



# DALI PHANTOM IW SUB S-100

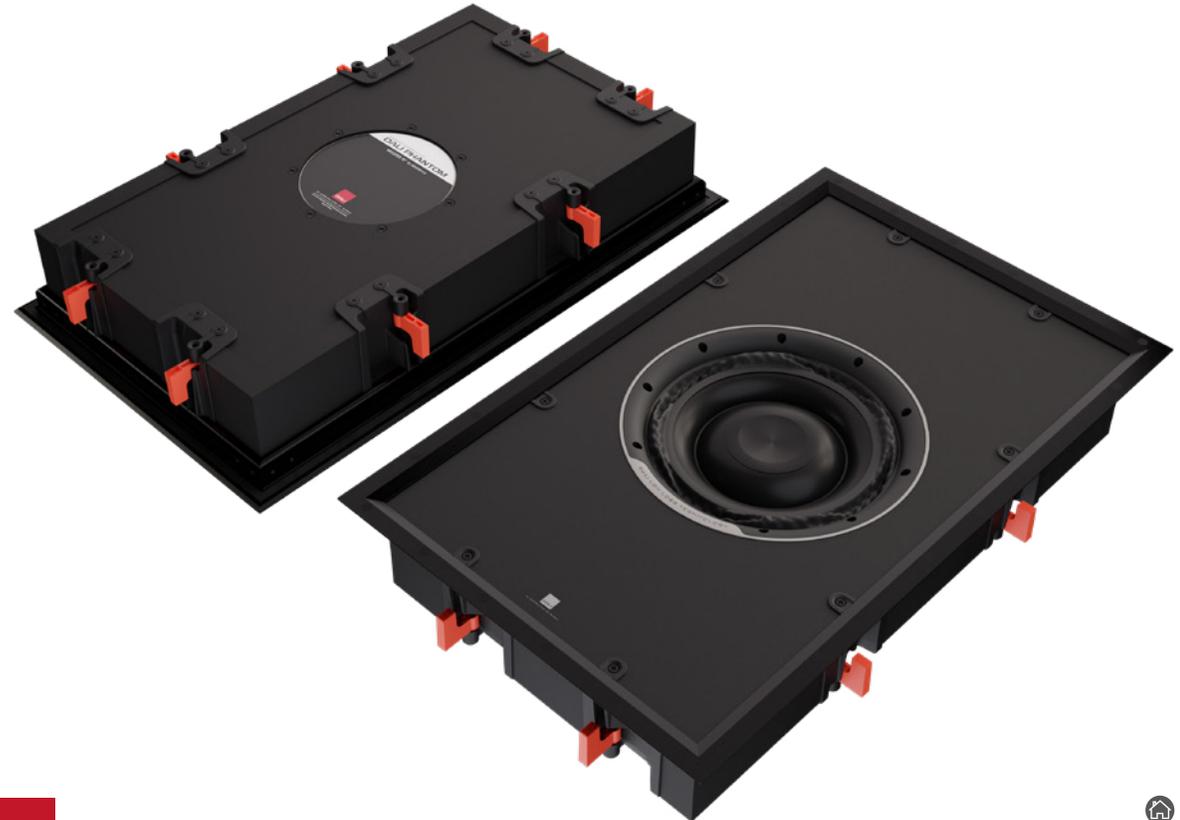
INSTALLATION MANUAL



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Congratulations on your new DALI PHANTOM IW SUB S-100 In-wall subwoofer. In order to get the most from your purchase, please read this manual carefully before you unpack and install your new subwoofer. You can find more information on our website: [www.dali-speakers.com](http://www.dali-speakers.com) or by contacting your authorised DALI retailer.

The DALI PHANTOM IW SUB S-100 subwoofer is designed to be used with the matching DALI PHANTOM CI AMP-2500 DSP amplifier. Comprehensive information on amplifier to subwoofer routing and connections, can be found in the CI AMP-2500 DSP Installation Manual available for download from [dali-speakers.com](http://dali-speakers.com)



#### NOTE

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The matching DALI PHANTOM CI AMP-2500 DSP power amplifier is required for the correct operation of PHANTOM SUB S-100 subwoofers. Each CI AMP-2500 DSP can power up to four SUB S-100 subwoofers. The SUB S-100 subwoofer has been developed with- and is to be amplified by, the AMP-2500 DSP amplifier to achieve the best performance.

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#### NOTE

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Comprehensive information on AMP-2500 DSP amplifier installation can be found in the AMP-2500 DSP installation manual available for download from [dali-speakers.com](http://dali-speakers.com).

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## 2.0 Safety Precautions

- Always follow all safety precautions.
- It is recommended that the PHANTOM IW SUB S-100 should be installed by competent professional audio installation technicians.
- The SUB S-100 must only be used indoors and never in extreme humid, hot or cold temperatures.
- The SUB S-100 must only be used with the matching AMP-2500 DSP amplifier.
- The SUB S-100 should not be exposed to continual direct sunlight.
- Ensure that there are no service installations such as electrical or data cables, gas or water pipes, or ventilation ducts present in the wall at the SUB S-100 mounting location.
- Ensure that the wall is easily able to support the weight of the SUB S-100 subwoofer. If necessary consult an appropriately qualified structural engineer for advice.
- When installing a SUB S-100 in a plasterboard/dry wall we recommend that two layers of plasterboard are used in the area around the subwoofer. If it is not possible to use two layers of plasterboard, we recommend one of these measures:
  - Reinforce the single layer plasterboard beneath the dogleg clamps using wood pieces measuring at least 75 mm x 30 mm x 3 mm thick (3 in x 1.2 in x 0.125 in). Or...
  - Install the SUB S-100 on-wall using a DALI PHANTOM S-80 On-Wall Frame (OW FRAME S-80).
- If the SUB S-100 subwoofer is to be installed in a wall where a vapour barrier is present, ensure that the barrier is not compromised during installation.
- Ensure that the AMP-2500 DSP driving amplifier is switched off when connecting cables between the SUB S-100 subwoofer and the amplifier.

