

BANG & OLUFSEN 3D SOUND SYSTEM
FOR THE NEW AUDI A4

Pullach, June 2015

BANG & OLUFSEN

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A UNIQUE SOUND SYSTEM

The **Bang & Olufsen 3D Sound System** provides unlimited listening pleasure, complementing the dynamic and sportive character of the vehicle

› **For the Ears**

The best possible in-car premium sound experience surpassing the system in the previous Audi A4 on all parameters and offers impressive 3D sound

› **For the Eyes**

New visual design, crafted aluminum and grille design working together with the car's interior design and maintaining a clear Bang & Olufsen identity that follows onto all new Bang & Olufsen projects for Audi.
LED light in the front door grilles is underlining the geometry of the crafted aluminum details.

› **For the Heart**

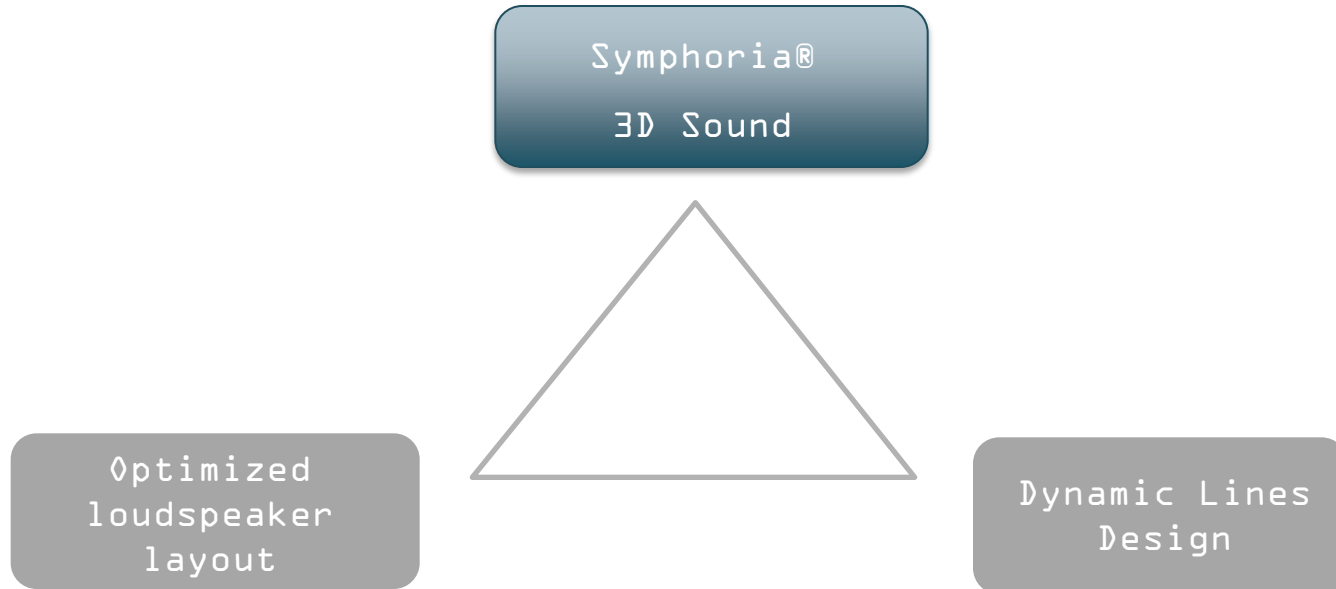
The attractive Bang & Olufsen brand is clearly visible inside of the car.

› **Symphonia® 3D sound**

A result of a strong cooperation between Audi, Fraunhofer IIS and Bang & Olufsen. The best from 3 worlds.

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PRODUCT HIGHLIGHTS



SYMPHORIA® 3D SOUND COOPERATION

The **Bang & Olufsen 3D Sound System** is the result of a **strong cooperation** between Audi, Fraunhofer IIS and Bang & Olufsen - the best from three worlds.

The result of the cooperation on 3D audio was first shown in an Audi Q7 Concept Car equipped with a Bang & Olufsen 3D Advanced Sound System, which was unveiled at the Consumer Electronics Show in Las Vegas 2013.

