

Installation Instructions DEplan®

Invisible Speaker Series



Patented flat plate sound transducers for invisible mounting in ceilings and walls. On account of the combination of cone speakers in the low-frequency range, specially developed exciters in the high-frequency range and complex crossovers the various models of the DE Plan Series achieve excellent outstanding sound characteristics and excellent low frequency reproduction.

feiner hören



READ AND FOLLOW THESE INSTRUCTIONS BEFORE INSTALLING THIS PRODUCT.

Content

Important Informations and Accessories	Page 2
1. Installation in Drywalls and -ceilings	Page 3
2. Installation with Back Boxes in Drywalls and -ceilings	Page 5
3. Installation in Solid Walls	Page 6
4. Installation in Concrete Ceilings	Page 7

Important Informations

We recommend that all lining, plastering and painting work is carried out by professionals. The speaker will only deliver the desired visual and acoustic results if it is installed correctly. Drying times between the individual steps must be observed. The models in the DE Plan series are designed to be installed in walls/ceilings that are 10 – 35 mm thick (= max. two drywall sheets + 10 mm thick back box). Solutions for other installation scenarios are available on request.

Damage resulting from incorrect handling is not covered by the warranty.

Accessories

The following components are included in your delivery:

- Assembly frame for positioning the mounting feet
- Mounting feet
- Special quick-fix screws for attaching the mounting feet (Do not use standard drywall screws)
- Springs and screws for attaching the speaker:
 - 55 mm springs and 70 mm screws for wall/ceiling thicknesses of 10 – 25 mm (including back box)
 - 65 mm springs and 80 mm screws for wall/ceiling thicknesses of 25 – 35 mm (including back box)
- Dispersion adhesive
- Glas fiber lining for covering the speaker (34 g / m²)
- Acoustic fleece (in combination with DE Plan back boxes)

Refer to individual product datasheets for more detailed technical information. These are available at: www.lb-lautsprecher.de/en/Invisible-loudspeakers



You will also find a link to our YouTube video showing how to install a DE Plan speaker at: www.lb-lautsprecher.de/en/Invisible-loudspeakers



Mounting feet



Quick-fix screws



Assembly Frames



MR Plan 200

Dim.: 300 × 310 mm

Springs 55 mm
+ Screws 70 mm



Springs 65 mm
+ Screws 80 mm



MR Plan 400

Dim.: 420 × 370 mm

Dispersion adhesive



Glas fiber lining



MR Plan 500

Dim.: 560 × 210 mm

Acoustic Fleece



MR Plan 600

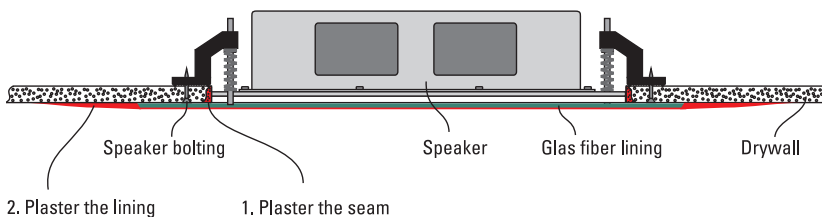
Dim.: 626 × 370 mm

1. Installation in Drywalls and -ceilings

DE Plan speakers can be installed without back boxes in closed ceilings and walls. DE Plan 600 SUB subwoofers must be installed with a back box to ensure they can be correctly balanced. Back boxes from the EG Plan series are usually used in acoustic ceilings or to reduce sound transmission into adjacent rooms (see page 5).

Installation in Non-Concrete Walls and Ceilings

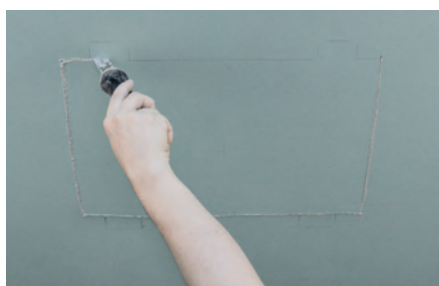
Section: installed speaker



Use springs with 55 mm and screws with 70 mm for wall thickness from 10 to 25 mm.