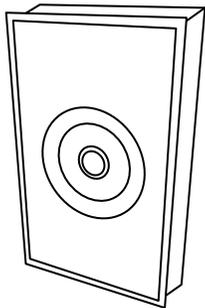
## 3.0 Unpacking

Take care not to damage the box contents when unpacking the SUB S-100 subwoofer. Once unpacking is complete, check that all components listed and illustrated in Diagram 1 are present.

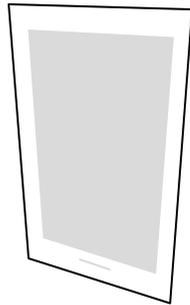
We recommend that packaging materials are retained in case the SUB S-100 subwoofer requires relocation. If however the packaging materials are to be discarded, please ensure they are disposed of responsibly and recycled where possible.

DIAGRAM 1: CONTENTS

1 x DALI PHANTOM  
IW SUB S-100



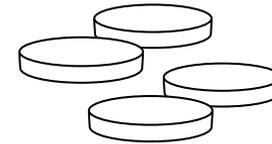
1 x Grille (magnetic)



1 x Cut-out template



4 x Rubber pads

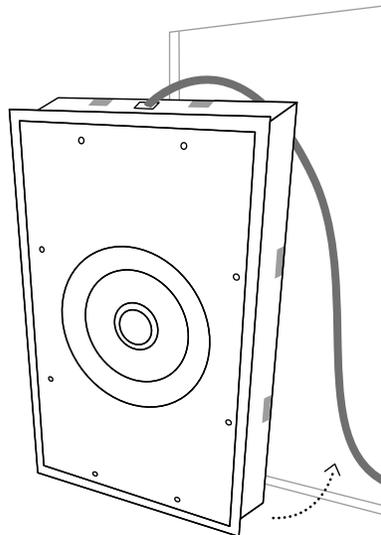


## 4.0 Positioning and Installation

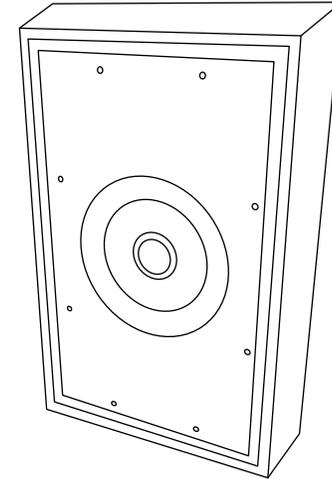
The SUB S-100 is a passive In-wall subwoofer designed for use in both conventional stereo and multi-channel home theatre audio systems. SUB S-100 subwoofers can be installed singularly or in multiples.

Although the SUB S-100 is primarily intended for In-wall installation, it can also be installed on-wall using an appropriate DALI On-wall Frame, or be used unmounted lying on its back, also using an On-wall Frame as an external cabinet.

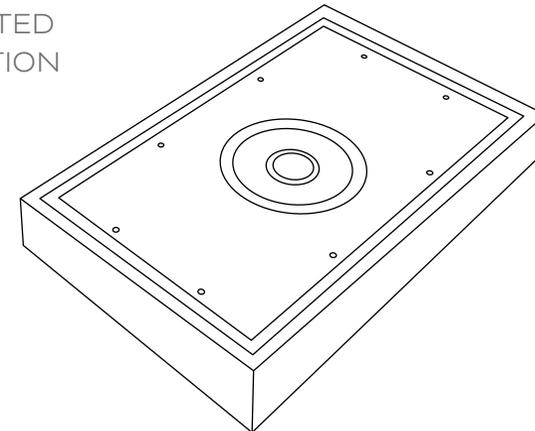
IN-WALL  
INSTALLATION



ON-WALL  
INSTALLATION



UNMOUNTED  
INSTALLATION



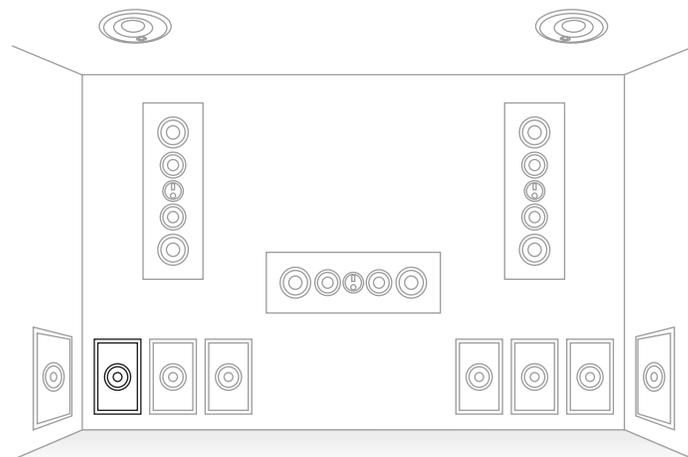
## 4.1 Positioning

By their very nature, the positioning of subwoofers such as the SUB S-100 is less critical than the positioning of stereo speakers, but still there are some guidelines to follow, described below and illustrated in the Diagrams 2 and 3, that will help ensure optimal performance.

