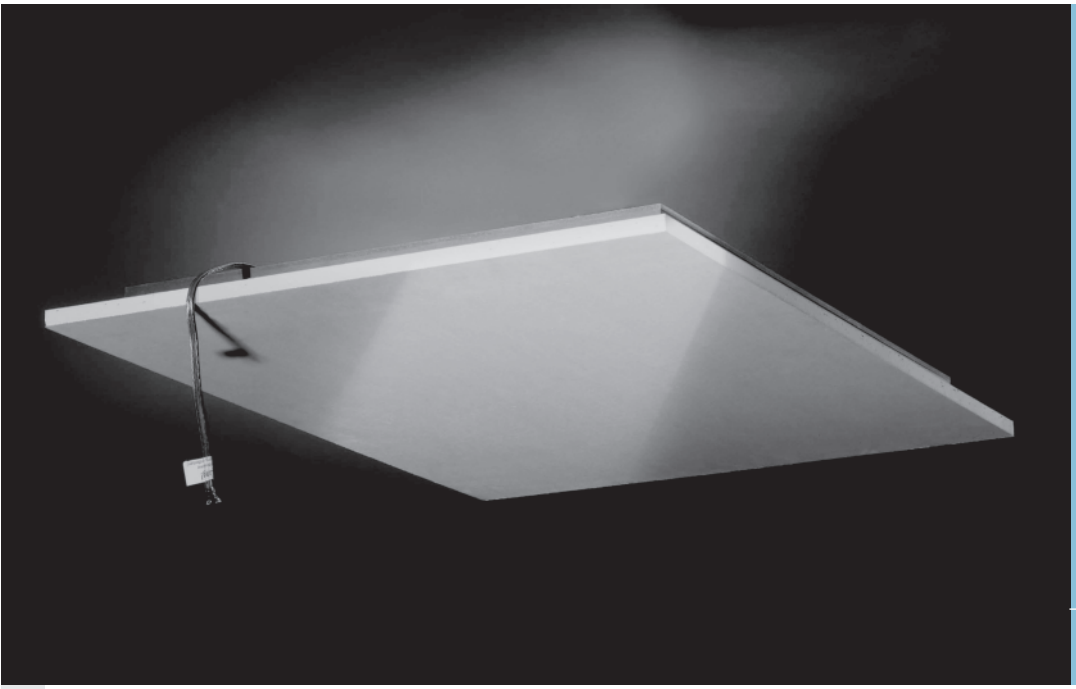


Technial Data Sheet D179 | 2006-06

D179 **Knauf Soundboard**

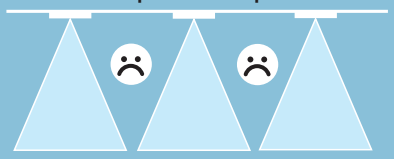
Product Information, Fields of Application, Technical Data, Design, Sound Insulation, Specifications, Instructions, Details

Product Information

Knauf Soundboard is a flat-panel loudspeaker for not visible installation in drywall systems.
It is made of a gypsum board as surface diaphragm. The diaphragm operates by initiating and exploiting multiple, organised bending resonances in the panel caused by bending wave transducers (exciters) that are fixed to the rear of the board.
Advantages compared to conventional piston loudspeakers:

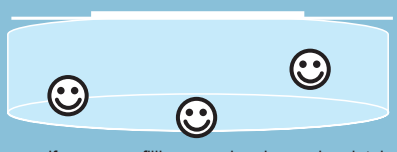
- not visible installation, continuous surface and therefore an unlimited freedom of interior design;
- no extra space needed within the room;
- broad irradiation (180° vertically x 180° horizontally) over the entire frequency range;
- low number of required loudspeakers;

Conventional piston loudspeakers



- limited intelligibility of voice in lateral direction caused by strong focussing and and non-uniform distribution of different frequencies

Knauf Soundboard



- uniform, room-filling sound and very clear intelligibility of voice due to broad irradiation for all frequencies

Fields of Application

Knauf Soundboard is suitable to be connected to conventional stereo units or standard amplifiers. No additional expensive equipment are necessary.
It can be installed in the following drywall systems, even after their installation:

