Sound insulation.
Electrical installation in sound insulation walls.
Peace and quiet, privacy and discretion. **Sound insulation.**

Good sound insulation is an important feature in the quality of home life and work, which also makes it an important criterion in buildings. According to a current survey, good sound insulation is one of the most important quality features of a house. 82% of the people asked are not prepared to economise on sound insulation. 94% say that good sound and noise insulation is “important”, and for 57%, it is “extremely important”.

Building owners and planners call for clearly-defined criteria and functional solutions so that they can fit suitable sound insulation which is easy to install and prevents exposure to legal liability.

A comparison of the sound levels of various noises:

<table>
<thead>
<tr>
<th>Sound Source</th>
<th>dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe</td>
<td>10</td>
</tr>
<tr>
<td>Dripping tap (1m)</td>
<td>20</td>
</tr>
<tr>
<td>Disturb concentration</td>
<td>45</td>
</tr>
<tr>
<td>Normal noise in the home</td>
<td>60</td>
</tr>
<tr>
<td>Increased risk of illness</td>
<td>70</td>
</tr>
<tr>
<td>Vacuum cleaner (1 m)</td>
<td>75</td>
</tr>
<tr>
<td>Automobile (7.5 m)</td>
<td>90</td>
</tr>
<tr>
<td>Long-term danger</td>
<td>110</td>
</tr>
<tr>
<td>Lorry (7.5 m)</td>
<td>120</td>
</tr>
<tr>
<td>Rock concert</td>
<td>140</td>
</tr>
<tr>
<td>Short-term danger</td>
<td></td>
</tr>
<tr>
<td>Pneumatic hammer (7 m)</td>
<td></td>
</tr>
<tr>
<td>Aeroplane taking off (30 m)</td>
<td></td>
</tr>
</tbody>
</table>

- **Safe**: Sound of breathing (1 m)
- **Disturb concentration**: Dripping tap (1m)
- **Increased risk of illness**: Normal noise in the home
- **Long-term danger**: Vacuum cleaner (1 m)
- **Short-term danger**: Automobile (7.5 m), Lorry (7.5 m)
- **Rock concert**: Pneumatic hammer (7 m)
- **Aeroplane taking off**: (30 m)
Regulations and standards.  
**DIN 4109 and VDI 4100.**

**DIN 4109 contains the regulations for maintaining sound insulation** and lists the sound insulation values which are to be adhered to in the individual sectors and the use of buildings. However, they only state the minimum requirements for what is necessary, and not always what appears to be sufficient for the well-being of the people who live there. For this reason, the requirements of VDI 4100 are often contractually agreed. VDI 4100 includes three levels of sound insulation, with sound insulation level 1 taking over the details according to DIN 4109. Higher requirements are specified in sound insulation levels 2 and 3 (see our table).

The sound insulation levels are specified in accordance with use and requirements, and sound insulation level 2 is used most.

**KAISER sound insulation boxes** demonstrably ensure and guarantee higher requirements made of sound insulation drywalls or solid walls. Even when electrical installation work has been carried out, the sound insulation wall’s function is maintained, and there is no measurable difference in comparison with an unopened wall.

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**Awareness of noise from adjacent apartments** and allocation to sound insulation levels

<table>
<thead>
<tr>
<th>Insulation against airborne noise as per table 2-4 / VDI 4100</th>
<th>Classifying acoustic factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSt I</strong></td>
<td><strong>SSt II</strong></td>
</tr>
<tr>
<td>From table 2: apartments in apartment blocks</td>
<td></td>
</tr>
<tr>
<td>between habitable and external rooms</td>
<td>R'w in dB</td>
</tr>
<tr>
<td>between habitable rooms and external staircases and/or corridors</td>
<td></td>
</tr>
<tr>
<td>From table 3: semi-detached and terraced houses</td>
<td></td>
</tr>
<tr>
<td>between habitable rooms and external rooms</td>
<td>R'w in dB</td>
</tr>
<tr>
<td>From table 4*: internally apartment or house used by owner/tenant)</td>
<td></td>
</tr>
<tr>
<td>between habitable rooms</td>
<td>R'w in dB</td>
</tr>
</tbody>
</table>

*Variables for levels of sound insulation (SSt)
Innovative product solutions for sound insulation in electrical installations. The KAISER range of sound insulation boxes was introduced in 2010, with regular additions since then. The ideal solution for every use in dry and solid wall construction and to ensure peace and quiet in the home. For all levels of sound insulation.

