



MERIDIAN

Jaguar XF

Meridian in-car audio



The Meridian Audio Systems for the Jaguar XF

For over 35 years, the Meridian name has been internationally-known for authentic British audio-visual systems, designed and manufactured with the same attention to detail as any artisan crafting a musical instrument.

Meridian engineers have drawn upon years of research and experience in digital technology and redefined their proprietary technologies and innovations specifically for in-car audio. Their latest collaboration with Jaguar has enabled the development of a choice of two audio systems for the Jaguar XF, with speakers that are optimally positioned throughout the cabin to deliver an enriching and realistic musical experience.

Both systems employ the latest Digital Signal Processing technologies (DSP) to deliver exceptional, distortion-free sound, tailored to cabin acoustics using Meridian Cabin Correction. Digital Dither Shaping is also utilised by the systems, enabling the finest natural details of the music to become clear. Resolution and intelligibility is maximised for all compatible media sources such as the built-in DAB radio.

The inclusion of Dynamic Volume Control aids performance by monitoring extraneous noise levels within the cabin and smoothly and unobtrusively maintaining a constant volume in order for it to be perfectly heard whatever the circumstances.

The 380 watt Meridian Sound System offers effortless, authentic stereo sound from all compatible sources, whilst the 825 watt Meridian Surround Sound System additionally uses Trifield technology to deliver an enveloping, concert-like experience for all passengers.

System Sources

- AM, FM, DAB, DAB+ & DMB radio
- Analogue & digital TV
- HD & Sirius Satellite Radio in North America
- iPod, USB, Bluetooth support – AAC, MP3 and WMA connection via USB
- USB audio & video playback
- 3.5mm analogue auxiliary input
- CD & DVD playback
- Bluetooth interface & audio streaming
- Virtual CD changer stores up to 10 CDs on hard drive
- Hard disk-based navigation system
- Speech recognition

System Highlights

Choice of two Meridian audio systems, designed specifically for the Jaguar XF

12-channel, 11-speaker stereo Meridian Sound System option

15-channel, 17-speaker Meridian Surround Sound System option

High output, distortion-free sound with full frequency range

Deep bass extension and clear, clean highs

Stable, full stereo imaging from any position in the vehicle

Maintains maximum digital audio detail from all sources

Automatic volume compensation for changes in ambient noise levels

Smooth, full frequency range sound, tuned to cabin acoustics

Meridian Audio Limited

www.meridian-audio.com

Meridian Sound System



- 12-channel stereophonic system
- 11 loudspeaker drivers strategically positioned throughout the vehicle
- 380W, 0.2% THD amplification

● Tweeter 25mm
● Midrange 100mm

● Bass 168mm
● Subwoofer 250mm

Meridian Surround Sound System



- 15 channels of stereo and surround
- 17 loudspeaker drivers strategically positioned around the vehicle interior
- 825W, 0.2% THD amplification

● Tweeter 25mm
● Midrange 100mm
● Coaxial Midrange 100mm/Tweeter 25mm

● Bass 168mm
● Subwoofer 250mm



Technologies

Meridian DSP Technology

Often, the approach to creating detailed, realistic audio performances tailored to the cabin environment is to develop relatively high-powered amplifiers to drive a passive crossover, dividing high, low and midrange frequencies to feed the appropriate speakers. This method wastes a great deal of energy as heat, and the audio quality is compromised: for example, electronic components used in passive crossovers have to be built for power handling rather than for quality. Meridian has developed a very different solution, having pioneered Digital Signal Processing technology (DSP) in the consumer market. Power-efficient active DSP crossovers are individually tailored to each loudspeaker, for maximum efficiency, creating crossover characteristics impossible to produce in the traditional way.

Benefits of Meridian DSP technology include the delivery of clean and clear distortion-free sound at all levels, comparable to the sound of the original performance, and significant performance enhancement with smoother frequency response, faster transients and deeper bass.