This listening experience is based on a sophisticated approach combining **the expertise** of the Audi and Bang & Olufsen acoustic engineers with the **3D sound know-how** of Fraunhofer IIS, the main inventor of the mp3 music compression technology, and a renowned source for advanced audio technologies.



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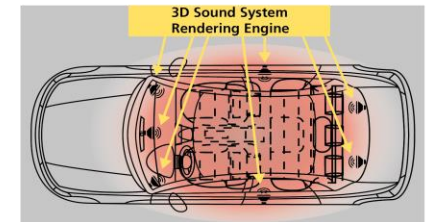
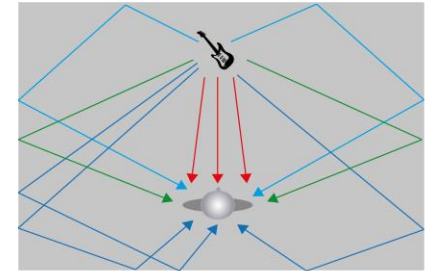
SYMPHORIA® 3D SOUND TECHNOLOGY

The new **Bang & Olufsen 3D Sound System** takes any music of the user to the **third dimension** by a careful analysis, built on psycho-acoustic knowledge. This analysis enables the intelligent distribution of the input signal to the loudspeakers in the car, creating a **highly realistic three-dimensional sound impression**.

The **3D sound** in the Audi A4 is produced by the digital Upmix-algorithm Symphoria®, while using existing sources such as stereo or 5.1 Surround Sound. The passenger gets the impression that the car's cabin is **acoustically enlarged**.

The revolutionary Symphoria® 3D sound extends the classic surround sound **on a further dimension**: It goes also into acoustical heights. Additional speakers are integrated in the upper part of the A-pillar, which enables the play-back of multichannel musical pieces with height-information.

The listener experiences a natural and contemporary authentic **acoustic surround sound dimension** at every angle.