In its DEGA recommendation 103, the Deutsche Gesellschaft für Akustik e.V. specified seven different classes of sound insulation in order to indicate the quality of their sound insulation. Thanks to these sound insulation classes, it is easy for the user to take the right decisions. The classification of apartments makes it possible to produce a simple and understandable assessment of the planned and constructional quality of the acoustic characteristics of buildings. The criteria are listed according to how noticeable the sound levels are, and indicate what levels of considerate behaviour between neighbours are necessary.

Increasing sound insulation by 6 dB halves the level of perceived noise.

Small difference – major impact.
A comparison of KAISER sound insulation systems.

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Sound insulation in solid walls.

**Sound insulation box - flush-mounting** | Page 6
For use in solid construction sound insulation walls with enhanced requirements of sound insulation.

Maximum sound insulation for cavity walls.

**Sound insulation box for cavity walls**
Ø 74 mm | Page 8
The one-gang junction box completely retains the sound-insulating characteristics of sound insulation walls.

**Sound insulation electronics box for cavity walls**
2x Ø 74 mm | Page 10
With additional internal space. The tried-and-tested range of KAISER sound insulation boxes has been specially designed for the fitting of switches, sockets and installation accessories in sound insulation walls.

The basis for sound insulation.

**Sound insulation box 68 for cavity walls**
Ø 68 mm | Page 12
New one-gang boxes and one-gang junction boxes for Ø 68 mm component openings. Toolless entry for cables up to Ø 11.5 mm and conduits up to M25.

You can find corresponding product videos on www.youtube.de/kaiserlektro.
Sound insulation in solid walls.

One-gang junction box
Flush-mounting sound insulation.

The innovative one-gang junction box for flush-mounting installation ensures that the requirements made of sound insulation in solid walls are met. The solid box body with additional sound insulation sheathing absorbs and reflects sounds, so there is no possibility of noise from adjacent rooms, and sound insulation is the same as if no installation boxes were fitted.

- Maintains the wall’s sound insulation function
- Installation up to 5-way combination
- Also possible for opposing installation
- Variable combination supports for M20/M25 conduits
- Flexible for screw and expanding claw fixing of the accessories
- Can be used as a junction box when fitted with a sound insulation cover

The flush-mounting sound insulation box provides 6 entry opportunities for conduits up to M25 and cables up to Ø 11.5 mm.

The sound insulation box is fitted in the same way as a standard flush-mounting box in a Ø 82 mm component opening. The precise cable and conduit entry is made with the universal opening cutter. Plaster or quick cement can be used for fixing. The combination distance of 71 mm and the sound-proof and fully-insulated through-wiring are guaranteed by the connector connection.
1 Easy connection of the boxes makes multiple combinations possible.
2 Exact opening of the cable entries using the universal opening cutter.
3 Tried-and-tested accessories such as KAISER signal covers are easy to insert and can be used multiple times.

Comparison of sound insulation measurements.

1 Base wall without installations, 52 dB
2 with one-gang junction box type 1555-04, 32 dB
3 with one-gang junction box type 1569-01, 52 dB

4 Base wall without installations, 56 dB
5 with one-gang junction box type 1555-04, 41 dB
6 with one-gang junction box type 1569-01, 56 dB

Solid wall 11.5 cm, 10 mm of plaster on both sides.
Solid wall 17.5 cm, 10 mm of plaster on both sides.

You can find the matching universal opening cutter (Art. No. 1085-80) on page 15.
Maximum sound insulation.

Sound insulation boxes for cavity walls.

KAISER’s sound insulation one-gang junction box – tried-and-tested for years – ensures the constructional demands made of sound insulation walls in spite of the presence of installation openings. The specially-developed boxes with sound insulation sheathing completely absorb and reflect sound. There is no measurable difference when compared with an unopened wall. The sound insulation boxes are also available in a halogen-free version.