1.1 Mark out the opening for the speaker and also mark the positions of the mounting feet to make sure the screws are drilled in the correct position later. Use the assembly frame as a template.



1.2 Cut out the opening with a utility cutter or saw (only cut out the rectangular outline). Make sure the edges are smooth.



1.3 Use a sharp utility cutter to taper the edges of the aperture to an angle of 45 degrees.



1.4 Smooth the edges with sandpaper (100 – 150 grain). Remove any bits of drywall paper that are protruding.



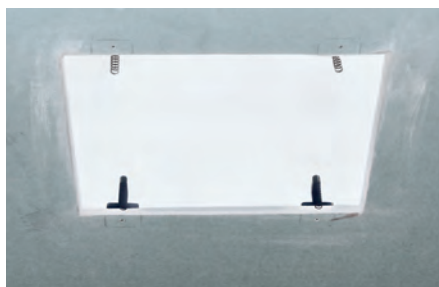
1.5 Insert the assembly frame with the mounting feet attached.



Turn the feet to the inside if you are installing the speaker in a wall/ceiling where there is limited space.



1.6 Drill the quick-fix screws supplied through the front of the drywall and into the mounting feet. **Do not use standard drywall screws!**



1.7 Remove the assembly frame. Only the mounting feet and springs remain in the wall/ceiling. Use the long springs (65 mm) for wall/ceiling thicknesses of 25 mm or more.



1.8 Connect the speaker system. **MAKE SURE THE POLARITY IS CORRECT.**



1.9 Install the speaker: Insert the drill bit into the head of the assembly screw in the speaker. Drill the speaker into the wall/ceiling. Use the long screws supplied with your product for wall/ceiling thicknesses of 25 mm or more.



1.10 Test the speaker and wiring, for example, by playing music. (The speaker will not produce the correct sound until the surface is finished.)



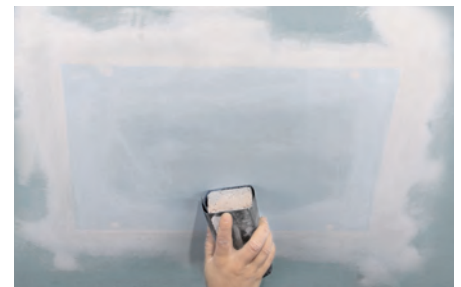
1.11 Use the assembly screws to adjust the speaker so that the plastic membrane protrudes by approximately 0.5 mm in front of the wall/ceiling on all sides.



1.12 The membrane should not be too deep otherwise you will not be able to plaster over the seam.



1.13 Plaster and sand down (grain 120 – 240) the seam between the wall/ceiling and the membrane twice, and plaster over the screw holes twice.



1.14 Only sand the edge of the membrane and only apply light pressure when doing this. Make sure no plaster is left on the membrane.



1.15 Use a foam roller to evenly apply the dispersion adhesive delivered with your product over the membrane and the surrounding area.



1.16 Place the glass fiber lining over the adhesive area while it is still moist. Make sure the lining is centered.



1.17 Use the roller to apply another light coat of adhesive over the lining. Make sure the surface is smooth. Allow the adhesive to dry completely (overnight).



1.18 Apply one very light coat of filler over the entire area. Apply two to three very light coats of filler to the seam where the lining meets the wall/ceiling and sand down until you have a flush surface.



1.19 IMPORTANT! Before you start painting, make sure that the filler has dried completely (overnight). If it is not completely dry, the paint may not adhere correctly to the surface!



1.20 Paint the area. The high frequency level will decrease slightly if three coats or more are applied (approx. 0.5 - 1 dB per coat).

2. Installation with Back Box in Non-Concrete Walls and Ceilings

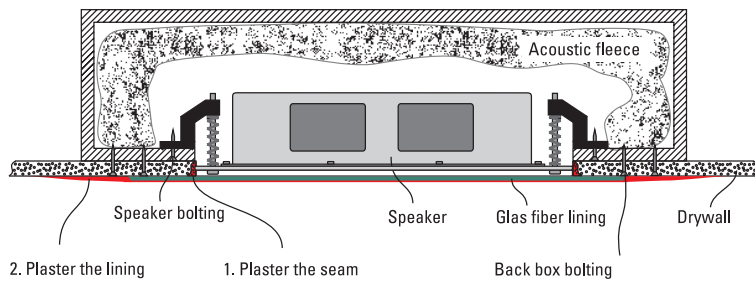
Use EG Plan series back boxes in walls or ceilings that are not closed (e.g. for acoustic ceilings, ventilated ceilings, open recessed lighting), or if you need additional sound proofing for adjacent rooms. The mounting feet are already attached in these back boxes. You will have to make the holes for cables in the back box yourself.