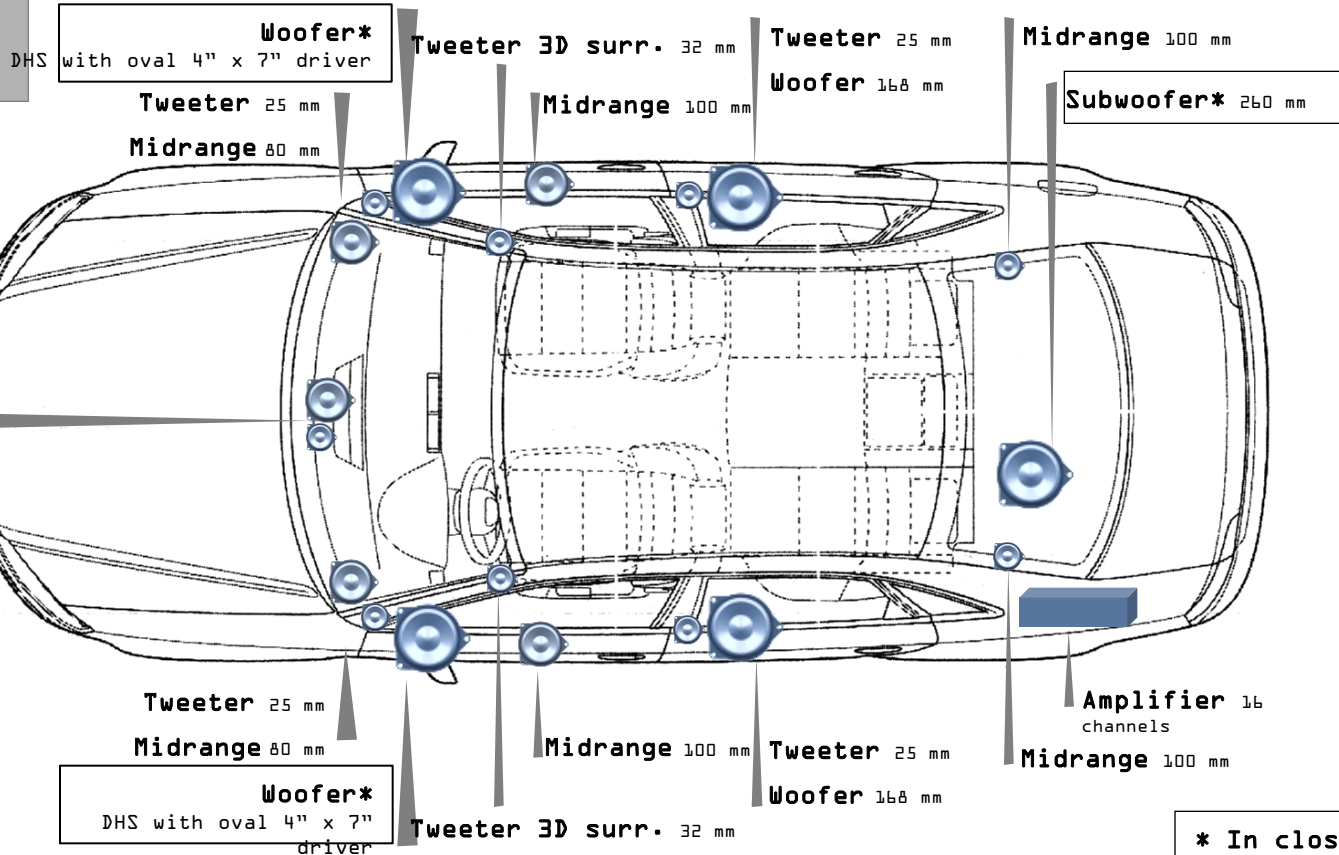


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POSITION OF SPEAKERS - A4 LIMO

TOTAL SYSTEM POWER:

- more than 750 watt
- 16 amplifier



POSITION OF SPEAKERS - A4 AVANT/ ALL-ROAD (2016)

TOTAL SYSTEM POWER:
 - more than 750 watt
 - 16 amplifier

Woofer*
 DHS with oval 4" x 7" driver

Woofer 3D surr. 32 mm

Tweeter 25 mm

Surround 80mm/ D-Pillar

Tweeter 25 mm

Midrange 100 mm

Woofer 168 mm

Subwoofer* (dual v/coil)