- Maintains the wall’s sound insulation function up to 77 dB
- No loss in the audible range even at low frequencies
- Retrofitting is possible
- Installation up to 5-way combination
- Also for opposing installation for a wall thickness of 125 mm and greater
- When fitted with a sound insulation cover, also for use as a junction box

### Comparison of sound insulation measurements.

Lightweight wall (double layer, each 3-way boarded).

<table>
<thead>
<tr>
<th></th>
<th>dB</th>
</tr>
</thead>
<tbody>
<tr>
<td>63</td>
<td>50</td>
</tr>
<tr>
<td>125</td>
<td>60</td>
</tr>
<tr>
<td>250</td>
<td>70</td>
</tr>
<tr>
<td>500</td>
<td>80</td>
</tr>
<tr>
<td>1000</td>
<td>90</td>
</tr>
<tr>
<td>2000</td>
<td>100</td>
</tr>
<tr>
<td>4000</td>
<td>110</td>
</tr>
</tbody>
</table>

1 Wall, without installations, 77 dB
2 Sound insulation box 9069-01, 1-way, with accessory, 77 dB
3 Sound insulation box 9069-01, 1-way, with cover 77 dB
4 Sound insulation box 9069-01, 5-way, with accessories, 77 dB

Sound reduction index $K_r$, up to 77 dB

You can find the practical centering insert 68/74 (Art. No. 1083-99) on page 15.
1 The sound insulation box is fitted just as easily in a Ø 74 mm opening as a conventional cavity wall box.
2 Use the universal opening cutter to make the exact cable entry.
3 For combinations with a standard combination distance of 71 mm, simply remove the marked edge strip.
   Fully-insulated through-wirings can be created with the help of the support connector.
4 Directly opposing installation of the sound insulation box.
The sound insulation electronics box for use in walls with increased requirements of sound insulation. It maintains the wall’s sound insulation function and creates generous space for electronic switch devices, data boxes, cables and terminals. The electronics box makes possible population with cables and installation conduits up to M25.

- Maintains the wall’s sound insulation function
- Easy cutting of 2 x Ø 74 mm installation opening
- Also for retrofitting
- Also for use as a double box
- Extra-large terminal compartment for communications and network technology
- Additional space for electric components (e.g. KNX actuators or relays)

The sound insulation electronics box can easily be combined with the sound insulation one-gang junction box. Use the universal opening cutter to make the precise cable entry.

An optional separator wall allows the fitting of different voltage types in a housing.
Prevent sound from spreading in the electrical installation conduit.

Sealing plugs.

Sealing plugs ensure the sealing of all standard electrical installation conduits. The long sealing plug with three sealing lips and different widths adapts itself to the installation conduit in use and guarantees an airtight closure. It also reduces sound transmission, even when conduits are cut at an angle. From conduit size M25 and greater, the membrane surfaces are separated by bridges which ensure secure, safe cable routing and also prevent damage and gaps between cables.

- For airtight empty conduit installations including reduced sound transmission
- Sealing plug with three sealing lips and different widths adapts optimally to the installation conduit and guarantees airtight closure
- Elastic sealing membrane for guaranteed airtightness
- Toolless cable feed-through
- Bridges in the membrane prevent gaps between cables
- For all M16 - 25 installation conduits

You can find the matching MULTI 4000 turbo cutter (Art. No. 1084-10 / Ø 74 mm) on page 15.
The basis in sound insulation.  

Sound insulation box 68.

Thanks to their solid box body together with the sound-absorbing surface on the base of the box, the one-gang and one-gang junction boxes sound insulation 68 ensure the wall's sound insulation. Even with directly opposing installation, the wall’s sound insulation function is completely maintained. The easy opening process for cables and conduits, and the 68 mm installation opening, make possible fast installation and easy retrofitting in existing electrical installations.