Place the back boxes behind the drywall sheet. Glue and screw them in position. Fit the acoustic fleece into. Pin the springs on the mounting feet. Use the long springs supplied for wall/ceiling thicknesses of 25 mm or more. Drill the speaker into the wall/ceiling and make sure it is level (installation step 1.8 onwards).

Installation with a Back Box in Non-Concrete Walls and Ceilings

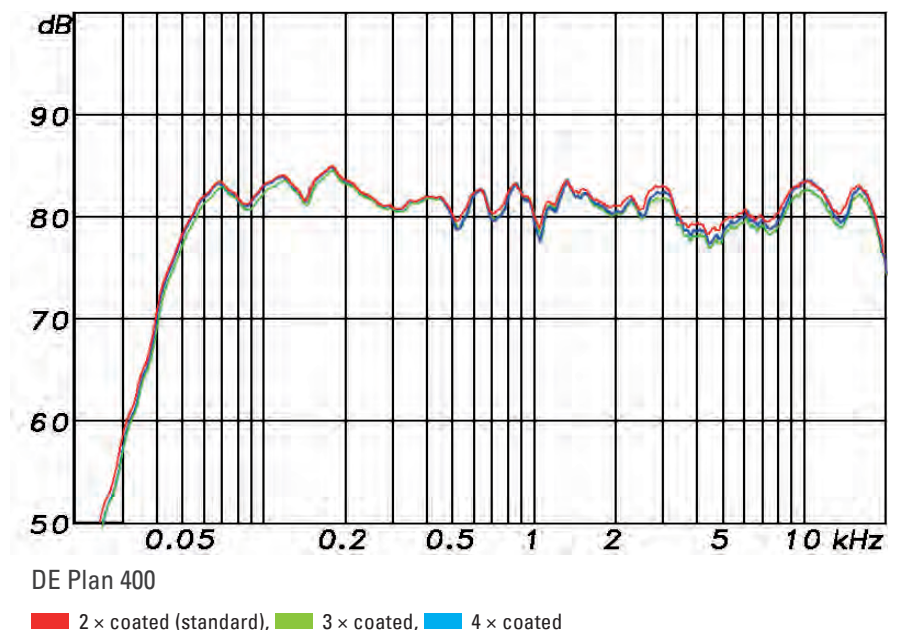
Section: speaker installed in a back box



Use springs with 55 mm and screws with 70 mm for wall thickness from 10 up to 25 mm.
Use springs with 65 mm and screws with 80 mm for wall thickness from 25 up to 35 mm.

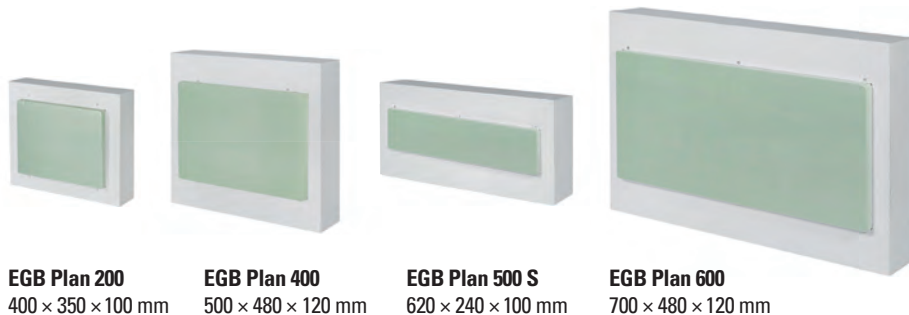
Frequency range of DE Plan speakers with its influence of paint coating

The sound quality of DE Plan speakers depends on the material placed over the membrane. The membrane is designed to be covered by the glass fiber lining (34 g / m²), a thin layer of filler, which is then sanded, and 1 – 3 coats of paint (emulsion). If any other material is applied over the membrane (e.g. thicker lining, thicker coats of filler or acoustic plaster), this will cause a drop in sound pressure levels in the mid-high range. You can compensate for this using a system controller or an equalizer, for example. Please contact us if you have any questions.