Midrange surround 80 mm

Center Midrange* 100 mm

Tweeter 25 mm

Tweeter 25 mm

Midrange surround 80 mm

Woofer*
 DHS with oval 4" x 7" driver

Midrange 100 mm

Tweeter 25 mm

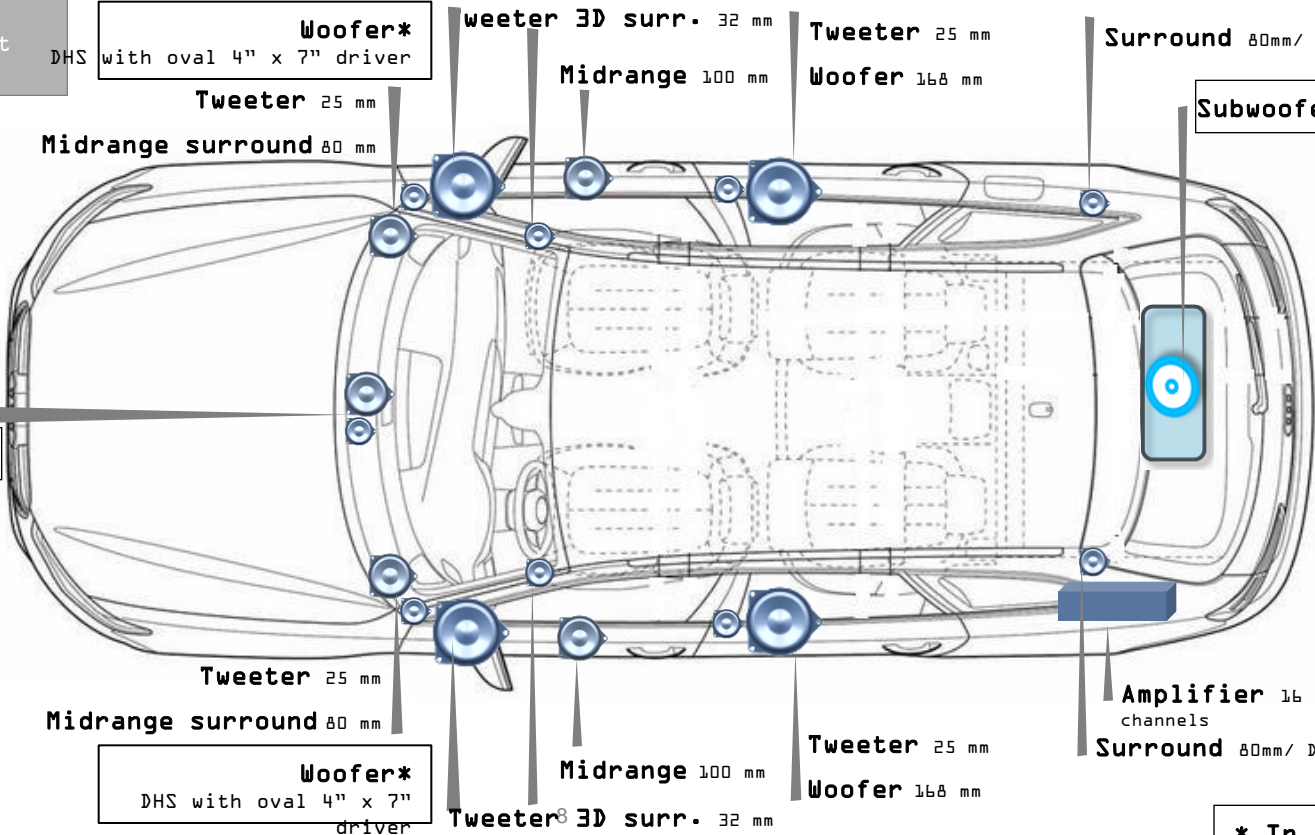
Amplifier 16 channels

Surround 80mm/ D-Pillar

Woofer 168 mm

Woofer 3D surr. 32 mm

*** In closed cabinet**



POSITION OF SPEAKERS - A4 AVANT

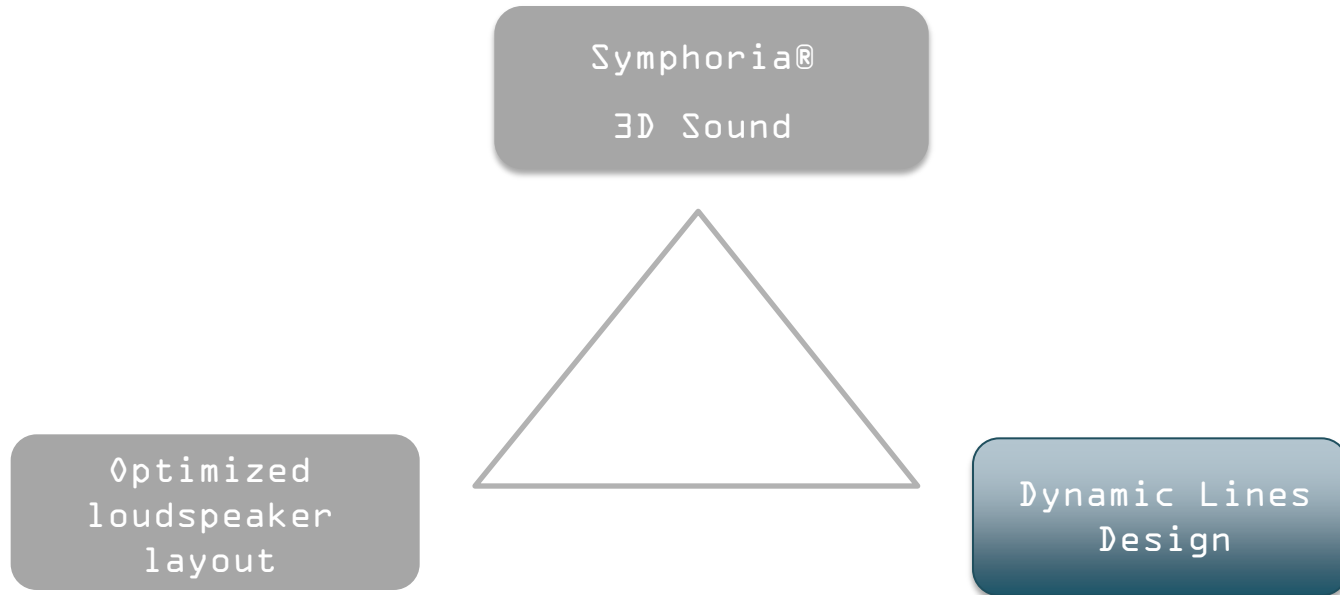


The special difference to the Audi A4 limosine is that the Surround speaker are placed in the D-Pillar instaed in the rear deck.

