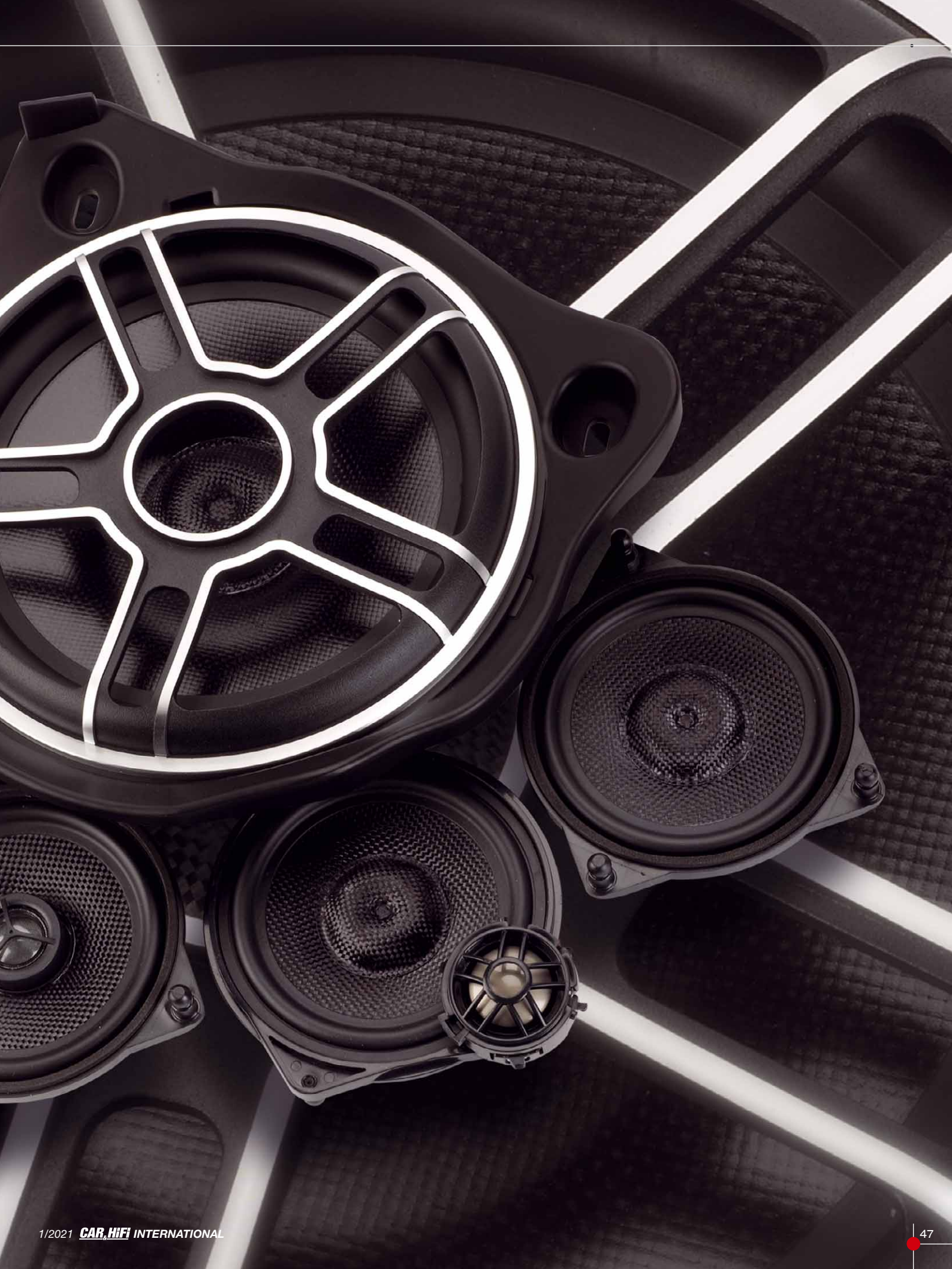


Musway CSM42X + CSM4.2C
– new Mercedes speakers

Sound upgrade in the Benz

- ▶ From Musway comes an entirely new speaker series tailored for use in Mercedes vehicles. We present the complete range and test the door speakers.