Knauf Ceiling Systems

- Suspended Ceilings
- Free-spanning Ceilings
- Multi-level Ceilings

Knauf Wall Systems

- Metal Stud Partitions
- Furrings
- Wood Frame Partitions
- Structural Wood Frame Wall Panels

D179 Knauf Soundboard

Technical Data, Design, Sound Insulation, Specification

Technical Data

- Size: 625 x 500 mm or 600 x 500 mm;
- Diaphragm: 12.5 mm Knauf Board GKFI (Type DFH2);
- Weight: 3.8 kg;
- Frequency range 100 Hz to 18000 Hz [1];
- Irradiation angle: 180° vertical x 180° horizontal;
- Nominal power: 30 W;
- Peak power: 60 W;
- Impedance: 4 Ohm;
- Sensitivity: 83 dB (1 W / 1 m);
- Max. sound pressure (SPL): 97 dB (1 m);
- Fire protection on request
- Suitable for 100 V audio technology; [2]
- Required sections of connector cables

up to 10 m cable length:	2 x 1.5 mm²;
up to 25 m cable length:	2 x 2.5 mm²;
up to 50 m cable length:	2 x 4.0 mm²;

[1] Can be expanded for lower frequencies down to 100 Hz by using an additional active subwoofer, e.g. for playing music;

[2] Design should be done by electrical engineer; additional 100 V transformer required; recommended: 100 V transformer from ML Audio + Carbons GmbH Lautsprechertechnik, Ulmenstraße 15, 65428 Rüsselsheim, Germany, www.mlaudio.de (set up for Knauf Soundboard, options for connection: 6 VA/ 12 VA/ 20 VA/ 25 VA);

Sound insulation (wall installation)

By installing Knauf Soundboards in Knauf Metal Stud Partitions and Furrings the rated sound reduction index $R_{w,R}$ of the respective system will be reduced by 1 dB for single layer cladding or 2 dB for double layer cladding.

If sound is emitted by the Knauf Soundboard itself, the sound protection of the partition is reduced so significantly that additional proceedings are necessary if sound insulation is required, e.g. independent furrings.

Design

Area-wide background irradiation

Required number of Soundboards for ceiling installation:

- up to approx. 3 m room height: 1 Soundboard per 30 m² floor area
- approx. 3 to approx. 5 m room height: 1 Soundboard per 50 m² floor area

At the same time the distance between the loudspeakers or between loudspeaker and flanking walls should be not more than 6 m to ensure uniform irradiation (important for elongated room layouts).

Higher Requirements

For higher requirements beyond background irradiation, designing by an electrical engineer is recommended. For simulations with programs EASE (3.0 / 4.0) and Ulysses reference data, downloads are available at www.knauf.de\soundboard\.

For reproducing lower frequencies as in music, the use of an active subwoofer with separately adjustable volume and adjustable crossover frequency is recommended.

For playing stereo sound at least 2 Soundboards are necessary.

Emergency warning systems

If Soundboards are used for emergency warning systems according to DIN EN 60849 and / or VDE 0828-1, designing regarding arrangement, quantity and installation, based on the stated technical data should be done by an electrical engineer.

Installation in walls

Install Soundboards in the upper third of the wall. Always install a pair of soundboards opposite to each other, to achieve uniform sound distribution.

Installation example:

Conference room, approx. 6 m wide and up to 10 m long, requirement: intelligibility of voice:

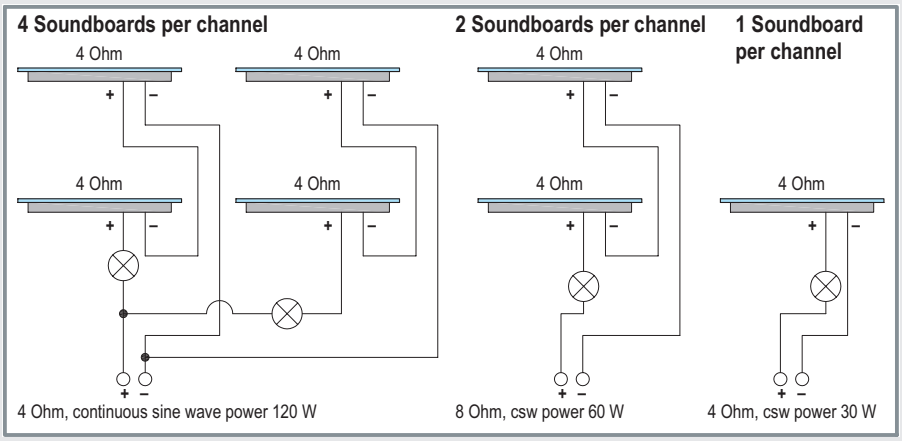
- 2 front loudspeakers in front wall;

