AWARDS 2010

CARBON MK IV

SUPER AV AWARDS 2009

UNICORN MK II

HiFi review
PRODUCTS OF THE YEAR 2009

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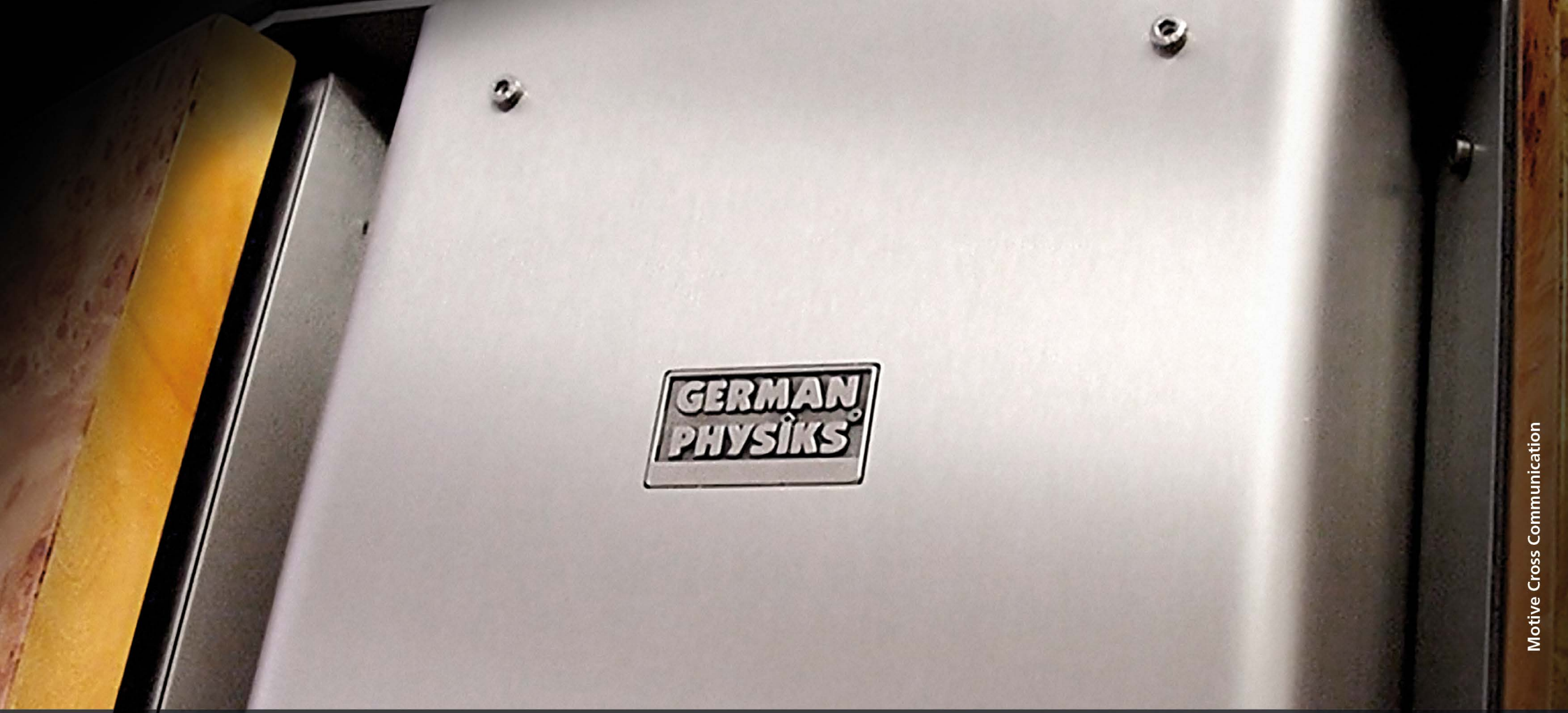

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