



**SILTECH
PANTHEON**
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Warranty covers manufacturing defects and exclude abuse.
Original purchaser only.

Models and technical specifications are subject to change without prior notice.



**SILTECH
PANTHEON Speaker**



800

150cm FlexUnit Detailed assembly

A Revolutionary concept



SILTECH

Pantheon Series - Celebrating 25 years of Siltech precision audio engineering.

An incredible experience of listening to music, truly a dream come true.

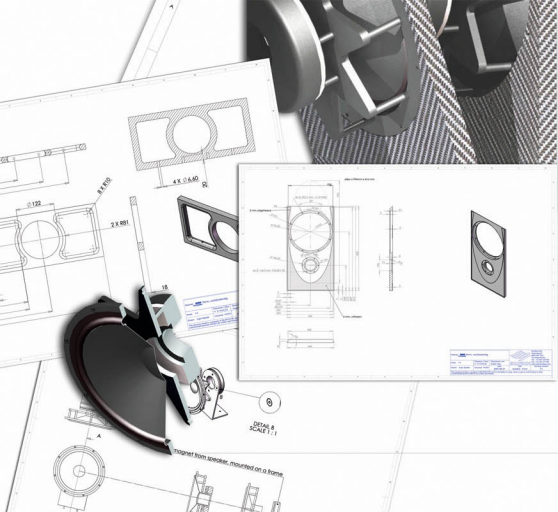
Siltech started with a lofty vision: to create the world's best transducer liberated from musical compromise. It would cater to every style of music and every type of listening room. From the most subdued background levels to extreme 118dB sound pressures free of distortion, it would champion true-to-life dynamics no longer plagued by room issues.

The Pantheon is the fulfilment of this ambitious dream. It portrays the finest of nuances alongside the grandest of fortissimos:

- faster than the human ear
- with spectacular low-level linearity
- unbelievably warm and neutral
- built to the highest quality standards
- precision-engineered by using complex software modelling with multi-physics programming

"The Pantheon loudspeaker is a true musical performer that stands as the flagship for the entire Siltech Pantheon Series and provides the highest level of technical advancements, sounds and build quality, craftsmanship and sonic purity," commented Edwin van der Kley, Siltech's CEO and General Manager. "This loudspeaker development combines sound quality with cutting-edge engineering innovations. Siltech deliberately limited the Series to 39 pairs exclusively crafted for a select music-loving elite who seeks the very highest possible audio performance in a clear aesthetic and functional design."

When Siltech launches a reference loudspeaker, one expects truly uncompromising quality and impeccable finishing. With the launch of this unique loudspeaker, we now fulfil your wildest musical dreams!



Acoustical Design

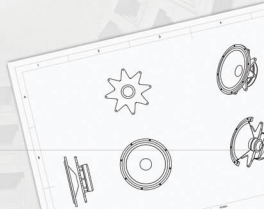
A new approach: Room-invariant loudspeaker performance

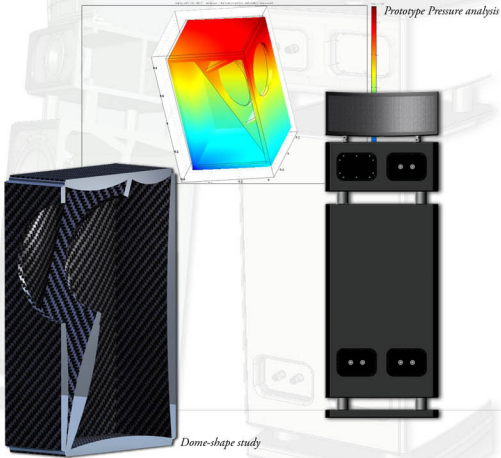
As a regular attendee of classical and other concerts, Edwin van der Kley noted that even the most advanced loudspeakers hardly ever resemble a true life experience. "As an equally enthusiastic pop and jazz fan, I always enjoy the unlimited power, dynamics and, especially with jazz, the raw energy of the brass section slicing through the air. That's the sound we like to recreate, including the crucially flawless timing which separates the best performers from the rest."

