DRY SYSTEM SOLUTIONS
Suitable for floors, walls and ceilings in new build and retrofit
Wolf Bavaria GmbH - has been a successful, innovative and expanding company in the international dry construction industry since 2004. As experts, we advise and support hundreds of construction projects worldwide for a wide variety of customer groups. We offer simple and effective solutions for sound insulation, underfloor heating and dry screed flooring. In 2019 we introduced products to sound insulate the junctions between load-bearing components. Our products are optimized for retrofit and new build.
PhoneStar Sound Insulation Boards 4-7
PhoneStar Fire Protection 8-9
PhoneStar Wall Systems technical data 10-11
PhoneStar Floor Systems technical data 12-14
PhoneStar Ceiling Systems technical data 15
PowerFloor Basics for Underfloor Heating 16-17
PowerFloor Technical Data 18-19
PowerFloor Planning / Testing Method 20-21
Wolf System Solutions 22-23
Wolf Accessories 24-25
Wolf Philosophy - Research & Development 26-27
Sleep and the 5 senses

The ear never sleeps ... because it is a very sensitive organ that even notices the slightest noise during sleep. How else would you hear the alarm clock?

This is why even more environmental agencies and government institutions are now dealing with the prevailing noise problem.

Excessive noise is proven to be harmful to human health and affects us in terms of school, home and work routine. It can lead to insomnia, cause cardiovascular or psychophysiological impairments, reduce performance and cause irritability or behavioural changes in social interaction. (WHO, 2017)

PhoneStar from Wolf Bavaria can provide very effective protection against these noise disturbances.

This is how PhoneStar works

**Longitudinal sound wave transmission**
Longitudinal sound waves affect flanking noise transmission. PhoneStar has a high internal damping capacity due to the heavy, but soft, sand filling. The principle is similar to striking sand with a hammer. There is no sound wave created, therefore no longitudinal sound waves and no flanking conditions.

**PhoneStar 3 in 1**
The multi-layered and irregular shaped casing, the soft loose sand filling and the high mass of the PhoneStar board all contribute to substantially reducing the energy in the sound wave.

✔Mass ✔Loose filling ✔Multi-layered
PhoneStar - the sound insulation board
+ Reduces airborne and impact sound
+ Made from natural materials - sand and cardboard
+ Suitable as a dry screed

✓ environmentally friendly
✓ very effective

PhoneStar can be doubled up to achieve even better Sound Insulation results.

The results on the graph clearly show the outstanding airborne sound insulating attributes of the PhoneStar boards. They substantially reduce sound in the low frequency range, rising up to 40-45dB in the typical human hearing range. Additionally, the coincidence dip does not affect PhoneStar in the way that it does with homogenous building materials.
### PhoneStar PREMIUM-Line for best possible improvement

<table>
<thead>
<tr>
<th>Product illustration</th>
<th>Weight [kg/m²]</th>
<th>Thickness [mm]</th>
<th>Length x Width [mm]</th>
<th>Quantity [per pallet]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhoneStar Plus Tri</td>
<td>29</td>
<td>15</td>
<td>1250 x 625</td>
<td>31.25 m² 40 boards</td>
</tr>
</tbody>
</table>

### PhoneStar PROFESSIONAL-Line for increased improvement

<table>
<thead>
<tr>
<th>Product illustration</th>
<th>Weight [kg/m²]</th>
<th>Thickness [mm]</th>
<th>Length x Width [mm]</th>
<th>Quantity [per pallet]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhoneStar Tri</td>
<td>18</td>
<td>15</td>
<td>1280 x 800</td>
<td>53.76 m² 56 boards</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1250 x 625</td>
<td>54.69 m² 70 boards</td>
</tr>
<tr>
<td>PhoneStar Twin</td>
<td>12</td>
<td>10</td>
<td>1200 x 800</td>
<td>81.60 m² 85 boards</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1250 x 625</td>
<td>82.03 m² 105 boards</td>
</tr>
</tbody>
</table>