3. Installation in Solid Walls

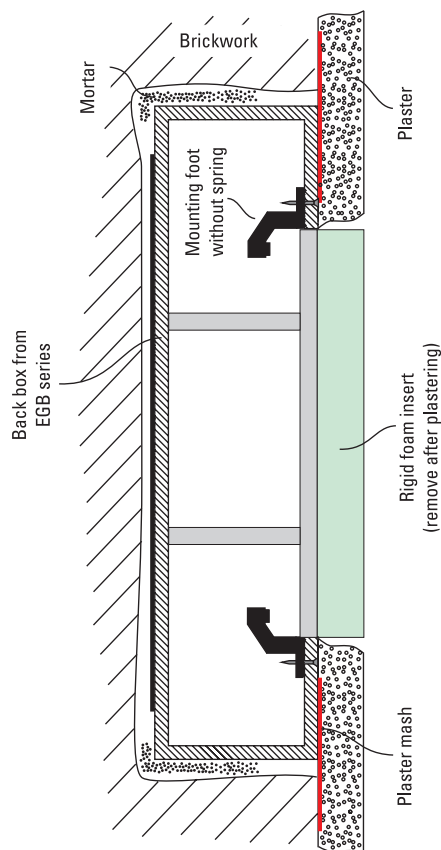
When installing speakers in solid walls, please use our EGB series plastic back boxes. The mounting feet are already attached in these back boxes. You will have to make the holes for cables in the back box yourself. The speakers can then be installed in the same way as for non-concrete walls/ceilings. Please note that the speaker is not designed to be used with rough render, textured render or similar plastering. Applying these kinds of material over the speaker membrane will have a major impact on sound (see page 5).



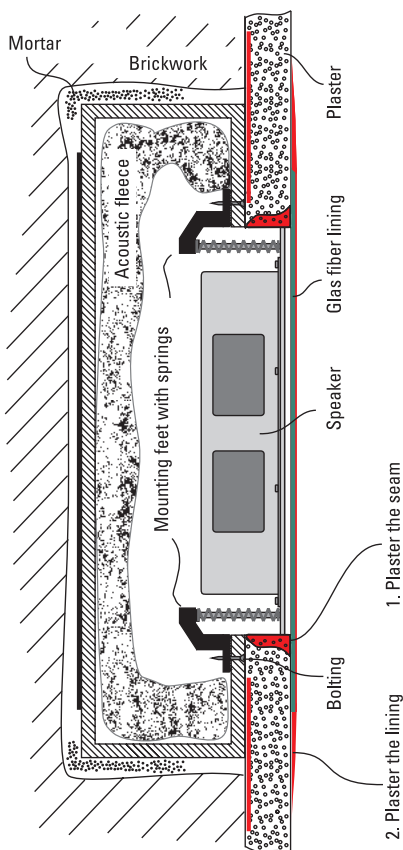
- 3.1 Make the opening in the brickwork.
- 3.2 Install the EGB series plastic back box using mortar or a similar material. Make sure the box is **free from mechanical stress** and fix in place using adhesive or plugs (otherwise the position of the speaker may shift visibly over time).
- 3.3 Apply the plaster mesh (to prevent cracks forming at the seam) and plaster to the edge of the opening.
- 3.4 Fit the acoustic fleecce into the back box. Pin the springs on the mounting feet.
- 3.5 Connect, install, test and adjust the speaker (see steps 1.8 – 1.11).
- 3.6 Plaster the edge and sand until smooth (see steps 1.12 – 1.13).
- 3.7 Place the glass fiber lining over the plastic membrane (see steps 1.14 – 1.16).
- 3.8 Plaster and sand down the lining and seams (see steps 1.17 – 1.18).
- 3.9 Paint over the area (steps 1.19 – 1.20).