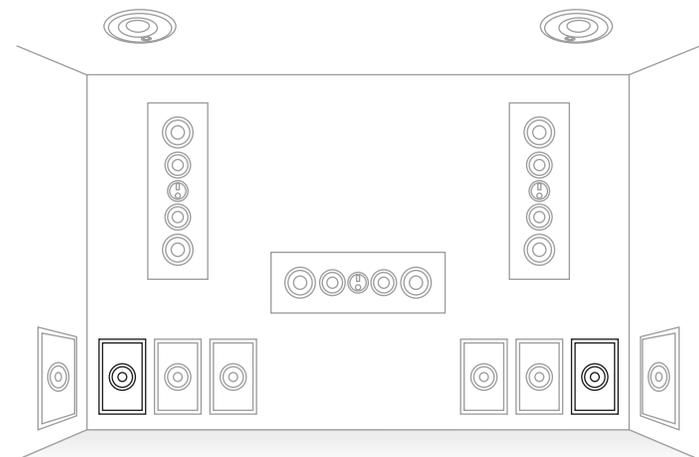
- If a single SUB S-100 is to be installed, it is best located near the floor of the listening room in or on the wall that also carries the front left and right channel speakers. The closer the subwoofer is to the corner of the room, the more it will gain acoustic reinforcement from the room and the less volume level it will require.
- If a pair of SUB S-100 subwoofers are to be installed, they are best located near the floor of the listening room in or on the wall that also carries the front left and right channel speakers. As with single subwoofer installations, the closer the subwoofers are to the corner of the room, the more they will gain acoustic reinforcement from the room and the less volume level they will require.

DIAGRAM 2: IN-WALL/ON-WALL SUBWOOFER POSITIONING

Example **single** In-wall or on-wall subwoofer positions



Example **multiple** In-wall or on-wall subwoofer positions

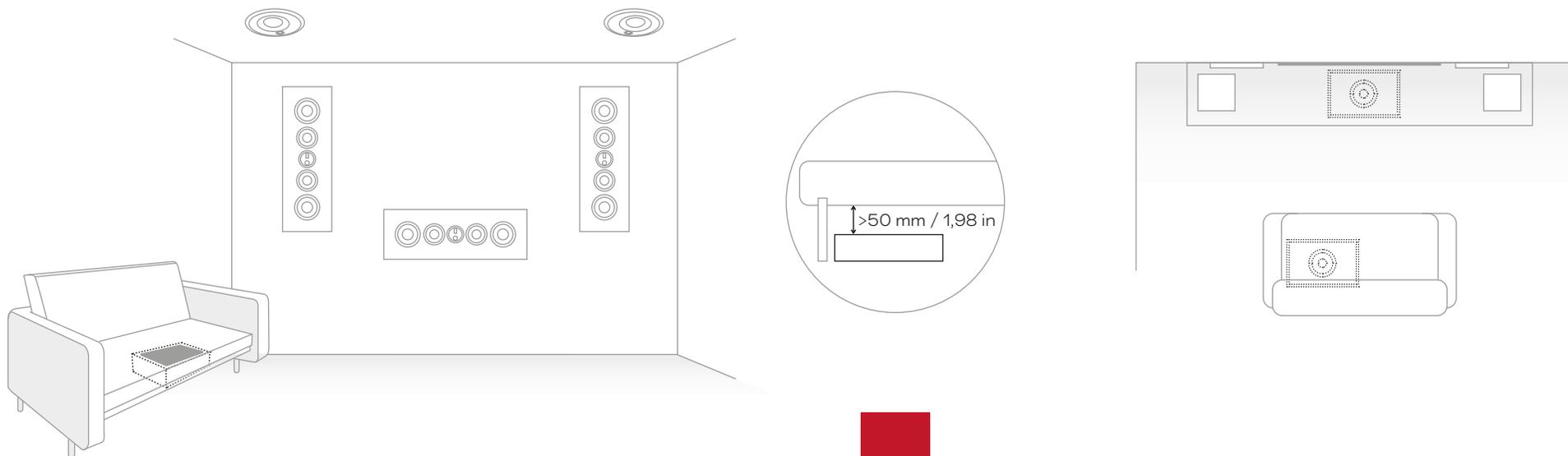


- In either single or multiple subwoofer installations, if it is not practical to install SUB S-100 subwoofers in the same wall as the front left and right channel speakers, installation in the side walls of the room, close to the front corners is also viable.

- If SUB S-100 subwoofers are to be installed on the surface of a wall using an On-wall Frame, or unmounted lying on their back using On-wall Frames as cabinets, the same location guidelines as for In-wall installation should generally be followed. The use of SUB S-100 subwoofers unmounted lying on their back however does potentially enable concealed installation on the floor beneath furniture.

### DIAGRAM 3: UNMOUNTED SUBWOOFER POSITIONING

Examples **concealed** installation on the floor beneath furniture



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## 4.2 In-wall Installation

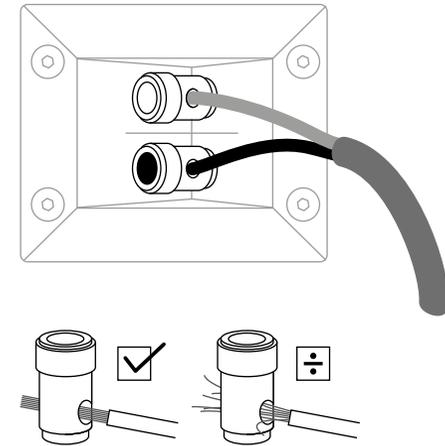
### 4.2.1 Cables

The choice of cables used to connect SUB S-100 subwoofers to the AMP-2500 DSP power amplifier is important. Replacing cables following installation is potentially difficult so it is best to select quality cables from the start. Your authorised DALI retailer will be able to advise on cable choice.