### PhoneStar STANDARD-Line for minimum improvement

<table>
<thead>
<tr>
<th>Product illustration</th>
<th>Weight [kg/m²]</th>
<th>Thickness [mm]</th>
<th>Length x Width [mm]</th>
<th>Quantity [per pallet]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhoneStar ST Tri</td>
<td>17.5</td>
<td>12.5</td>
<td>1280 x 800</td>
<td>54.72 m² 57 boards</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1250 x 625</td>
<td>54.68 m² 70 boards</td>
</tr>
<tr>
<td>PhoneStar ST Twin</td>
<td>11.5</td>
<td>9</td>
<td>1200x800</td>
<td>83.52 m² 87 boards</td>
</tr>
</tbody>
</table>

**CERTIFICATION**

The complete PhoneStar product range has been assessed by a European Technical Assessment Body - CE-ETA-13/0411, ETAG 016 Parts 1 and 4 for roof, wall, ceiling and pitched roof constructions.
Easy installation

CUTTING
Quick & easy, e.g. with a utility knife

TAPING
Tape cut edges with Wolf Tape

INSTALLATION
The PhoneStar panels are laid in a brickwork formation either floating or glued onto floors, depending on the final floor covering.
PhoneStar panels are installed either directly or preferably on to a sub-structure, on walls or ceilings.
See current installation instructions on wolf-bavaria.com

✓ Retrofit
✓ New build
✓ Timber frame houses
✓ Masonry houses

FLOOR FINISHES
Any type of final floor covering can be installed over PhoneStar boards with appropriate preparation.

WALL AND CEILING FINISHES
Plasterboard, specialist panels or other sheet materials can be used as the final layer over PhoneStar on walls and ceilings.

More information:
www.wolf-bavaria.com
that the failure criteria according to DIN 4102-2: 1977-09 for the boards used in DIN-compliant fire resistance classes with regard to:
- stability under own weight
- load bearing capacity
- room closure and insulation
are not exceeded by the modified construction. For this reason, the components are still classified in the same fire resistance class: “Since the designs meet the required performance criteria with sufficient certainty, no significant deviations from the fire protection could be proven for these constructions according to DIN 4102-4: 2016-05 “.
Thus the following constructions incorporating PhoneStar acoustic insulation boards are possible:

- non-load-bearing, room-enclosing metal partition walls of fire resistance classes F30-AB, F60-AB, F90-AB and F120-AB
- non-load-bearing, room-enclosing timber partition walls of the fire resistance classes F-30B, F60-B and F90-B.
- load-bearing, room-enclosing timber partition walls as independent stud wall of the fire-resistance classes F30-B and F60-B
- load-bearing, room-enclosing timber partition walls as twin wall building structure of fire resistance classes F30-B and F60-B

Installers of timber frame walls and dry construction can now benefit from the advantages of using PhoneStar acoustic insulation, without the fire protection measures being diminished.
Lightweight wall with sound and fire protection

Before Upgrading:
Timber Stud Wall: $R_{w,R} = ca. 43\, \text{dB}$

- Fire Resistant Plasterboard 12.5 mm acc. to DIN 18180
- Timber Stud Wall with Insulation Layer of $40\, \text{mm}$ Thickness minimum (30 kg/m$^3$)
- Fire Resistance Class F 30-B

Exemplar

After Upgrading: Timber Stud Wall with PhoneStar: $R_{w,R} = ca. 58\, \text{dB}$

- Fire Resistant Plasterboard 12.5 mm acc. to DIN 18180
- PhoneStar Tri - 15 mm
- Timber Stud Wall with Insulation Layer of $40\, \text{mm}$ Thickness minimum (30 kg/m$^3$)
- Fire Resistance Class F 30-B