The coax is designed so that the tweeter barely protrudes from the basket, so it fits under the original grille



we find a 10-centimeter two-way system in the front doors while a 10-centimeter coaxial speaker is installed in the rear doors. Both can be recognized by the characteristic three ball heads for mounting, which point to the diaphragm side. The center is built similarly; only its ball heads protrude from the basket toward the magnet side. As with some newer center speakers, the center also includes the eCall emergency call system, which must operate independently of the audio entertainment via its voice

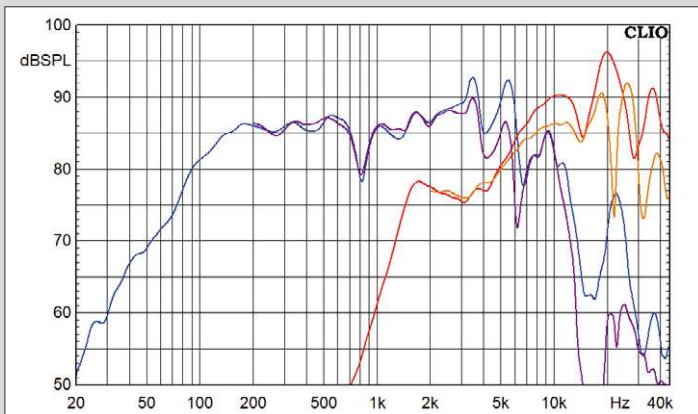
Who is Audio Design?

Founded 1984 in Kronau (Germany) as a speaker manufacturer, Audio Design GmbH has turned into an international distributor and developer of any kind of car audio aftermarket products. Audio Design is the owner of the HiFonics and Crunch brands in Germany, Austria and Switzerland as well as the ESX and Renegade brands worldwide. Distribution includes famous brands like Rockford Fosgate, Kicker, Autotek and MB Quart. The newest brand in Audio Design's portfolio is Musway, established 2018 and specialized in plug'n'play sound solutions and DSP products.

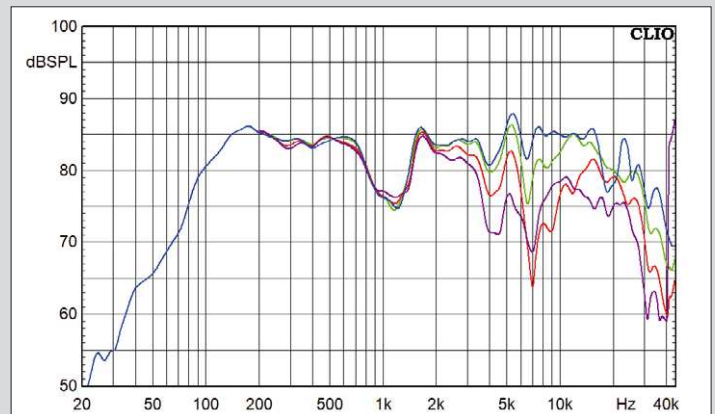
Having had retrofit speakers for the BMW kit for years, the industry has now also discovered Mercedes. The C- and E-Class and the GLC are equipped ex-works with standardized installation openings

for loudspeakers so that the development of custom loudspeakers is worthwhile here. And just as with BMW, a few special features make it challenging to use the standard DIN speakers. In the C- and E-Class,

CAR&HIFI Laboratory



The midrange and treble of the CSM4.2C are quite unsteady. The narrowband impact at 800 Hz is completely harmless



Overall, the coax CSM42X runs very nicely balanced. Here, the broadband dip between 800 and 1500 Hz disturbs the positive picture, but it is not unpleasant compared to an exaggeration

Here at the right footwell woofer, the asymmetric mounts are visible. The speaker is not even centered in the mounting hole



coil. However, the most prominent feature in Mercedes is the woofers/subwoofers, which are housed in the driver and front passenger footwells. The speakers sit in the bulkhead, so they are located between the engine compartment and the footwell. This works splendidly but is accompanied by very special mounts for the speaker baskets, which are different on the right and left to worsen matters.