Trifield

A critical factor in how 'real' we perceive a sound to be is spatial location – where we perceive the sound to be coming from. Often, audio systems optimise the sound for one listening position, usually the driver in the case of in-car audio. Listeners in other seating positions find the sound

unbalanced. In addition, the stereo image is often pulled into the loudspeakers. The common approach is to derive a centre channel by mixing left and right channels, often sending surround signals to rear door loudspeakers. This tends to use movie surround processors, which are not designed for music reproduction.

Meridian's exclusive Trifield algorithm, specifically created for reproducing music, creates the centre channel seamlessly between front left and right channels, producing an enveloping, consistent musical experience for all vehicle occupants, wherever they are seated. The sound comes from around the listener, instead of being pulled into the loudspeakers.

Meridian Digital Dither Shaping

Modern digital audio systems take in many different sources that must be digitally converted into a common format to maintain the best sound possible. Many manufacturers do not use dither. Conversions and subsequent processing without dither can result in the loss of important musical detail and add distortion.

With Meridian Digital Dither Shaping, digital signal changes are made smooth and seamless throughout the system, maintaining maximum detail and ensuring maximum quality from all sources. The finest natural details of the music become clear, and resolution and intelligibility are maximised, which allows voices (spoken word) to be easily heard.

Meridian Cabin Correction

The common approach to overcoming problems with difficult acoustic spaces (such as vehicle cabins, which suffer resonances, particular at low frequencies) is simply to use more power. However, this makes the listening experience even worse, creating a "boomy" effect.

Meridian DSP provides a superior solution. Meridian Cabin Correction tunes the audio system precisely to the acoustics of the vehicle cabin, by measuring the "impulse response" (time domain) to identify the problematic resonances. The resulting DSP filters minimise the resonances for all seating positions. The technology delivers smoother, more natural sound and improved imaging and ensures clarity and definition for every instrument and vocal.

Dynamic Volume Control

The interior noise level in a vehicle can vary dramatically. Different road surfaces and speeds, the weather, and the opening of windows or a sun-roof, for example, can dramatically affect the ambient noise level and thus impact listening enjoyment. It's all too easy for the music to be drowned out or suddenly to become too loud.

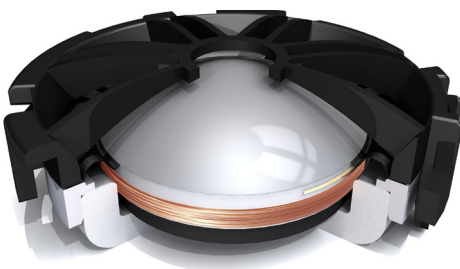
The Dynamic Volume Control feature constantly monitors ambient levels within the cabin. When the ambient sound level changes, the system automatically compensates by varying the system volume. This ensures that sound quality is always consistent, whatever the environment.

Loudspeakers

Drivers were specifically designed and developed by Meridian engineers in collaboration with Jaguar's suppliers. Materials were selected for low mass but also for their stability, with extensive use of advanced mineral-filled composites. The overall driver and enclosure parameters were designed to minimise the requirement for compensation and filtering in the electronics, for a smooth, natural performance, with full, tight bass and clear high frequency (HF) response.

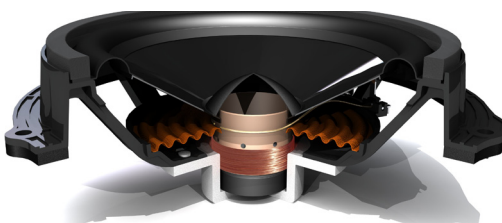
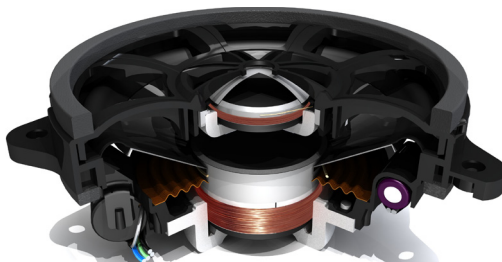
Tweeter

- Ultra-light aluminium alloy dome for maximum efficiency and extended HF response
- Low moving-mass design for superb transient handling and negligible distortion
- Powerful neodymium magnet assembly for maximum efficiency and linearity, and minimum weight.