### SOUND INSULATION with PhoneStar

<table>
<thead>
<tr>
<th>Depiction</th>
<th>PhoneStar Installation</th>
<th>PhoneStar Boards - (Thickness in mm)</th>
<th>Calculated Airborne Sound Insulation ($R_{w,R}$)</th>
<th>System Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Side</td>
<td>Twin - 10</td>
<td>50 dB</td>
<td>WSH 1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri - 15</td>
<td>53 dB</td>
<td>WSH 1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri ST - 12,5</td>
<td>53 dB</td>
<td>WSH 1.3</td>
<td></td>
</tr>
<tr>
<td>Both Sides</td>
<td>Twin - 10</td>
<td>54 dB</td>
<td>WSH 2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri - 15</td>
<td>58 dB</td>
<td>WSH 2.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri ST - 12,5</td>
<td>58 dB</td>
<td>WSH 2.3</td>
<td></td>
</tr>
</tbody>
</table>

Attention: Partition Thickness must be greater than Insulation Thickness Spatulas acc. To DIN 18181

Before Upgrading:
Metal Stud Wall: $R_{w,R} = ca. 45\, \text{dB}$

- Fire Resistant Plasterboard 12.5 mm acc. to DIN 18180
- Metal Stud Wall with Insulation Layer of $40\, \text{mm}$ Thickness minimum (30 kg/m$^3$)
- Fire Resistance Class F 30-B

Exemplar

Metal Stud Wall with PhoneStar: $R_{w,R} = ca. 60\, \text{dB}$

- Fire Resistant Plasterboard 12.5 mm acc. to DIN 18180
- PhoneStar Tri - 15 mm
- Metal Stud Wall with Insulation Layer of $40\, \text{mm}$ Thickness minimum (30 kg/m$^3$)
- Fire Resistance Class F 30-AB

### SOUND INSULATION with PhoneStar

<table>
<thead>
<tr>
<th>Depiction</th>
<th>PhoneStar Installation</th>
<th>PhoneStar Boards - (Thickness in mm)</th>
<th>Calculated Airborne Sound Insulation ($R_{w,R}$)</th>
<th>System Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Side</td>
<td>Twin - 10</td>
<td>52 dB</td>
<td>WSM 1.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri - 15</td>
<td>55 dB</td>
<td>WSM 1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri ST - 12,5</td>
<td>55 dB</td>
<td>WSM 1.3</td>
<td></td>
</tr>
<tr>
<td>Both Sides</td>
<td>Twin - 10</td>
<td>56 dB</td>
<td>WSM 2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri - 15</td>
<td>60 dB</td>
<td>WSM 2.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tri ST - 12,5</td>
<td>60 dB</td>
<td>WSM 2.3</td>
<td></td>
</tr>
</tbody>
</table>

Attention: Partition Thickness must be greater than Insulation Thickness Filling acc. To DIN 18181

Fire Protection acc. to DIN 4102-4: 2016-05 Table 10.3 and Expertise IBB Nr. 6A-2017/113-Mey
## PhoneStar wall systems - existing stud partitions