Let's move on to our candidates, the CSM series from Musway. Consequently, there is a compo CSM4.2C, a coax CSM42X, right and left woofer CSM8WR (L), and a tweeter replacement CSM1T. All chassis have a very high-quality impression in common. There are exclusively precious neodymium drives, which are very pleasingly chrome-plated. The plastic baskets fit in perfectly. The membranes made of black fiberglass

mesh, closed with characteristic dust caps, also look sophisticated. All diaphragms have a rather flat profile, which goes hand in hand with the not exactly lush space conditions of the original mountings. Thus, the door woofers afford only 30 millimeters of installation depth;

the center is even 3 millimeters less. There is also not much space to the front because the original grilles, which are still used, are pretty close to the diaphragms. This is especially true for the coax for the rear doors, which has a tweeter in the center of each cone. Here, Musway has cle-



The door speakers of compo and coax have powerful neodymium drives with only 30 mm installation depth. The center (right) is even flatter and has two connection sockets



The crossover is integrated into the feed line to the tweeter; the Mercedes connectors connect the midrange driver to the vehicle



verly ensured that the tweeter protrudes only minimally. Instead of mounting the tweeter on a cylinder that emerges from inside the voice coil, as is the case with conventional coaxials, the Musway tweeter sits in the coil former instead of the cylinder. To do this, the tweeter must be small in diameter, just enough to fit inside the coil former. For this purpose, Musway has equipped the woofers with extra-large coil diameters of 32 millimeters, which is quite stately for a 10-woofer.

On the other hand, the small tweeter uses a 16 mm voice coil fitted with a high-quality fabric dome - an unusual size below the typical 3/4" (19 mm) tweeters. The tweeter of the component system for the front does not have such space problems. A full-size 25-millimeter dome can be accommodated without problems in its 40-millimeter housing, which naturally fits into the original clips. Musway chose titanium as the material, which is somewhat „mitigated“ by the suspension in a rubber surround. As already mentioned, the

center speaker turns out even flatter than the 10-cm-woofer. A different drive unit was installed to achieve this, which requires extremely little

Specifications Musway CSM4.2C

| | |
|---|--------------------|
| Diameter woofer | 101 mm |
| Installation depth with ring | 30 mm |
| Magnet diameter | 66 mm |
| Tweeter diaphragm | 25 mm |
| Housing Tweeter | 40 mm |
| Slope Woofer/Tweeter | -/6 dB |
| Tweeter protection level adjustment tweeter | - |
| suitable for* | C-, E-Class, GLC |
| Other | - |
| Nominal impedance | 4 Ohm |
| DC resistance Rdc | 3,26 Ohm |
| Voice coil inductance Le | 0,16 mH |
| Voice coil diameter | 32 mm |
| Diaphragm area Sd | 54 cm ² |
| resonant frequency fs | 121 Hz |
| mechanical quality Qms | 4,67 |
| electrical quality Qes | 0,67 |
| total quality Qts | 0,58 |
| equivalent volume Vas | 1,3 l |
| Moving mass Mms | 5,4 g |
| Rms | 0,88 kg/s |
| Cms | 0,32 mm/N |
| B*I | 4,47 Tm |
| Sound pressure 2 V, 1 m | 86 dB |
| Power recommendation | 20 – 75 W |

Musway CSM4.2C

Price **250 Euro**
 Contact Audio Design, Germany
 Internet www.esxaudio.de

Rating

| | | |
|--------------------|------|-------|
| ► Sound | 55 % | ★★★★★ |
| Bass foundation | 11 % | ★★★★★ |
| Neutrality | 11 % | ★★★★★ |
| Transparency | 11 % | ★★★★★ |
| Spatiality | 11 % | ★★★★★ |
| Dynamics | 11 % | ★★★★★ |
| ► Lab | 30 % | ★★★★★ |
| Frequency response | 10 % | ★★★★★ |
| Maximum level | 10 % | ★★★★★ |
| Distortion | 10 % | ★★★★★ |
| ► Practice | 15 % | ★★★★★ |
| Installation | 5 % | ★★★★★ |
| Crossover | 5 % | ★★★★★ |
| Processing | 5 % | ★★★★★ |