Installation with a Back Box in Solid Walls

Section: back box



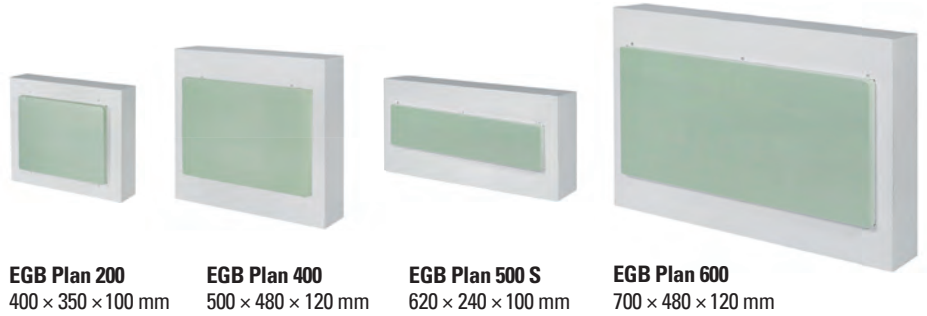
Section: installed speaker



Use the long springs (65 mm) and screws (80 mm) for installation!

4. Installation in Concrete Ceilings

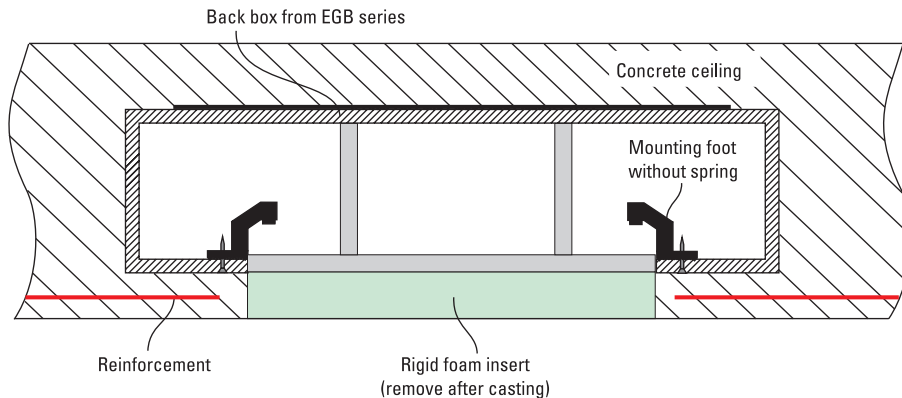
If you are installing speakers in a concrete ceiling, EGB series plastic back boxes must first be cast into the concrete ceiling (precast concrete ceilings and concrete ceilings cast in place). The mounting feet are already attached in these back boxes. You will have to make the holes for cables in the back boxes yourself. The speakers can then be installed in the same way as for non-concrete walls/ceilings.



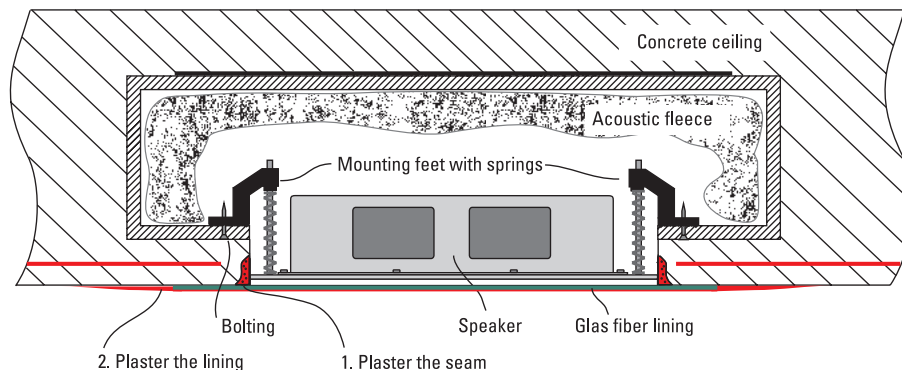
- 4.1 Insert and affix the EGB series plastic back box in the formwork ready for the concrete ceiling to be cast (make sure the correct reinforcement is used above and below the back boxes).
- 4.2 Once the ceiling is cast, remove the rigid foam insert from the back box.
- 4.3 Fit the acoustic fleece into. Pin the springs on the mounting feet.
- 4.4 Connect, install, test and adjust the speaker (see steps 1.8 – 1.11).
- 4.5 Plaster the edge and sand until smooth (see steps 1.12 – 1.13).
- 4.6 Place the glass fiber lining over the plastic membrane (see steps 1.14 – 1.16).
- 4.7 Plaster and sand down the lining and seams (see steps 1.17 – 1.18).
- 4.8 Paint over the area (steps 1.19 – 1.20).