### Exemplar

<table>
<thead>
<tr>
<th>INITIAL WALL</th>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details / Substructure</th>
<th>PhoneStar (Board Thickness)</th>
<th>Depth of Structure</th>
<th>Calculated Airborne Sound Insulation ($R'_{W,R}$)</th>
<th>Airborne Sound Improvement ($\Delta R'_{W}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIMBER</td>
<td>WSHB 1.1</td>
<td><img src="image1.png" alt="Image" /></td>
<td>On One Side - Back Left Untouched</td>
<td>Twin - 10 mm</td>
<td>92,5 mm</td>
<td>52 dB</td>
<td>9 dB</td>
</tr>
<tr>
<td></td>
<td>WSHB 1.2</td>
<td><img src="image2.png" alt="Image" /></td>
<td></td>
<td>Tri - 15 mm</td>
<td>97,5 mm</td>
<td>55 dB</td>
<td>12 dB</td>
</tr>
<tr>
<td></td>
<td>WSHB 1.3</td>
<td><img src="image3.png" alt="Image" /></td>
<td></td>
<td>Tri ST - 12,5 mm</td>
<td>95,0 mm</td>
<td>55 dB</td>
<td>12 dB</td>
</tr>
<tr>
<td>Thickness:</td>
<td>WSHB 2.1</td>
<td><img src="image4.png" alt="Image" /></td>
<td>On Both Sides</td>
<td>Twin - 10 mm</td>
<td>115 mm</td>
<td>58 dB</td>
<td>15 dB</td>
</tr>
<tr>
<td>70 mm</td>
<td>WSHB 2.2</td>
<td><img src="image5.png" alt="Image" /></td>
<td></td>
<td>Tri - 15 mm</td>
<td>125 mm</td>
<td>62 dB</td>
<td>19 dB</td>
</tr>
<tr>
<td></td>
<td>WSHB 2.3</td>
<td><img src="image6.png" alt="Image" /></td>
<td></td>
<td>Tri ST - 12,5 mm</td>
<td>120 mm</td>
<td>62 dB</td>
<td>19 dB</td>
</tr>
<tr>
<td>METAL</td>
<td>WSMB 1.1</td>
<td><img src="image7.png" alt="Image" /></td>
<td>On One Side - Back Left Untouched</td>
<td>Twin - 10 mm</td>
<td>97,5 mm</td>
<td>54 dB</td>
<td>9 dB</td>
</tr>
<tr>
<td>($R_{W,R}$) = 45 dB</td>
<td>WSMB 1.2</td>
<td><img src="image8.png" alt="Image" /></td>
<td></td>
<td>Tri - 15 mm</td>
<td>102,5 mm</td>
<td>57 dB</td>
<td>12 dB</td>
</tr>
<tr>
<td></td>
<td>WSMB 1.3</td>
<td><img src="image9.png" alt="Image" /></td>
<td></td>
<td>Tri ST - 12,5 mm</td>
<td>100 mm</td>
<td>57 dB</td>
<td>12 dB</td>
</tr>
<tr>
<td>Thickness:</td>
<td>WSMB 2.1</td>
<td><img src="image10.png" alt="Image" /></td>
<td>On Both Sides</td>
<td>Twin - 10 mm</td>
<td>120 mm</td>
<td>60 dB</td>
<td>15 dB</td>
</tr>
<tr>
<td>75 mm</td>
<td>WSMB 2.2</td>
<td><img src="image11.png" alt="Image" /></td>
<td></td>
<td>Tri - 15 mm</td>
<td>130 mm</td>
<td>64 dB</td>
<td>19 dB</td>
</tr>
<tr>
<td></td>
<td>WSMB 2.3</td>
<td><img src="image12.png" alt="Image" /></td>
<td></td>
<td>Tri ST - 12,5 mm</td>
<td>125 mm</td>
<td>64 dB</td>
<td>19 dB</td>
</tr>
</tbody>
</table>

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.

### Installation of PhoneStar to the wall

On timber or metal stud partition walls, PhoneStar boards are fixed using appropriate dry wall screws.

On masonry walls PhoneStar boards are fixed to resilient channels which are fixed to the wall.

PhoneStar - technical data

### PhoneStar wall systems - Masonry and solid timber walls

**Sample wall construction; solid wall**

Fixed to resilient channels or timber battens which are fixed directly to the wall. Alternatively use sound insulation wall plug fixings.