When connecting cables to the subwoofer and the amplifier it is important that correct polarity is retained. The red (positive +) subwoofer terminal must be connected to the positive (+) amplifier terminal. The black (negative -) subwoofer terminal must be connected to the negative (-) amplifier terminal.

To insert the cable end into the spring loaded terminals of the IW SUB S-100 subwoofer, remove the cable insulation so that approximately 12 mm (1/2 in) of bare wire is exposed. Press the top of the terminal down and insert the bare wire into the opening. When the wire is fully in place with no loose strands exposed, release the terminal. Use of the subwoofer terminals is illustrated in Diagram 4.

DIAGRAM 4:  
SUBWOOFER CONNECTION TERMINALS



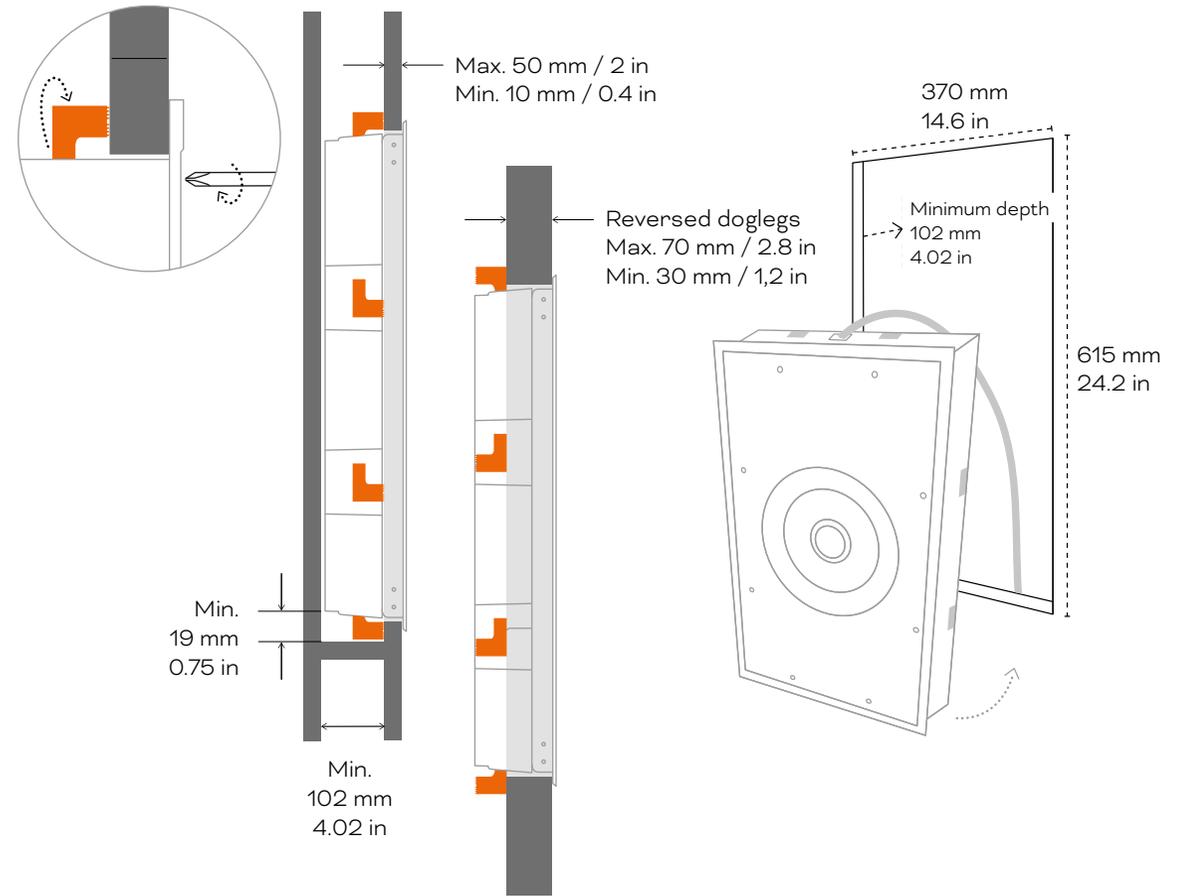
## 4.2.2 Wall Aperture

The SUB S-100 subwoofer can be mounted in stud (dry wall) and plasterboard constructed walls with a minimum free depth of 102 mm (4.02 in). The minimum and maximum plasterboard thickness that can be accommodated by the SUB S-100 subwoofer fixings is 10 mm (0.4 in) and 50 mm (2.0 in) respectively. The SUB S-100 subwoofer also requires 19 mm (0.74 in) free space to the side, top and bottom in order to enable its dogleg clamps to be deployed. Diagram 5 illustrates SUB S-100 installation dimensions.

If SUB S-100 is to be installed in a particularly thick wall, it may be necessary to dismount its dogleg clamps from their screws then and replace them. Dogleg clamps make it possible to install SUB S-100 in a wall up to 70 mm (2.75 in) thick.

The supplied cut-out template can be used initially to visualise where a SUB S-100 is to be installed. As part of this exercise, use a wall stud and pipe/cable finding tool to ensure that the wall space in which a subwoofer is to be installed is free of obstructions. It is also important to ensure that the 102 mm (4.02 in) minimum depth clearance required for SUB S-100 subwoofers is available. If the free depth available at the installation position is unknown, a test hole can be drilled and a depth measuring gauge inserted.