If room length exceeds 10 m, additional supporting loudspeakers in the ceiling or in the rear wall are required.

Note

Soundboards should be arranged as uniformly as possible over floor layout.

Circuits for up to 4 Soundboards per amplifier channel (consider resulting impedance)



Note: To minimize the risk of failure caused by overloading, installation of festoon lamps (24V, 18 W) is recommended (no 100 % protection, install with access).

Specification

Item	Description	No. of units	Unit price	Total price
.....	Flat-panel loudspeaker for ceiling lining/ suspended ceiling/ metal stud partition/ furring *, as surface diaphragm loudspeaker, consisting of gypsum board as surface diaphragm with bending wave tranducers (exciters) fixed to rear and consists of a strong frame, overall dimensions 625 mm x 500 mm/ 600 x 500 mm *, frequency range 100 Hz to 18000 Hz, irradiation angle: 180° vertical x 180° horizontal, continuous sine wave power: 30 W, peak power: 60 W, impedance: 4 Ohm. Including creation of opening, installation, connection to existing cables, function test and filling of entire joints according to Code of Practice No. 2 (IGG, April 2003), surface quality level Q2. Product/ System: **Knauf Soundboard**	..... pcs	..... €	..... €

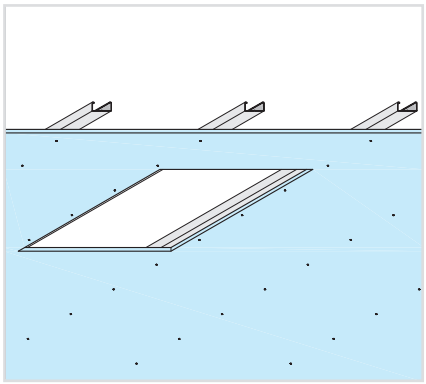
** Cancel not applicable items*

Sub-total ..... €

D179 Knauf Soundboard

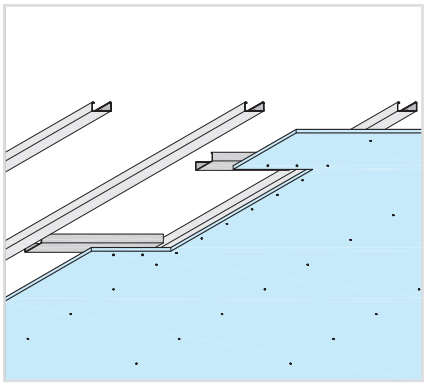
Installation

1 Create opening



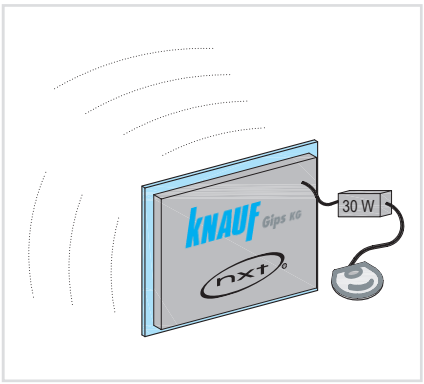
Create opening with opening dimensions 630 x 505 mm or 605 x 505 mm (2.5 mm larger than Soundboard on entire perimeter) in existing or new cladding. Bevel edges of opening.
For ceilings Soundboard should be placed in between (upper) carrying channels due to a total height of 30 mm.