<table>
<thead>
<tr>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details</th>
<th>PhoneStar (Board Thickness)</th>
<th>Depth of Structure (excluding the wall)</th>
<th>Calculated Airborne Sound insulation ($R_{w,R}$)</th>
<th>Airborne Sound Improvement ($\Delta R_w$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MASONRY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMZ D 1.2</td>
<td></td>
<td>Directly plugged*</td>
<td>Tri • 15 mm</td>
<td>27,5 mm</td>
<td>48 dB</td>
<td>6 dB</td>
</tr>
<tr>
<td>WMZ D 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>25.0 mm</td>
<td>48 dB</td>
<td>6 dB</td>
</tr>
<tr>
<td>WMZ L 1.1</td>
<td></td>
<td>30 mm Battens</td>
<td>Twin • 10 mm</td>
<td>52.5 mm</td>
<td>50 dB</td>
<td>8 dB</td>
</tr>
<tr>
<td>WMZ L 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>57.5 mm</td>
<td>53 dB</td>
<td>11 dB</td>
</tr>
<tr>
<td>WMZ L 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>55 mm</td>
<td>53 dB</td>
<td>11 dB</td>
</tr>
<tr>
<td>WMZ W 1.1</td>
<td></td>
<td>20 mm Wood Fibre Boards</td>
<td>Twin • 10 mm</td>
<td>42.5 mm</td>
<td>51 dB</td>
<td>9 dB</td>
</tr>
<tr>
<td>WMZ W 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>47.5 mm</td>
<td>54 dB</td>
<td>12 dB</td>
</tr>
<tr>
<td>WMZ W 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>45.0 mm</td>
<td>54 dB</td>
<td>12 dB</td>
</tr>
<tr>
<td>WMZ H 1.1</td>
<td></td>
<td>27 mm Resilient Bars</td>
<td>Twin • 10 mm</td>
<td>49.5 mm</td>
<td>55 dB</td>
<td>13 dB</td>
</tr>
<tr>
<td>WMZ H 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>54.5 mm</td>
<td>57 dB</td>
<td>15 dB</td>
</tr>
<tr>
<td>WMZ H 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>52.0 mm</td>
<td>57 dB</td>
<td>15 dB</td>
</tr>
<tr>
<td>WMZ V 1.1</td>
<td></td>
<td>Independent stud wall</td>
<td>Twin • 10 mm</td>
<td>77.5 mm</td>
<td>60 dB</td>
<td>18 dB</td>
</tr>
<tr>
<td>WMZ V 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>82.5 mm</td>
<td>62 dB</td>
<td>20 dB</td>
</tr>
<tr>
<td>WMZ V 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>80.0 mm</td>
<td>62 dB</td>
<td>20 dB</td>
</tr>
<tr>
<td><strong>SOLID TIMBER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WMH D 1.2</td>
<td></td>
<td>Directly screwed</td>
<td>Tri • 15 mm</td>
<td>27,5 mm</td>
<td>42 dB</td>
<td>9 dB</td>
</tr>
<tr>
<td>WMH D 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>25 mm</td>
<td>42 dB</td>
<td>9 dB</td>
</tr>
<tr>
<td>WMH L 1.1</td>
<td></td>
<td>30 mm Battens</td>
<td>Twin • 10 mm</td>
<td>52.5 mm</td>
<td>47 dB</td>
<td>14 dB</td>
</tr>
<tr>
<td>WMH L 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>57.5 mm</td>
<td>50 dB</td>
<td>17 dB</td>
</tr>
<tr>
<td>WMH L 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>55.0 mm</td>
<td>50 dB</td>
<td>17 dB</td>
</tr>
<tr>
<td>WMH W 1.1</td>
<td></td>
<td>20 mm Wood Fibre Boards</td>
<td>Twin • 10 mm</td>
<td>42.5 mm</td>
<td>48 dB</td>
<td>15 dB</td>
</tr>
<tr>
<td>WMH W 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>47.5 mm</td>
<td>51 dB</td>
<td>18 dB</td>
</tr>
<tr>
<td>WMH W 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>45.0 mm</td>
<td>51 dB</td>
<td>18 dB</td>
</tr>
<tr>
<td>WMH H 1.1</td>
<td></td>
<td>27 mm Resilient Bars</td>
<td>Twin • 10 mm</td>
<td>49.5 mm</td>
<td>53 dB</td>
<td>20 dB</td>
</tr>
<tr>
<td>WMH H 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>54.5 mm</td>
<td>56 dB</td>
<td>23 dB</td>
</tr>
<tr>
<td>WMH H 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>52 mm</td>
<td>56 dB</td>
<td>23 dB</td>
</tr>
<tr>
<td>WMH V 1.1</td>
<td></td>
<td>Independent Stud Wall</td>
<td>Twin • 10 mm</td>
<td>77.5 mm</td>
<td>57 dB</td>
<td>24 dB</td>
</tr>
<tr>
<td>WMH V 1.2</td>
<td></td>
<td></td>
<td>Tri • 15 mm</td>
<td>82.5 mm</td>
<td>60 dB</td>
<td>27 dB</td>
</tr>
<tr>
<td>WMH V 1.3</td>
<td></td>
<td></td>
<td>Tri ST • 12.5 mm</td>
<td>80 mm</td>
<td>60 dB</td>
<td>27 dB</td>
</tr>
</tbody>
</table>