DIAGRAM 5:  
SUBWOOFER INSTALLATION DIMENSIONS



### 4.2.3 In-wall Installation

The SUB S-100 subwoofer incorporates eight dogleg clamps for In-wall installation. The clamps secure the subwoofer firmly to the rear of the wall surface on which it is mounted. The dogleg clamps extend out at a 90 degree angle when the screws are initially tightened, and then compress inwards to provide secure attachment to the wall.

The following tools and items are required to complete a SUB S-100 in-wall installation:

Saw or knife

Hand cross-head screwdriver (or torque limiting power drill with cross head bit)

Masking Tape

Cut-out template

Once the position and suitability of the subwoofer installation location has been established, the cut-out template can be used to mark where the wall aperture should be created. It is good practice to tape the cut-out template at the installation position to ease creation of an accurate cut line. Proceed then as follows:

### NOTES

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When installing a SUB S-100 in a plasterboard/dry wall we recommend that two layers of plasterboard are used in the area around the subwoofer. If it is not possible to use two layers of plasterboard, we recommend one of these measures:

- Reinforce the single layer plasterboard beneath the dogleg clamps using wood pieces measuring at least 75 mm x 30 mm x 3 mm thick (3 in x 1.2 in x 0.125 in). Or...
  - Install the SUB S-100 on-wall using a PHANTOM OW frame S-80.
- 

If an IW SUB S-100 subwoofer is to be uninstalled, loosen the clamp screws by approximately 5 to 20 turns counter-clockwise to loosen the dogleg clamps. Do not unscrew more than 20 to 25 turns or the clamp arms may disengage from their screws.

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- 1 With the cut-out template taped to the wall, use a pencil to mark a cut line.
- 2 Remove the template and drill holes at the four corners of the cut line suitable for the insertion of a saw or knife. Saw or cut carefully along the cut line to create an aperture in the wall. Diagram 6 illustrates using the cut-out template and cutting the aperture.

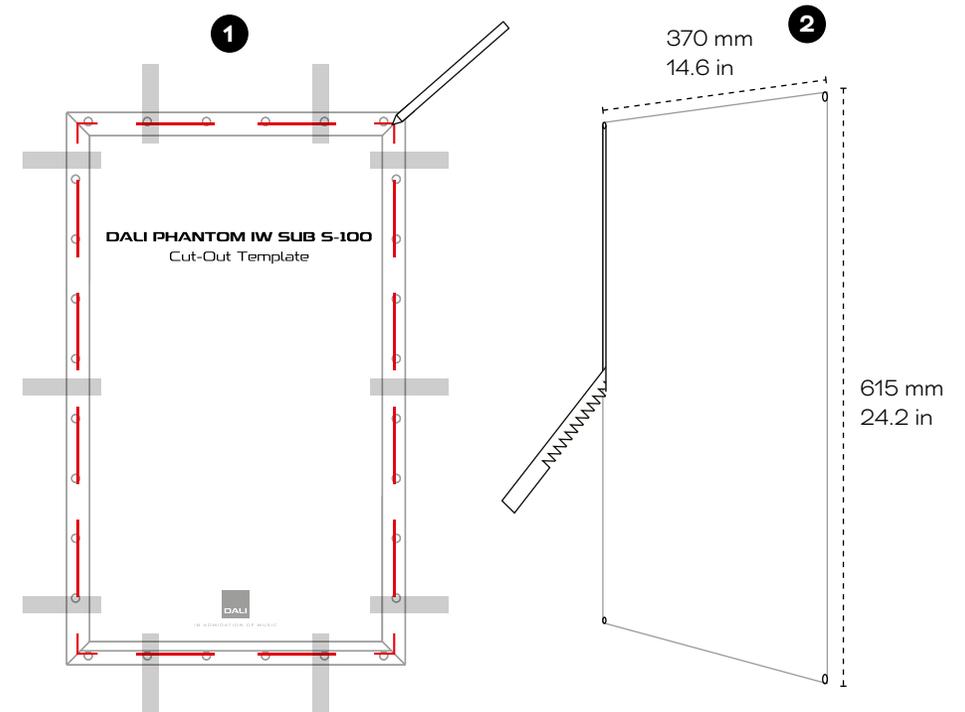
With the aperture for the SUB S-100 subwoofer created, speaker cable that has been previously routed within the wall can be found and secured to the inside wall surface to prevent any undue cable tension when it is connected to the subwoofer terminals.

If a subwoofer cable has not been previously installed, the open aperture provides the opportunity for this to be done. The subwoofer cable should be secured to the inside wall surface to prevent any undue cable tension when it is connected to the SUB S-100 subwoofer terminals. Leave enough free cable however to connect to the subwoofer terminals when it is outside the wall.

#### NOTE

If the cable is unsupported and not secured to the inside wall, it is possible for a cable gradually to work loose in the subwoofer terminals under its own weight, potentially resulting in subwoofer disconnection.

DIAGRAM 6:  
IN-WALL SUBWOOFER APERTURE CREATION



- 3 With subwoofer cable accessible, bring the SUB S-100 to the vicinity of the aperture and connect the cable to the subwoofer terminals as illustrated in Diagram 7.

Depending on cable routing in the wall, the SUB S-100 subwoofer can be installed with the connection terminals either at the top or the bottom.