Why do real instruments sound so good in our homes? When recorded and played back, all manner of artefacts like boomy bass suddenly intrude. This does not happen over headphones. There must be a reason why even the best loudspeaker in the market continue to excite room modes and boundary-induced resonance.

Siltech made it its challenge to tackle these common problems. By using the most advanced computers and state-of-the-art engineering normally reserved for the aerospace industry, we were able to set new standards.

Prior to our latest research & development, it seemed obvious to most that big speakers will create more room-induced problems than small speakers. A common belief was that higher bass output aggravated low-frequency resonances to significantly degrade the overall sound.





Acoustic room sensitivity

How does such well-damped infrasonic bass performance create a room-invariant loudspeaker? Without divulging proprietary details, the same way that live instruments with equivalent low-frequency energy don't cause the problems that are endemic to loudspeakers which attempt to play back such recorded instruments at the same levels.

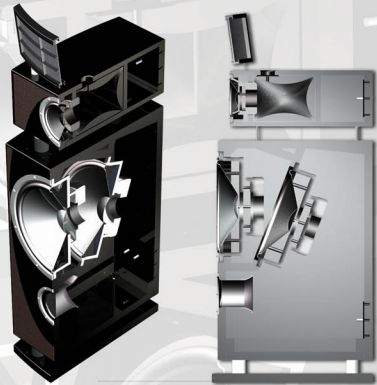
Siltech started by first analyzing the most common room variations like reverberation time, natural decay and related products which all depend on the size and damping of the room. We built these highly advanced 3D models to break down how a loudspeaker will interact with various acoustic conditions imposed by the room. Naturally, in the process we confirmed what is already well known: controlled dispersion greatly minimizes reflection effects from the walls and ceilings in the midrange and treble bands. However, we believe to be the first who actually applied predictive engineering to truly optimize a controlled directivity loudspeaker for both cabinet shape and driver diaphragms.

Below 300Hz one would predict that the more bass a loudspeaker reproduces, the more these problems would be compounded. To overcome this, the woofer should remain invariant to room impedance, i.e. the load the driver encounters by the total air volume of the enclosed space it faces should not alter its behaviour. This requires a Quality-Factor as low as possible, plus minimal driver resonance to ensure superior bass extension.

Invariably, the large excursion woofers commonly employed suffer SPL-related phase distortion to muddy and smear the bass. Lowering resonance equates to raising the cone weight which increases system Q- a vicious circle of sort. To solve these mutually contradictory requirements, we relied on developing reliable computer simulations. The end result is a bass system that employs two different cascaded woofers with optimized front and back loading to achieve a spectacularly low system Q of 0.38/0.5 (closed/open port) with useful output below 8Hz. Low Q means shallow roll-off, in our case - 8dB @ 10Hz and this still with good power handling. As a result, woofer speed generates a phenomenal impulse response within 2.5ms for extremely fast stop and go, that avoids ringing and smearing dynamic peaks.

In short, our bass solution combines extreme self-damping with high power handling and unusual bass extension due to a very slow roll-off. (Analogue to a car engine with very high torque)

Pantheon cross-section



Building a Pantheon

Fashioning a Siltech Pantheon Loudspeaker involves a unique process that demands pioneering technology and exceptional hand-crafted artisanship. We employ advanced technologies to control potential enclosure resonance. Eliminating cabinet reactivity while relying on today's most advanced drivers creates a wonderfully realistic sound source that is second to none in the industry.

As just one of the many innovations Siltech developed for this project, you will find dome-shaped diffuser panels inside the Pantheon enclosure. Tested in a 3-dimensional control environment, these panels quickly proved to be the most effective address of neutralizing mechanical resonance. As demonstrated by subjective listening evaluations, controlling resonance with a non-harmonic structure proved highly efficacious.

Enclosure

For our enclosures, the Siltech patent-pending, Comsol optimized angled and dome-shaped multi-layer panels ensure flat acoustical impedance to greatly improve driver performance. The twin cabinet architecture guarantees perfect mechanical isolation and the constrained-layer composite panels add high damping and stiffness to transform into Comsol-engineered energy-neutral cabinets (Siltech™ patent-pending ENC system).