* Only with plasterboard lining

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.
## PhoneStar floor systems - Timber floors

<table>
<thead>
<tr>
<th>Initial Value</th>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details</th>
<th>PhoneStar (Board Thickness)</th>
<th>Final Construction Height</th>
<th>PhoneStar</th>
<th>PhoneStar+ 19 mm Wood Fibre (WF)</th>
<th>PhoneStar+ WF</th>
<th>PhoneStar+ WF + Levelling Compound</th>
<th>Airborne Sound</th>
<th>Impact Sound</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIMBER FLOOR with CEILING IN PLACE</strong></td>
<td>BHG 1.1</td>
<td>Twin - 10 mm</td>
<td></td>
<td></td>
<td></td>
<td>10 mm</td>
<td>29 mm</td>
<td></td>
<td></td>
<td>51 dB</td>
<td>69 dB</td>
</tr>
<tr>
<td></td>
<td>BHG 1.2</td>
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<td></td>
<td>BHG 1.3</td>
<td>Twin - 10 mm</td>
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<td>29 mm</td>
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<td>BHG 1.8</td>
<td>Tri - 15 mm</td>
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<td>BHG 1.9</td>
<td>Twin - 10 mm</td>
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<td>BHG 1.10</td>
<td>Tri - 15 mm</td>
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<tr>
<td><strong>TIMBER FLOOR with EXPOSED JOISTS BELOW</strong></td>
<td>BHS 1.1</td>
<td>Twin - 10 mm</td>
<td></td>
<td></td>
<td></td>
<td>10 mm</td>
<td>29 mm</td>
<td></td>
<td></td>
<td>39 dB</td>
<td>69 dB</td>
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<td></td>
<td>BHS 1.2</td>
<td>Tri - 15 mm</td>
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<td></td>
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<td>15 mm</td>
<td>34 mm</td>
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<td>73 dB</td>
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<td>39 mm</td>
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<td>Tri - 15 mm</td>
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</tr>
</tbody>
</table>

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.

### Installation of boards on the floor:
- One or more layers
- Square edge joints
- Floating or glued

### Advantages:
- Work can continue on immediately
- Instant load-bearing capacity
- High pressure resistance
## PhoneStar floor systems - Timber floors

### Cross Laminated Timber Floor

<table>
<thead>
<tr>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details</th>
<th>PhoneStar (Board Thickness)</th>
<th>Final Construction Height</th>
<th>Airborne Sound Value: $R_w,R$</th>
<th>Impact Sound Value: $L_{n,w,R}$</th>
<th>Improvement $\Delta R_w$</th>
<th>Improvement $\Delta L_{n,w,R}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHB 1.1</td>
<td>PhoneStar</td>
<td>Twin - 10 mm</td>
<td>10 mm</td>
<td>47 dB</td>
<td>70 dB</td>
<td>6 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.2</td>
<td></td>
<td>Tri - 15 mm</td>
<td>15 mm</td>
<td>49 dB</td>
<td>68 dB</td>
<td>8 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.3</td>
<td>PhoneStar+ 19 mm Wood Fibre (WF)</td>
<td>Twin - 10 mm</td>
<td>29 mm</td>
<td>48 dB</td>
<td>67 dB</td>
<td>9 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.4</td>
<td></td>
<td>Tri - 15 mm</td>
<td>34 mm</td>
<td>50 dB</td>
<td>65 dB</td>
<td>11 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.5</td>
<td>2x PhoneStar+ 19 mm Wood Fibre</td>
<td>Twin - 10 mm</td>
<td>39 mm</td>
<td>53 dB</td>
<td>64 dB</td>
<td>12 db</td>
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<tr>
<td>BHB 1.6</td>
<td></td>
<td>Tri - 15 mm</td>
<td>49 mm</td>
<td>54 dB</td>
<td>61 dB</td>
<td>15 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.7</td>
<td>PhoneStar+ WF + Levelling Compound</td>
<td>Twin - 10 mm</td>
<td>59 mm</td>
<td>55 dB</td>
<td>66 dB</td>
<td>20 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.8</td>
<td></td>
<td>Tri - 15 mm</td>
<td>64 mm</td>
<td>57 dB</td>
<td>69 dB</td>
<td>22 db</td>
<td></td>
<td></td>
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<tr>
<td>BHB 1.9</td>
<td>2x PhoneStar+ WF + Levelling Compound</td>
<td>Twin - 10 mm</td>
<td>69 mm</td>
<td>58 dB</td>
<td>70 dB</td>
<td>23 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHB 1.10</td>
<td></td>
<td>Tri - 15 mm</td>
<td>79 mm</td>
<td>61 dB</td>
<td>72 dB</td>
<td>26 db</td>
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</tbody>
</table>