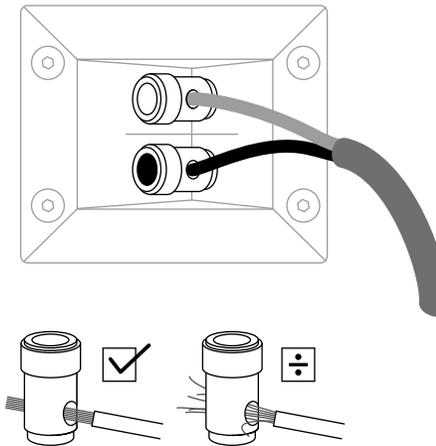
- 4 Lift the SUB S-100 subwoofer into the aperture, being careful not to trap the cable, and hold it in place. Use a cross-head screwdriver or drill bit to tighten the eight dogleg clamp screws located in the subwoofer front panel. It is good practice to tighten opposite screws in turn.

#### NOTE

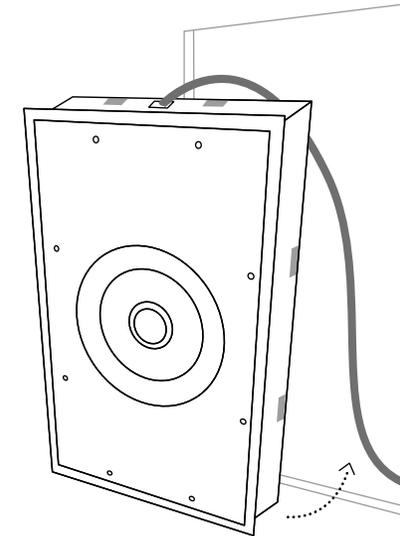
If the amplifier and audio system are connected and working, it is good practice at this stage to check the integrity and audio routing of the system by playing some audio and checking that the subwoofer is operating correctly before it is installed and secured in the wall.

DIAGRAM 7:  
IN-WALL SUBWOOFER CONNECTIONS

- 3 Connect cables from the amplifier to the subwoofer.



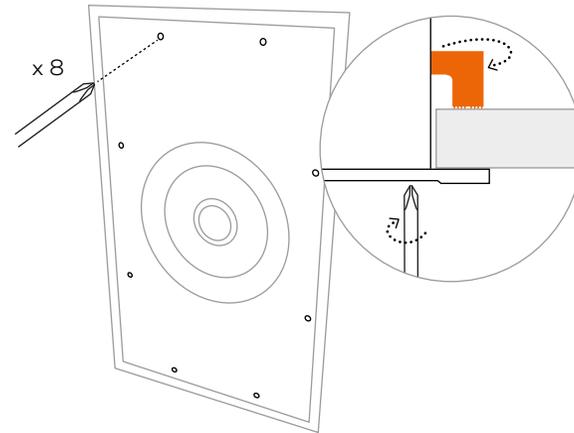
- 4 Place subwoofer in wall.



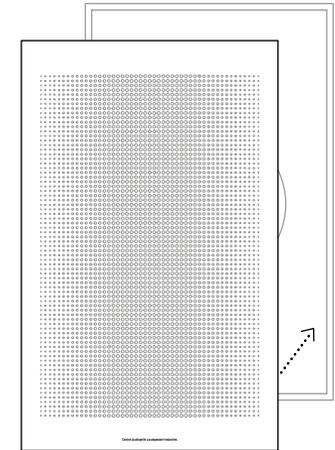
- 5 Tightening the dogleg clamp screws initially swings the dogleg clamps outwards, and then pulls them against the inside surface of the plasterboard, also compressing the subwoofer gasket. The screws should not be over-tightened. As soon as the screws show resistance to turning and the subwoofer feels secure, they are tight enough. If a power drill is used it should be a torque limiting type and have its torque set to minimum. Installing the subwoofer in the wall aperture and tightening the clamps is shown in Diagram 8.
- 6 With the SUB S-100 subwoofer secured in the wall the magnetically attached grille can be placed in position. With the grille in place, SUB S-100 subwoofer installation is complete.

DIAGRAM 8:  
IN-WALL SUBWOOFER INSTALLATION

- 5 Use a cross-head screwdriver or drill bit to tighten the eight dogleg clamp screws.



- 6 Place the grille.



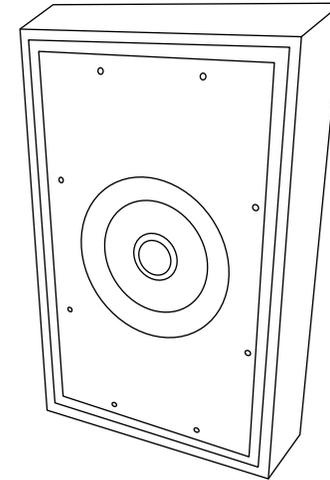
#### NOTE

Be careful not to touch the driver diaphragm when lifting the subwoofer into the wall.

## 4.2.4 On-wall Installation

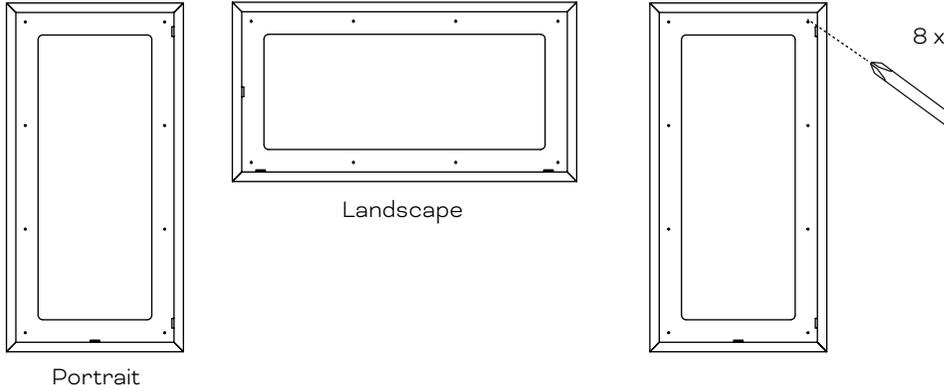
If for structural reasons a SUB S-100 subwoofer cannot be installed within a wall, the accessory PHANTOM OW frame S-80 can be employed to provide an installation solution. The On-wall Frame can be secured to a flat wall and then the SUB S-100 subwoofer installed within it. Diagram 9 illustrates subwoofer installation in an PHANTOM OW frame S-80.