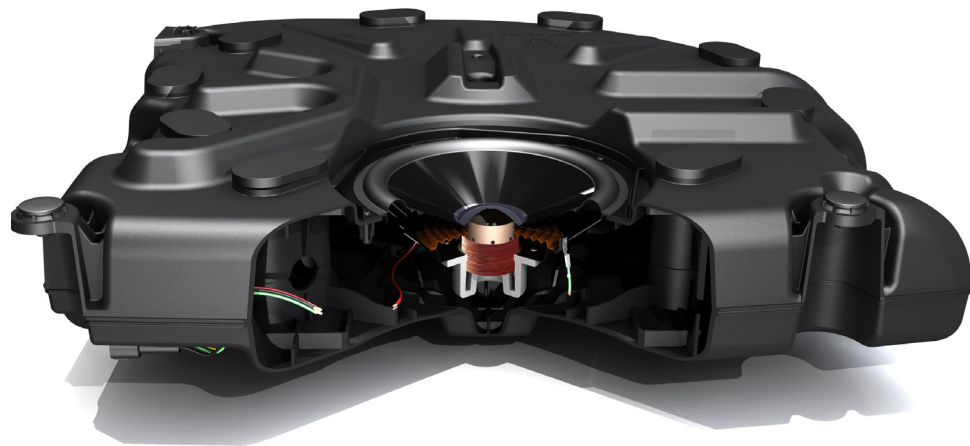


Bass & midrange

- Mica-filled polypropylene cones for stiffness and damping
- Low moving-mass design for superb transient handling and negligible distortion
- Powerful neodymium magnet assemblies for maximum efficiency and linearity, and minimum weight
- Tight, dynamic and precise sound, with deep bass and excellent midrange reproduction



Above right & below: the four types of loudspeaker driver used in the Jaguar XF (not to scale). Top to bottom: 25mm HF, 100/25mm coaxial, 165mm LF, cutaway of the 250mm subwoofer assembly.



Jaguar XF Outline Specifications

25mm Tweeter

Nominal Impedance:	4Ω
Power Handling RMS:	25W
Power Handling Max:	50W
Sensitivity (1W/1m):	88 dB ± 2dB
Resonance Frequency:	1.4 kHz
Operating Freq Bandwidth:	3 kHz – 20 kHz
THD @ 10W:	< 1%

100mm Midrange

Nominal Impedance:	2Ω
Power Handling RMS:	70W
Power Handling Max:	100W
Sensitivity (1W/1m):	87 dB ± 2dB
Resonance Frequency:	115 Hz
Operating Freq Bandwidth:	200 Hz – 5 kHz
THD @ 10W:	< 2%
Linear Excursion:	± 2mm

165mm Bass

Nominal Impedance:	2Ω
Power Handling RMS:	70W
Power Handling Max:	100W
Sensitivity (1W/1m):	89 dB ± 2dB
Resonance Frequency:	60 Hz
Operating Freq Bandwidth:	60 Hz – 3 kHz
THD @ 10W:	< 2%
Linear Excursion:	± 3mm

250mm Subwoofer

Nominal Impedance:	2 x 2Ω
Power Handling RMS:	2 x 70W
Power Handling Max:	2 x 100W
Sensitivity (1W/1m):	88 dB ± 2dB
Resonance Frequency:	50 Hz
Operating Freq Bandwidth:	30 Hz – 100 Hz
THD @ 10W:	< 2%
Linear Excursion:	± 10mm
Enclosure Volume:	32 litres

Amplification

Type:	Class D with feedback.
Channels:	12 or 15.
Power Rating (0.2% THD):	380W or 825W