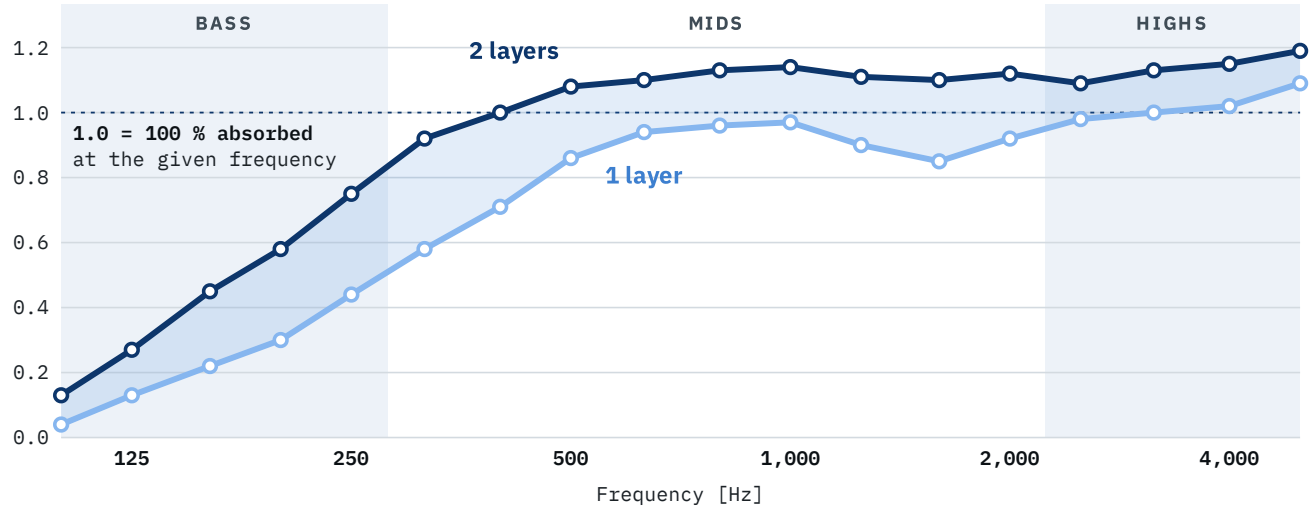
Weighted sound absorption coefficient α_w according to EN ISO 11654

CSB-BS and CSB-WD

Ceiling sound baffle: **single vs. double layer** · product codes 101038 and 11039

SINGLE LAYER · CSB-BS	DOUBLE LAYER · CSB-WD
$\alpha_w = 0.75$	$\alpha_w = 1.00$

Absorption by frequency



The second layer mainly absorbs low and mid frequencies (bass, deep voices, the hum of equipment). At 250 Hz the double-layer version absorbs 75 % of incoming sound compared with 44 % for a single layer; from 400 Hz upwards it absorbs practically everything.

What is α_w

A single number with which the European standard EN ISO 11654 sums up a material's sound absorption across the whole range of speech and music. It lets you compare materials with each other: the higher it is, the better the material reduces echo and reverberation in a room. The highest possible value is 1.00.

How to read the chart

The chart shows absorption separately for each frequency, from deep bass on the left to highs on the right. A value of 1 means that at that frequency the material absorbs all the sound that hits it. Values above 1 are a normal effect of laboratory measurement and read as 100 %.

How it is measured

The sample is hung in a reverberation room, a large room with hard walls where sound takes a long time to die away. How much the sample shortens the reverberation gives the absorption in the bands 100–5,000 Hz (chart). From the bands 250–4,000 Hz the standard then calculates the single number α_w.

Data source: laboratory measurement by Riverbank Acoustical Laboratories (USA, NVLAP accreditation, ISO/IEC 17025), reports RAL™-A12-119 (single layer) and RAL™-A19-502 (double layer). The α_w values were calculated by VocalBoothToGo-EU s.r.o. according to EN ISO 11654.