Transducers:

- 2 x 16-inch precision low-Q woofers
- 1 x 7-inch ultra-fast, Comsol-optimized low midrange with Siltech's patented decoupled motor
- 1 x 19 x 5-inch ultra-fast electrostatic high-frequency driver with long-life self-powered power supply

Crossover

The substantial crossover is optimized for a minimum parts count despite its 4th-order architecture. All coils are patented supersonic air-core inductors weighing up to 5,5 pounds each. Special large audio caps and hard wiring with Siltech G7 silver-gold wire complete this distortion-free cross-over network.

Binding posts

Three pairs of heavy-duty Rhodium-plated WBT terminals.

Wiring

All internal parts are hard wired with Siltech G7 silver-gold alloy or Siltech mono crystal flat ribbon wire.

External bridging cable

A special version of Siltech Emperor connects bass and head-unit.

Final Design



Colours Schemes

For our design, we were inspired by natural forms and refined ingredients. The careful selection of natural materials combined with light metal elements transform our substantial 300-pound loudspeaker into an object of timeless elegance. Key designers of "Traditional Arts Limited", a London based company of the Prince of Wales Charity Foundation, co-developed the cosmetics of this unique loudspeaker series to add a pristine character to its laboratory-driven functionality. High-gloss paintwork contrasts with the recessed leather of the front of the panels to emphasize the curved sculpting.

For the Pantheon we created three exclusive colour schemes:

- Option 1: a classy combination of lustrously deep black piano lacquer with aerospace-grade aluminum parts and the subtle use of fine leather.
- Option 2: a combination of lustrously deep black piano lacquer with exclusive leather accents and real gold plated cast-metal parts.
- Option 3: a high-tech combination of warm metallic carbon grey paint with matching metal parts.

Every Siltech Pantheon is hand-built and finished to exacting standards by the finest technicians and craftspeople. It is this extreme approach that distinguishes the Siltech Pantheon even among statement efforts.

In our state-of-the-art clean room, highly trained craftspeople spray the enclosure panels with successive layers of Akzo-Nobel™ primer followed by two layers of high-gloss base coat and five layers of high-gloss transparent coat. Between each layer application, the structure dries at room temperature for 5-7 days.

"We check each newly painted dry surface by spraying on a thin contrasting test layer. This shows off the smallest of imperfections during polishing", explains Wim, Siltech's master cabinet maker.

The finest quality premium bull leather comes from Hulshof Royal Dutch Tanneries.

Technical Specifications:

- Power handling: 800W RMS
 - Efficiency: 90dB @ 2,83V
 - Bi-amping and Bi-wiring possible
 - Recommended amplifier power: 60W-1000W into 4 Ω for a tube output amplifier
 - Recommended amplifier power: 80W-1000W into 4 Ω for a transistor amplifier
 - Recommended amplifiers for bi-amping: 80W Bass into 4 ohms 30W Mid-High unit (or more)
 - For a full dynamic sound in a 60m² room we recommend 200W or more in 4 ohm
 - Suitable amplifier types: Analogue (tube or transistor), Digital (source impedance not critical)
 - Usable bandwidth: 8Hz to 39,000Hz
 - Frequency response: 18Hz-38,000Hz-3dB (with bass port contribution)
 - Bass Q-factor: 0,38-0,5
 - Midrange Q-factor: <0,5
 - Distortion: 0,1% THD nominal, <0,5%@90dB/1m, 23Hz-33000Hz
 - Maximal sound pressure: 120dB
 - Linear phase crossover, with all drivers wired in correct absolute phase.
 - System acoustical slopes 24dB/octave LR
 - Absolute phase positive Electrical phase within -36 deg+36 deg
 - Crossover transitions: 200Hz and 1200Hz
 - Impedance: 5 Ohms (min. 4 Ohms)
 - Approx. Shipping weight per complete system: 380kg/838lbs
 - Bass cabinet 110kg/ 242lbs net; head unit 35kg / 78lbs net
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- Height: 159cm 63inch (Bass plate + bass cabinet + head section)
 - Depth: 55cm 22inch (Bass plate 57cm / 22.5 inch)
 - Width: 49cm 19inch

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All about music