Once the PHANTOM OW frame S-80 is secured to the wall, the SUB S-100 installation procedure is effectively the same as that described for In-wall installation in Section 4.2.3 of this manual.



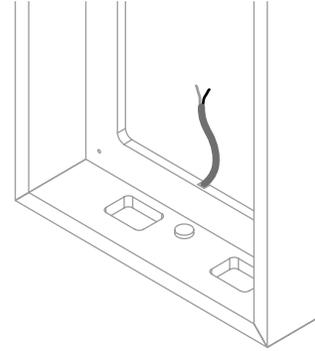
## DIAGRAM 9: ON-WALL INSTALLATION

- 1** Mount the DALI PHANTOM OW frame S-80 on the wall in landscape or portrait position. Ensure the On-wall Frame is level.

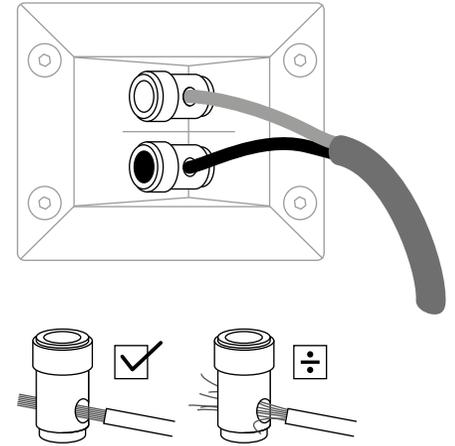


- 2** Attach the frame to the wall using fittings and screws appropriate for the type of wall.

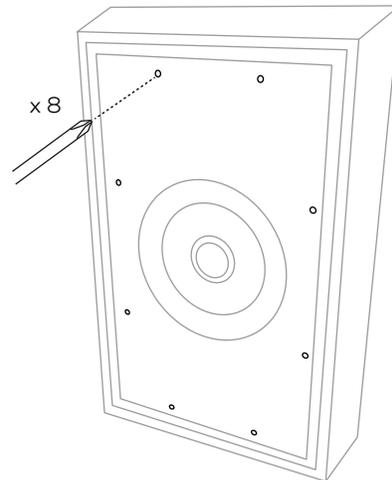
- 3** Pass the cable from the amplifier unit through the channels of the frame. Cable diameter: Max 10 mm



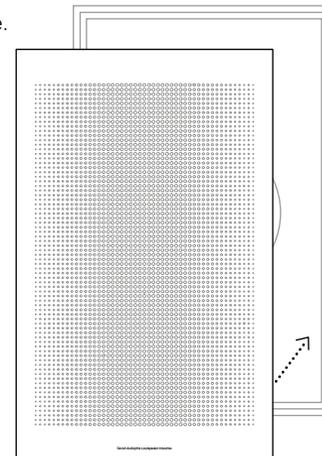
- 4** Connect cables from the amplifier to the subwoofer.



- 5** Use a cross-head screwdriver or drill bit to tighten the eight dogleg clamp screws.

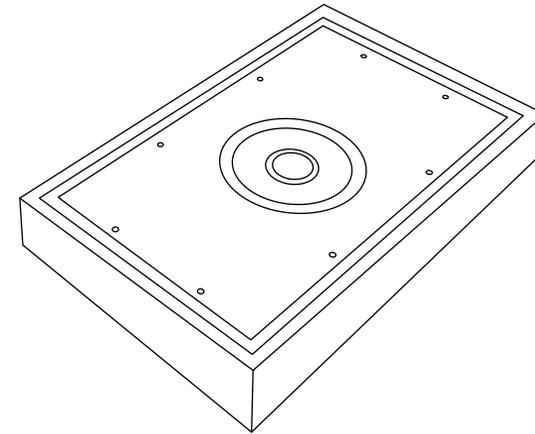


- 6** Fit the magnetic grille.



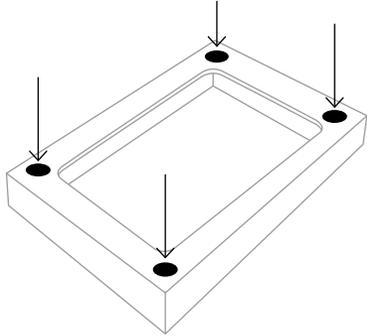
## 4.2.5 Unmounted Installation

In addition to its use to enable on-wall installation, the PHANTOM OW frame S-80 can also be used to provide an external cabinet for the subwoofer and enable its unmounted installation. The SUB S-100 and PHANTOM OW frame S-80 assembly should be laid on its back when used unmounted. Four adhesive felt pads are supplied with the SUB S-100 and should be applied to the back of the On-wall Frame to provide cushioning on hard floors. When installed unmounted, the SUB S-100 and PHANTOM OW frame S-80 assembly can potentially be concealed beneath furniture. Diagram 10 illustrates use of a SUB S-100 and PHANTOM OW frame S-80 assembly.