2 Substructure



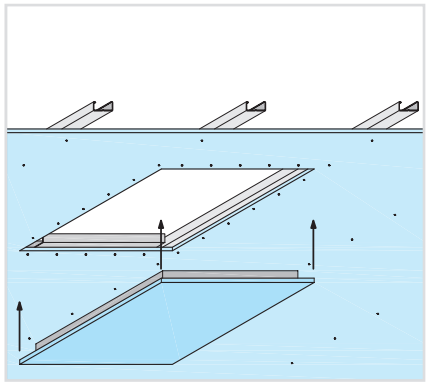
Cut lateral channels CD 60x27 to length for installation between furring channels (approx. 10 mm shorter than gap between furring channels) and screw attach channels to cladding, centered on opening edges (Drywall Screws, spacing approx. 100 mm).

3 Function test



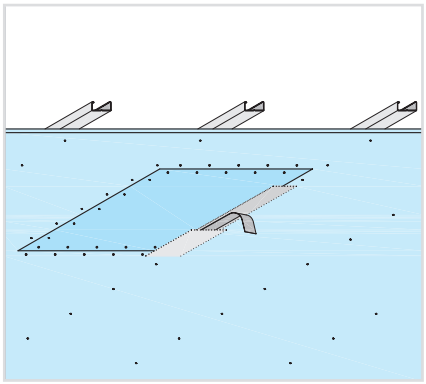
Remove transportation lock on rear of Soundboard.
Test loudspeaker according to enclosed instruction.
Connect loudspeaker completely.

4 Screw attachment



Place Soundboard centered in opening (joint width of all joints 2 to 3 mm) and fasten with Knauf Drywall Screws to circumferential channels with a spacing of approx. 100 mm.
Test loudspeaker according to enclosed instruction afterwards.

5 Jointing

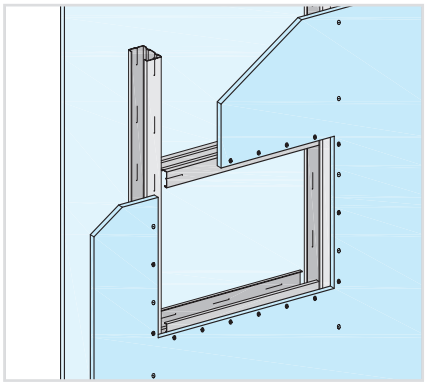


Fill joints with Knauf Uniflott and Joint Tape.
Fill screw heads as well.

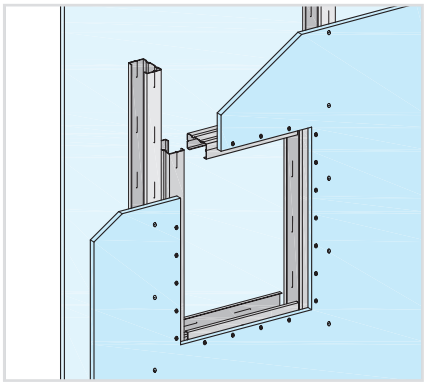
Notes

- Substructure of ceiling or wall system should be in such a condition that no undesireable side noises, caused by the vibration of Soundboard, such as rattling, occur.
  In particular, no loose bits should be within or on the substructure or be in touch with the substructure. No other parts are allowed to touch the rear of the loudspeaker with the exception of insulation.
- Suitable surface coats and linings: Finishing plasters and full area skim coats up to 2 mm thickness, wallpaper and paint coats that are suitable for gypsum boards. Tiling of Soundboards is not possible.
- Ball impact safety is not provided for the Soundboard.

Installation in walls



Option 1: Cut 2 pieces of CW studs for the lateral installation in between the existing metal studs (approx. 10 mm shorter than gap between studs) and screw attach channels to cladding, flange centered on opening edges (Drywall Screws, spacing approx. 100 mm).