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.

### Traditional Timber Floor Fully-Filled With Heavy Cavity Filling

<table>
<thead>
<tr>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details</th>
<th>PhoneStar (Board Thickness)</th>
<th>Final Construction Height</th>
<th>Airborne Sound Value: $R_w,R$</th>
<th>Impact Sound Value: $L_{n,w,R}$</th>
<th>Improvement $\Delta R_w$</th>
<th>Improvement $\Delta L_{n,w,R}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHA 1.1</td>
<td>PhoneStar</td>
<td>Twin - 10 mm</td>
<td>10 mm</td>
<td>54 dB</td>
<td>60 dB</td>
<td>6 db</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BHA 1.2</td>
<td></td>
<td>Tri - 15 mm</td>
<td>15 mm</td>
<td>55 dB</td>
<td>68 dB</td>
<td>8 db</td>
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<td></td>
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<tr>
<td>BHA 1.3</td>
<td>PhoneStar+ 19 mm Wood Fibre (WF)</td>
<td>Twin - 10 mm</td>
<td>29 mm</td>
<td>55 dB</td>
<td>66 dB</td>
<td>11 db</td>
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<tr>
<td>BHA 1.4</td>
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<td>Tri - 15 mm</td>
<td>34 mm</td>
<td>56 db</td>
<td>72 db</td>
<td>13 db</td>
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<td>BHA 1.5</td>
<td>2x PhoneStar+ 19 mm Wood Fibre (WF)</td>
<td>Twin - 10 mm</td>
<td>39 mm</td>
<td>57 dB</td>
<td>72 dB</td>
<td>14 db</td>
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<td>58 dB</td>
<td>74 dB</td>
<td>16 db</td>
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<tr>
<td>BHA 1.7</td>
<td>PhoneStar+ WF + Levelling Compound</td>
<td>Twin - 10 mm</td>
<td>59 mm</td>
<td>61 db</td>
<td>76 dB</td>
<td>19 db</td>
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<td>BHA 1.8</td>
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<td>Tri - 15 mm</td>
<td>64 mm</td>
<td>62 db</td>
<td>78 dB</td>
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<tr>
<td>BHA 1.9</td>
<td>2x PhoneStar+ WF + Levelling Compound</td>
<td>Twin - 10 mm</td>
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<td>84 dB</td>
<td>21 db</td>
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<td>64 db</td>
<td>90 db</td>
<td>22 db</td>
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</table>

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.

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More information regarding installation:
## PhoneStar floor systems - Concrete floors