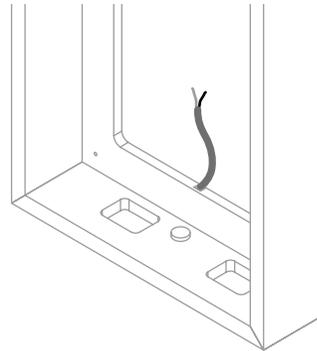


## DIAGRAM 10: UNMOUNTED INSTALLATION (FOR PLACEMENT ON FLOOR)

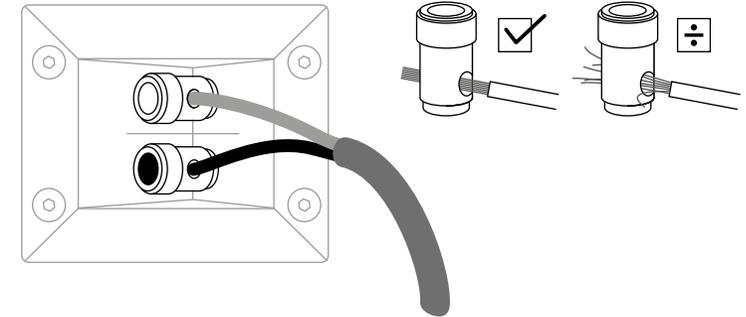
- 1** Place the 4 rubber feet on the rear side of the DALI PHANTOM OW frame S-80.



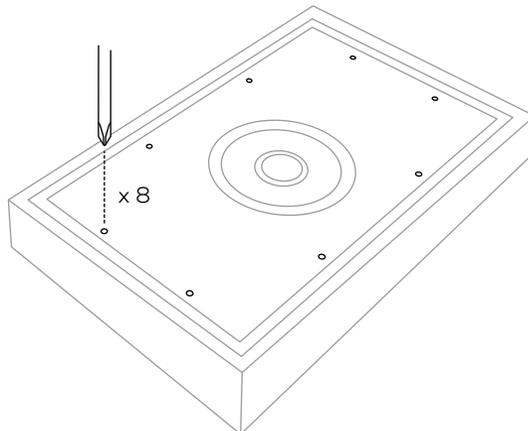
- 2** Pass the cable from the amplifier unit through the channels of the frame.



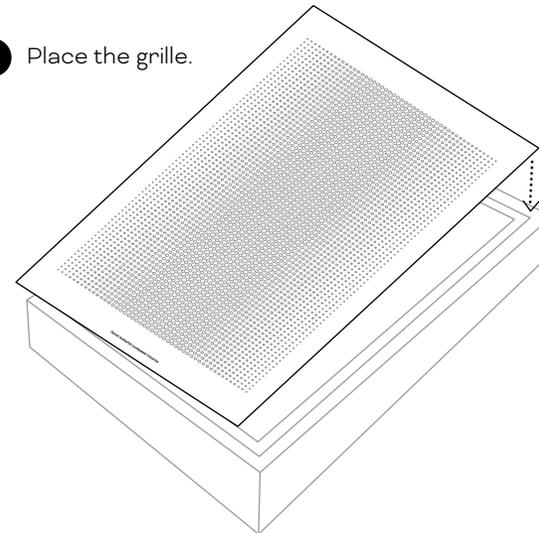
- 3** Connect cables from the amplifier to the subwoofer.



- 4** Use a cross-head screwdriver or drill bit to tighten the eight dogleg clamp screws.



- 5** Place the grille.



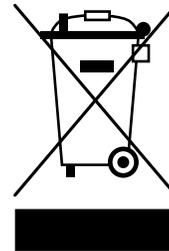
## 5.0 Cleaning

If your IW SUB S-100 requires cleaning, use only a dry cloth to dust its surfaces. Do not use any cleaning fluids.



## 6.0 Disposal

This product contains electrical or electronic materials. The presence of these materials may, if not disposed of properly, have potential adverse effects on the environment and human health. Presence of this label on the product means it should not be disposed of as unsorted waste and must be collected separately. As a consumer, you are responsible for ensuring that this product is disposed of properly.



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## 7.0 Technical Specifications

<b>DALI PHANTOM S</b>	<b>SUB S-100*</b>
Frequency range	26 - 250 Hz, ±3 dB
Sensitivity	84 dB @ 1 m for 2.83 V
Nominal impedance	6 ohm
Recommended amplifier power	200 - 500 W RMS
Recommended amplifier	DALI PHANTOM AMP-2500 DSP
Maximum SPL	110 dB @ 1 m
Low frequency driver	1 x 10 inch long throw, low profile
Low frequency diaphragm	Anodised aluminium
Connection input	Single wire
Enclosure type	Closed box / Infinite baffle
Installation location	In-wall / On-wall / Floor
Outer dimensions incl. grille (H x W x D)	657 x 412 x 107 mm / 25.87 x 16.22 x 4.22 inches
Outer dimensions excl. grille (H x W x D)	647 x 402 x 106 mm / 25.5 x 15.9 x 4.21 inches
Cut-out dimensions (H x W)	615 x 370 mm / 24.2 x 14.5 inches
Mounting depth	102 mm / 4.02 inches
Wall thickness (total dog-leg span)	10 - 70 mm / 0.4 - 2.8 inches
Weight incl. grille	17,25 kg / 38.03 lb
Shipping weight	21 kg / 46.3 lb
Finish	Black
Accessories	Cut-out template Front grille Rubber pads
Optional Accessories	PHANTOM PHANTOM OW frame S-80 DALI CONNECT SC F222C (speaker cable) DALI CONNECT SC F215C (speaker cable)

\* All SUB S-100 specifications are measured driven by the PHANTOM CI AMP-2500 DSP amplifier



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