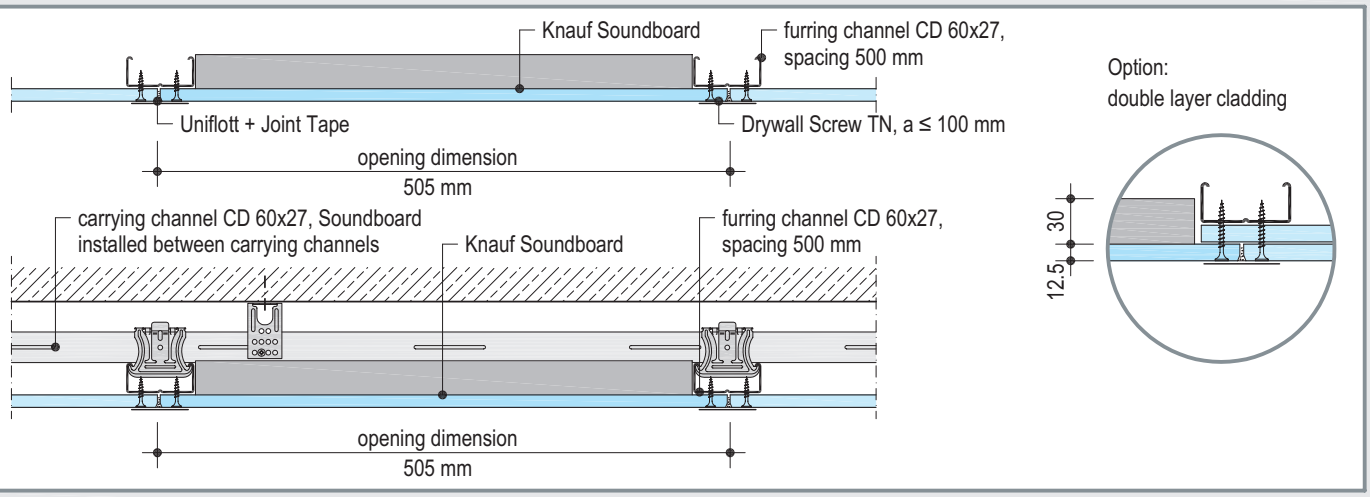


Option 2: Cut 4 pieces of CW studs screw attach channels to cladding, flange centered on opening edges. (Drywall Screws, spacing approx. 100 mm).