the back are

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PRODUCT HIGHLIGHTS



DYNAMIC LINES DESIGN

- › The **Bang & Olufsen 3D Sound System** comes in the new **'Dynamic Lines'** design. The main goal for this design was to enhance the grill transparency in order to reach even **higher sound quality** levels than the previous generation of Audi Bang & Olufsen sound systems.
- › The grills with a Bang & Olufsen Dynamic Lines design including **precision milled and anodized aluminum** detail in platinum color **and a light diffuser in the front door woofers**.
- › Parcel shelf grills with a Bang & Olufsen Dynamic Lines design including precision milled and anodized aluminum detail in **black color**.
- › Instrument panel without Dynamic Lines design including precision milled and anodized aluminum detail in black color.
- › **All aluminum grill details carry laser etch marking with BANG & OLUFSEN logo.**



"The door grills feature unique woofer grills with 'Dynamic Lines' perforations and finely detailed aluminium 'swords'. Thin hairline marker lights underline the aluminium and emphasize the main design theme of the door.

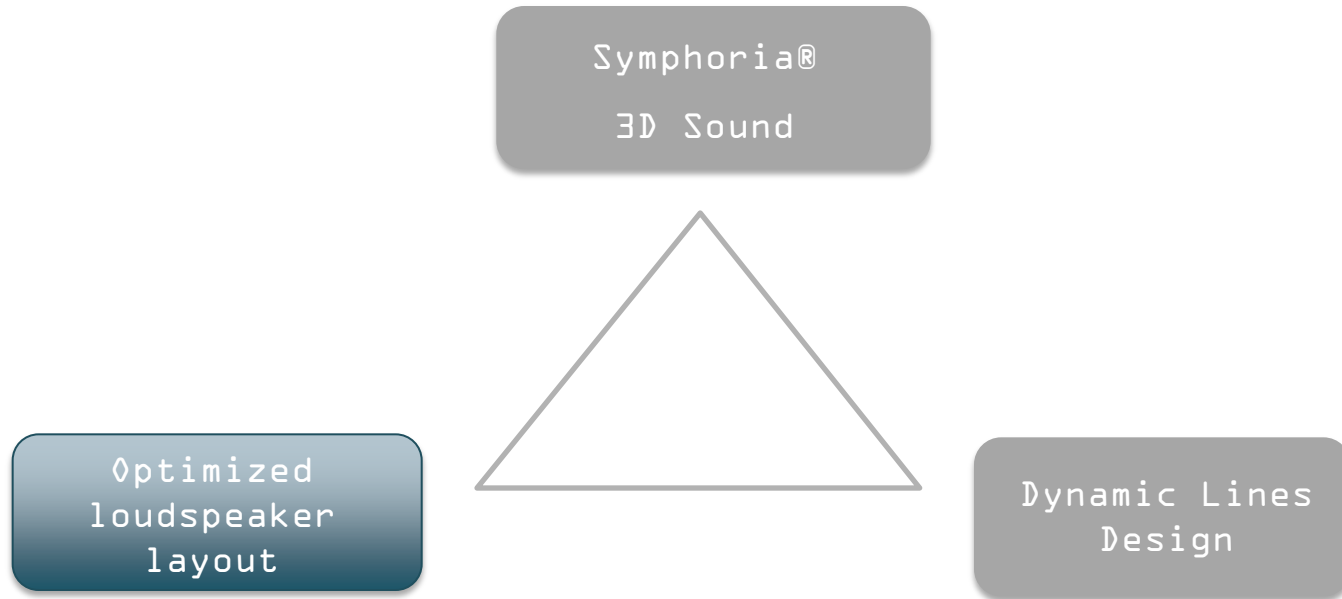
The overall impression is a very exclusive and coherent visual appearance."
Jens Christian Møller, Designer
BANG & OLUFSEN