Installation with a Back Box in Concrete Ceilings

Section: back box






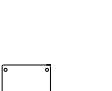


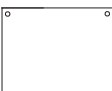

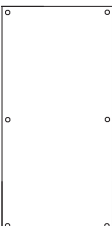
Section: installed speaker



Use the long springs (65 mm) and screws (80 mm) for installation!



Technical Data

Models	Principle	Frequency Range*	Power Capacity	Sensitivity	Dispersion Angle	Dimensions	Cutout Size	Installation Depth	Weight	Back Box	
	DE Plan 200 2-way flat transducer	70 Hz – 20 kHz	RMS/Prog. 40/80 watts, 8 Ohm	81 dB (1W@1m) max. 99 dB	180°	300 × 240 mm incl. mounting feet 300 × 310 mm	304 × 244 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	2.8 kg	EG/ EGB Plan 200 Dim.: 400 × 350 × 100 mm	
	DE Plan 200 T 100 V version		7.5/15/30 watts	max. 95 dB					3.2 kg		
	DE Plan 200 ST Stereo- 2-way flat transducer	90 Hz – 20 kHz	RMS/Prog. 2 × 30 / 2 × 60 watts, 2 × 8 Ohm	81 dB (1W@1m) max. 99 dB	180°	300 × 240 mm incl. mounting feet 300 × 310 mm	304 × 244 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	2.8 kg	EG/ EGB Plan 200 Dim.: 400 × 350 × 100 mm	
	DE Plan 400 2-way flat transducer	48 Hz – 20 kHz	RMS/Prog. 80/160 watts, 8 Ohm	82 dB (1W@1m) max. 104 dB	180°	420 × 300 mm incl. mounting feet 420 × 370 mm	424 × 304 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	3.9 kg	EG/ EGB Plan 400 Dim.: 500 × 480 × 120 mm	
	DE Plan 400 T 100 V version		15/30/60 watts	max. 100 dB					4.3 kg		
	DE Plan 500 S 2-way flat transducer	110 Hz – 20 kHz	RMS/Prog. 80/160 watts, 8 Ohm	82 dB (1W@1m) max. 104 dB	180°	540 × 140 mm incl. mounting feet 560 × 210 mm	544 × 144 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	3.8 kg	EG/ EGB Plan 500 S Dim.: 620 × 240 × 100 mm	
	DE Plan 600 2-way flat transducer	42 Hz – 20 kHz	RMS/Prog. 160/320 watts, 8 Ohm	83 dB (1W@1m) max. 108 dB	180°	620 × 300 mm incl. mounting feet 626 × 370 mm	624 × 304 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	5.5 kg	EG/ EGB Plan 600 Dim.: 700 × 480 × 120 mm	
	DE Plan 600 AIArray 4-channel 2-way flat transducer	40 Hz – 20 kHz	RMS/Prog. 4 × 40/ 4 × 80 watts, 4 × 8 Ohm	86 dB (1W@1m) max. 110 dB	horiz. 180° vert. adjust- able via controller	620 × 300 mm incl. mounting feet 626 × 370 mm	624 × 304 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	6.3 kg	EG/ EGB Plan 600 Dim.: 700 × 480 × 120 mm	
	DE Plan 600 SUB Only for use with back box EG/ EGB Plan 600	Flat transducer	40 Hz – 180 Hz	RMS/Prog. 120/240 watts, 4 Ohm	82 dB (1W@1m) max. 105 dB	180°	620 × 300 mm incl. mounting feet 626 × 370 mm	624 × 304 mm wall/ ceiling thickness 10 – 35 mm (incl. back box)	72 mm	6.5 kg	EG/ EGB Plan 600 Dim.: 700 × 480 × 120 mm

*Installed with two coats of paint.

Changes and errors excepted.