Upper Class



CAR & HiFi

INTERNATIONAL

Germany 1/21

Price/performance: very good

„Well-made coax for Mercedes.“

space with an internal neodymium pellet. The diaphragm and dust cap are similar to the bass-midrange woofer, and an extra tweeter is unnecessary for the center channel. Following eCall requirements, the small driver has a dual voice coil with two taps, which are Mercedes system sockets like the original. This applies to all Musway Mercedes speakers without exception, so all speakers are 100 % plug&play. The woofers in the footwells are built asymmetrically and are different for the driver and passenger side (not even mirror symmetrical). Musway installs 8-inch round diaphragms, which are fired by neodymium drives, just like the small woofers. The baskets are made proportionally of sheet metal and plastic; the basic frame of sheet metal provides stability while two injection molded parts adapt to the complicated shaped vehicle mounts. The impedance is 2 ohms for an aftermarket power amplifier, as it can be assumed that the Musway systems are partially active. So for the front, four power amp channels are used, two for the 10-centimeter compo and two for the 8-inch footwell woofers.

Measurements and sound

At first glance, the Musway speakers show unsteady frequency responses in front of our measurement microphone. This can certainly happen and be intentional with vehicle-specific speakers because, in contrast to universal speakers, the developer can and must consider the conditions of the installation locations. The 10 cm bass-midrange driver of the CSM4.2C composite system is made to run without a crossover. After relatively harmless resonance peaks at 3.5 and 5.5 kHz, it shows a natural sound pressure drop. The tweeter

becomes relevant at about 3.5 kHz, playing with interruptions up to almost 40 kHz. The coax CSM42X shows that the transition from the mid-bass driver to the tweeter has been optimally achieved. However, the frequency response shows a hole around 1 kHz, which affects the tonality. In the listening check, the combo also hangs off the coax in the vocal range, although the coax doesn't sound unpleasant at all. Both also play crisply so that boredom never arises. The bass reproduction is exact, although without the woofer/subwoofer relatively thin so that its retrofitting is highly recommended. In the high frequencies, the combo provides fresh insight with fine details. The coax also masters this, just a bit more discreetly.

Conclusion

The Mercedes speakers from Musway offer very good value for money. The prices are not exorbitant, but the build quality is right across the board. They also do not disappoint in terms of sound, allowing for a substantial improvement of the car's sound.

Elmar Michels



Musway CSM4.2X

| | |
|----------|-----------------------|
| Price | 180 Euro |
| Contact | Audio Design, Germany |
| Internet | www.esxaudio.de |

Rating

| | | |
|--------------------|------|-------|
| ▶ Sound | 55 % | ★★★★★ |
| Bass foundation | 11 % | ★★★★★ |
| Neutrality | 11 % | ★★★★★ |
| Transparency | 11 % | ★★★★★ |
| Spatiality | 11 % | ★★★★★ |
| Dynamics | 11 % | ★★★★★ |
| ▶ Lab | 30 % | ★★★★★ |
| Frequency response | 10 % | ★★★★★ |
| Maximum level | 10 % | ★★★★★ |
| Distortion | 10 % | ★★★★★ |
| ▶ Practice | 15 % | ★★★★★ |
| Installation | 5 % | ★★★★★ |
| Crossover | 5 % | ★★★★★ |
| Processing | 5 % | ★★★★★ |

Specifications Musway CSM4.2X

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|------------------------------|--------------------|
| Diameter woofer | 101 mm |
| Installation depth with ring | 30 mm |
| Magnet diameter | 66 mm |
| Tweeter diaphragm | 16 mm |
| Housing Tweeter | - |
| Slope Woofer/Tweeter | -6 dB |
| Tweeter protection | - |
| level adjustment tweeter | - |
| suitable for* | C-, E-Class, GLC |
| Other | - |
| Nominal impedance | 4 Ohm |
| DC resistance Rdc | 3,34 Ohm |
| Voice coil inductance Le | 0,13 mH |
| Voice coil diameter | 32 mm |
| Diaphragm area Sd | 54 cm ² |
| resonant frequency fs | 129 Hz |
| mechanical quality Qms | 6,09 |
| electrical quality Qes | 0,96 |
| total quality Qts | 0,83 |
| equivalent volume Vas | 1,5 l |
| Moving mass Mms | 4,2 g |
| Rms | 0,56 kg/s |
| Cms | 0,37 mm/N |
| B*1 | 3,43 Tm |
| Sound pressure 2 V, 1 m | 84 dB |
| Power recommendation | 20 – 75 W |

Upper Class



CAR & HiFi

INTERNATIONAL

Germany 1/21

Price/performance: very good

„Solidly done and with crisp sound.“