SPEAKER GRILL WITH DYNAMIC LINES DESIGN



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PRODUCT HIGHLIGHTS



OPTIMIZED LOUDSPEAKER LAYOUT

- › The front woofers makes use of **DHS - Double Half Shelf - principle**.
The Double Half Shell (DHS) woofer speaker concept **reduces door panel vibrations**, as piston action from the diaphragm is (played along the cars axis) compared to the traditional (front/back movement). The shell acts as the enclosure wall to separate front and rear sound radiation - also this purposely designed shape deflects the sound emitted from the woofer into the cabin area (traditional front plan).
- › The system is equipped with **VNC (Vehicle Noise Compensation)**, which, through signals from the on-board microphone, constantly measures and **compensates background noise**.

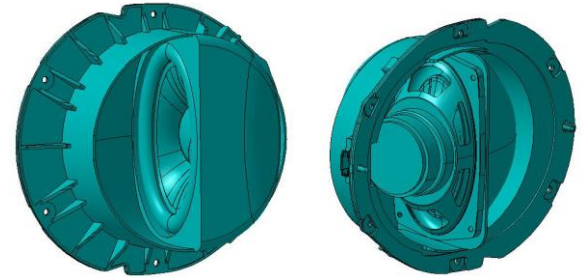


Figure 1 → DHS principle used for front woofers



Figure 2 → Rear woofer grill

TECHNICAL SPECIFICATIONS

› **Speakers**

- 19 speakers
- The front woofers makes use of DHS (Double Half Shelf) principle

› **Amplifier**

- 16 amplifier channels with a total output power of 755 Watt
- Implemented with Class D technology
- Digital Signal Processing (DSP)
- MOST150 (Media Oriented Systems Transport)
- Microphone inputs