- Maintains the wall's sound insulation function
- Also for retrofitting
- For Ø 68 mm installation openings
- For opposing installation
- Easy entry for cables up to Ø 11.5 mm and conduits up to Ø M25

Comparison of sound insulation measurements.  
Lightweight wall (double layer, each 3-way boarded).

1  Wall, without installations, 69 dB
2  Sound insulation box 9069-03/75, 1-way, with accessory, 69 dB
3  Sound insulation box 9069-04/76, 1-way, with cover, 69 dB
1 Minimum wall thickness of 100 mm possible with one-gang box.
2 Easy-to-cut cable and conduit entries.
3 Fully-insulated through-wiring can be achieved by using the support connector.
4 Sound-insulated strips on the box wall to absorb the transmission of sound.
KAISER Service.

Any questions about our products? Our product and application specialists are here to help you. Just call +49 (0) 23 55 / 809-61 for reliable support.

KAISER’s www.kaiser-elektro.de website offers you a range of attractive services. Especially important: The modern and user-friendly design, and the logical functionality which makes intuitive operation possible. On our website you can find all the information about our products, and also interesting facts and the latest information about the Kaiser company.

The KAISER App. Easy to use, always mobile. The KAISER App makes it easy for you to call up information about our existing and new products, and also to call up the company with your smartphone or tablet. The contents have been specially prepared for the requirements of mobile devices and automatically adapt to your device of choice.

You can find the KAISER App in the App Store and GooglePlay, or simply scan the following QR-Code. Alternatively you can use the www.kaiser-elektro.org/app link.

The sound insulation test certificates can be downloaded on www.kaiser-elektro.de
KAISER sound insulation systems.
At a glance.

Sound insulation box and accessories

- Sound insulation box, flush-mounting: 1569-01
- Sound insulation cover: 1184-69
- Signal cover: 1181-60

Werkzeuge

- Diamond grinding head: 1088-02/00
- Universal opening cutter: 1085-80
- Stripping pliers: AMZ 2: 1190-02

Installation in masonry.

Sound insulation boxes

- Sound insulation box: 9069-01
- Sound insulation box, halogen-free: 9069-77
- Electronics box: 9069-94
- Electronics box, halogen-free: 9069-74
- One-gang box sound insulation 68: 9069-03
- One-gang box sound insulation 68, halogen-free: 9069-75
- One-gang junction box sound insulation 68: 9069-04
- One-gang junction box sound insulation 68, halogen-free: 9069-76

Installation in cavity walls.

Accessories

- Sound insulation cover: 1184-69
- Support connector: 9060-88
- Support connector, halogen-free: 9060-78
- Sealing plug M16: 1040-16
- Sealing plug M20: 1040-20
- Sealing plug M25: 1040-25

Tools

- Turbo cutter MULTI 4000: 1083-10/1084-10
- Turbo cutter MULTI 2000 HM: 1083-70/1084-70
- Centering insert 68/74: 1083-93
- Universal opening cutter: 1085-80
- Stripping pliers: AMZ 2: 1190-02

You can find the complete range of products with all technical details in the KAISER catalogue and on the internet at www.kaiser-elektro.de
Systems and solutions
for professional electrical installation.

Since 1904, KAISER has developed and manufactured systems and products as a basis for good installation. Planners and users benefit internationally from the practical solutions for their daily operations in all areas of installation.

Energy efficiency.
Innovative KAISER products support you in satisfying the requirements of the EU guidelines and the national regulations such as the Energy Conservation Regulations (EnEV).

Fire protection.
KAISER fire protection systems offer you reliable protection for electrical installations in fire protection walls and ceilings.

Sound insulation.
KAISER’s innovative sound insulation boxes ensure the structural requirements for sound insulation walls, even with pre-fitted installations.

Radiation protection.
The use of the new radiation protection boxes maintains the wall’s radiation protection without the need for any additional screening measures.

Building.
KAISER has matching product system solutions which are used safely, consistently and in accordance with building-site practices for redeveloping, renovating and modernising work.

Technical information and advice
You will find more information about products, system solutions and communication media on our website: www.kaiser-elektro.de and on Youtube at www.youtube.com/kaiserelektro.

For additional questions or information, please contact our technical staff.
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