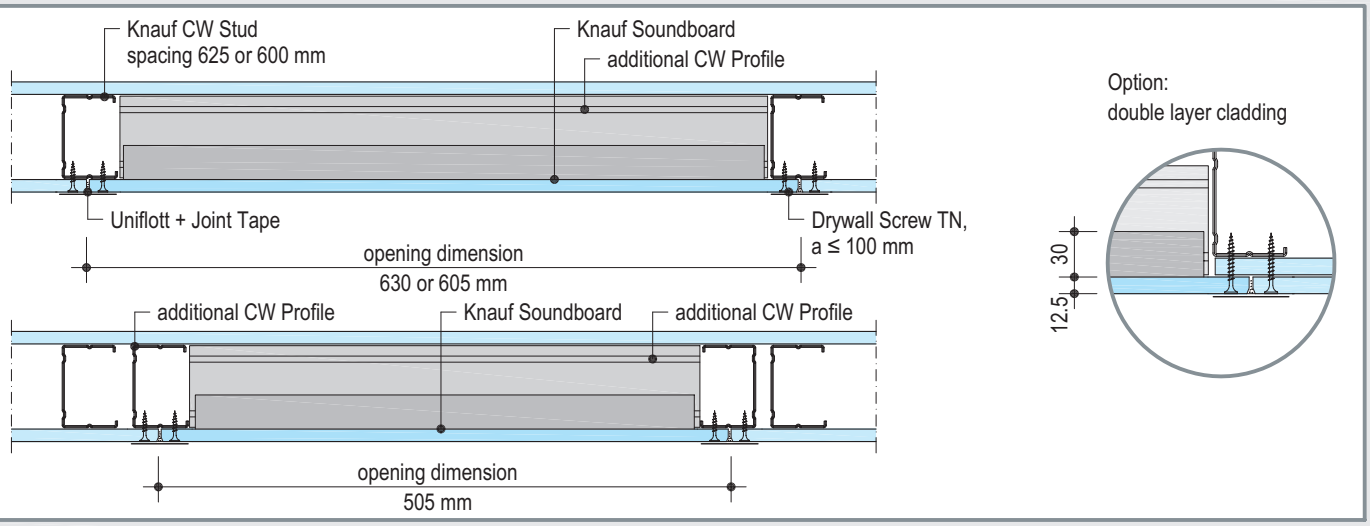
D179 Knauf Soundboard

Details

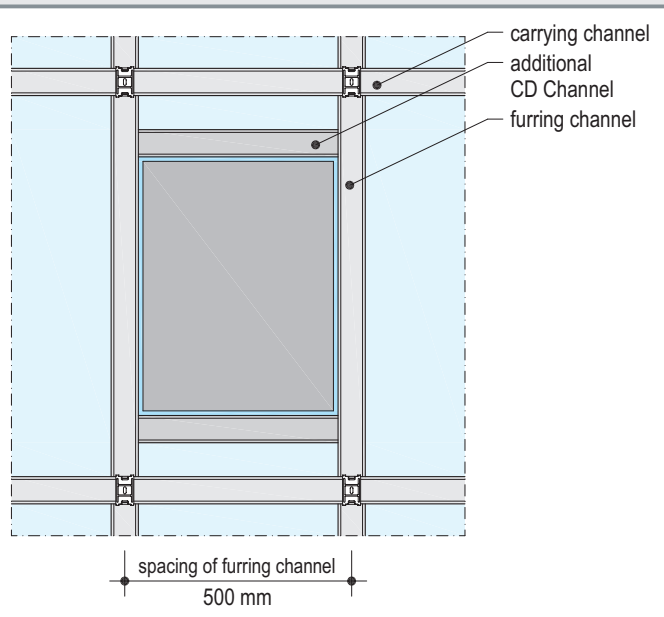
Ceiling system single layer cladding, single or double level substructure, Knauf Board Ceiling — scheme drawings



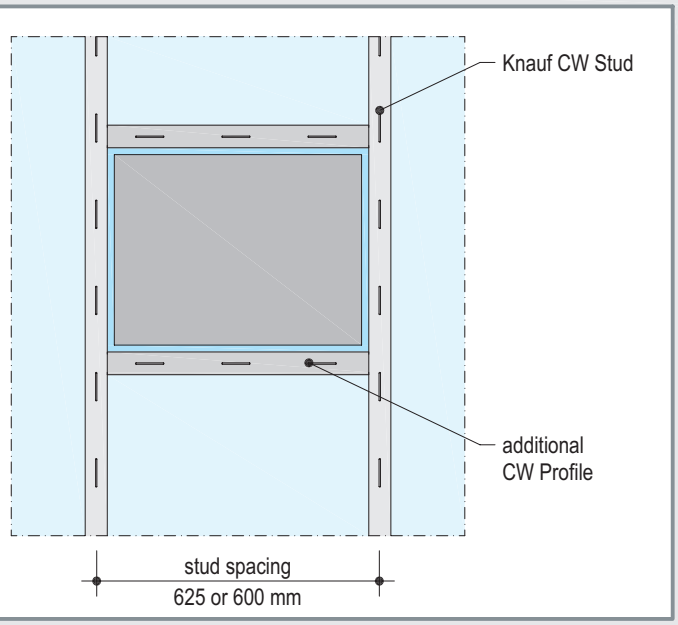
Partition system single layer cladding, Knauf Metal Stud Partition — scheme drawings



Ceiling system top view of installed Soundboard



Wall system rear view of installed Soundboard — scheme drawings



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Fax: 01805 31-4000**
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knauf-direkt@knauf.de

D179/engl./D/06.06/FB/D

The structural, statical properties, and characteristic building physics of Knauf systems can solely be ensured with the exclusive use of Knauf system components, or other products expressly recommended by Knauf.

Knauf Gips KG, Am Bahnhof 7, 97346 Iphofen, Phone: +49 9323 31-0, Facsimile: +49 9323 31-277

* A rate of 0.39 € per minute will be charged if calling from the German landline network. Callers whose phone numbers are not registered within the address database of Knauf Gips KG (e.g. private builders or non-customers) will be charged a rate of 1.69 € per minute. Calls from mobiles will be charged 1.48 € per minute.

** 0.12 € per minute