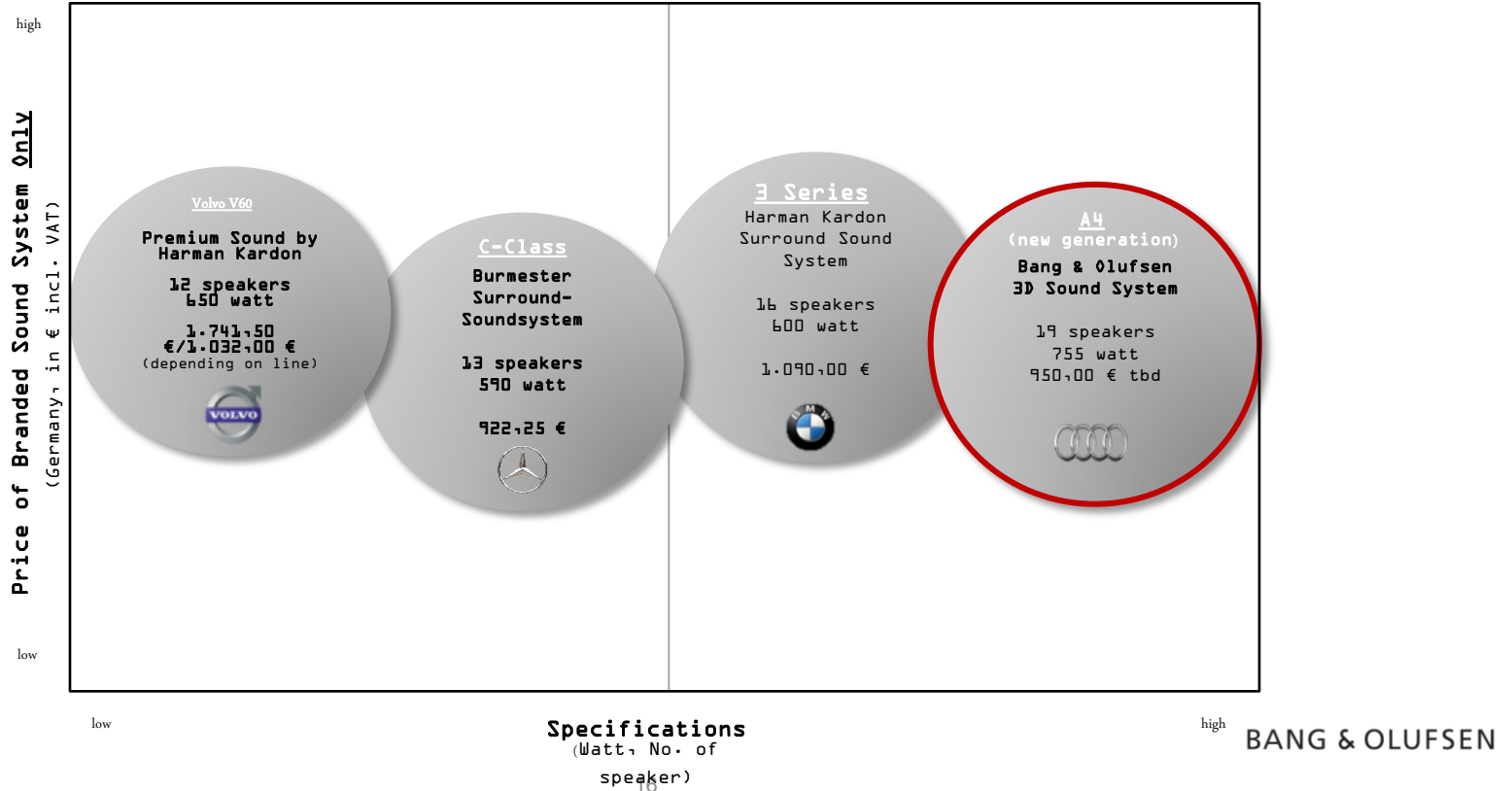
› **DSP features**

- Scalable Digital Signal Processing power (DSP)
- Symphoria® 3D algorithm
- Vehicle Noise Compensation (VNC)
- Digital Transmission Content Protection (DTCP)
- 5.1 multichannel support





› **Sound settings**

- FRONT / REAR / ALL



COMPETITORS



COMPETITORS

<p>Bang & Olufsen 3D Sound System</p> 	<p>PREMIUM SOUND by Harman Kardon</p> 	<p>PREMIUMLOGIC 7® SURROUND-SOUND by Harman Kardon</p> 	<p>Burmester® Surround- Soundsystem</p> 
Audi A4	Volvo V60	BMW 3 Series	Mercedes C-Class
19 speaker	12 speaker	16 speaker	13 speaker
755 Watt	650 Watt	600 Watt	590 Watt
<ul style="list-style-type: none"> > 16-channel DSP amplifier > Class D amplifier > VNC - Vehicle Noise Compensation (Road EQ) > Digital Transmission Content Protection (DTC-P) > Fraunhofer Symphoria® 3D algorithm > 5.1 multichannel support > Dynamic lines design for grills 	<ul style="list-style-type: none"> > 5-channel digital amplifier > Class-D technology > Dirac Live® technology 	<ul style="list-style-type: none"> > 5-channel digital amplifier > Class-D technology > Dirac Live® technology 	<ul style="list-style-type: none"> > 9-channel digital amplifier > Class-D technology
950€ tbc	1.032,00/ 1.741,50 €	1.090,00 €	922,25 €

A4 SYSTEMS COMPARISON: NEW VS. PREDECESSORS

<p>Bang & Olufsen Sound System</p> 	<p>NEW Bang & Olufsen 3D Sound System</p> 
Audi A4	Audi A4 2015
14 speakers	19 speakers
More than 500 Watt	More than 750 Watt
<ul style="list-style-type: none"> > 10-channel DSP amplifier > 5.1 multichannel support (only available with the MMI Navigation plus) > VNC - Vehicle Noise Compensation > Crafted aluminium loudspeaker rings > Sound settings: FRONT / REAR / ALL 	<ul style="list-style-type: none"> > 16-channel DSP amplifier > Class D amplifier > 5.1 multichannel support > VNC - Vehicle Noise Compensation (Road EQ) > Dynamic lines design for grills > Fraunhofer Symphoria® 3D algorithm > Sound settings: FRONT / REAR / ALL
950,00€	950,00€ tbc

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