<table>
<thead>
<tr>
<th>Initial Value</th>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details</th>
<th>PhoneStar (Board Thickness)</th>
<th>Final Construction Height</th>
<th>Impact Sound</th>
</tr>
</thead>
<tbody>
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<td><strong>CONCRETE SLABS</strong></td>
<td>BM 1.1</td>
<td>PhoneStar</td>
<td>Twin - 10 mm</td>
<td>10 mm</td>
<td>54 dB</td>
<td>19 dB</td>
</tr>
<tr>
<td></td>
<td>BM 1.2</td>
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<td>Tri - 15 mm</td>
<td>15 mm</td>
<td>51 dB</td>
<td>22 dB</td>
</tr>
<tr>
<td></td>
<td>BM 1.3</td>
<td>PhoneStar+ 19 mm Wood Fibre (WF)</td>
<td>Twin - 10 mm</td>
<td>29 mm</td>
<td>50 dB</td>
<td>23 dB</td>
</tr>
<tr>
<td></td>
<td>BM 1.4</td>
<td></td>
<td>Tri - 15 mm</td>
<td>34 mm</td>
<td>48 dB</td>
<td>25 dB</td>
</tr>
<tr>
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<td>BM 1.5</td>
<td>2x PhoneStar+ 19 mm Wood Fibre (WF)</td>
<td>Twin - 10 mm</td>
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<td>47 dB</td>
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<tr>
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<td>BM 1.6</td>
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<td>Tri - 15 mm</td>
<td>49 mm</td>
<td>44 dB</td>
<td>29 dB</td>
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<tr>
<td></td>
<td>BM 1.7</td>
<td>PhoneStar+ WF + Levelling Compound</td>
<td>Twin - 10 mm</td>
<td>59 mm</td>
<td>47 dB</td>
<td>26 dB</td>
</tr>
<tr>
<td></td>
<td>BM 1.8</td>
<td></td>
<td>Tri - 15 mm</td>
<td>64 mm</td>
<td>46 dB</td>
<td>27 dB</td>
</tr>
<tr>
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<td>BM 1.9</td>
<td>2x PhoneStar+ WF + Levelling Compound</td>
<td>Twin - 10 mm</td>
<td>69 mm</td>
<td>45 dB</td>
<td>28 dB</td>
</tr>
<tr>
<td></td>
<td>BM 1.10</td>
<td></td>
<td>Tri - 15 mm</td>
<td>79 mm</td>
<td>42 dB</td>
<td>31 dB</td>
</tr>
</tbody>
</table>

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.

**References**

DJ Studio in Hamburg
- PhoneStar fully installed

Apartment in Frankonia
- Two layers of PhoneStar on floor

Family Home
- PhoneStar on wooden floor

# PhoneStar ceiling systems

**Initial Value**

Thickness of Ceilings: 180 mm

<table>
<thead>
<tr>
<th>System Code</th>
<th>Depiction</th>
<th>Construction Details</th>
<th>PhoneStar (Board Thickness)</th>
<th>Final Construction Height</th>
<th>Airborne Sound</th>
<th>Impact Sound</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

## CONCRETE CEILING

- **DM L 1.1**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 52.5 mm
  - Rw,R = 53 dB
  - Ln,w,R = 73 dB

- **DM L 1.3**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 55 mm
  - Rw,R = 57 dB
  - Ln,w,R = 68 dB

- **DM H 1.1**
  - 27 mm Resilient bars
  - Twin - 10 mm
  - Final Construction Height: 49.5 mm
  - Rw,R = 49.5 dB

- **DM H 1.3**
  - 27 mm Resilient bars
  - Twin - 10 mm
  - Final Construction Height: 52 mm
  - Rw,R = 52 dB

### TIMBER CEILING

- **DHG L 1.1**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 52 dB
  - Rw,R = 46 dB
  - Ln,w,R = 75 dB

- **DHG L 1.3**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 53 dB
  - Rw,R = 47 dB

- **DHG H 1.1**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 48 dB
  - Rw,R = 26 dB
  - Ln,w,R = 82 dB

- **DHG H 1.3**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 49 dB
  - Rw,R = 27 dB

### Exposed Joists

- **DHS L 1.1**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 36 dB
  - Rw,R = 26 dB

- **DHS L 1.3**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 39 dB

- **DHS H 1.1**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 47 dB
  - Rw,R = 26 dB

- **DHS H 1.3**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 49 dB

### CLT

- **DHB L 1.1**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 48 dB

- **DHB L 1.3**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 49 dB

- **DHB H 1.1**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 55 dB

- **DHB H 1.3**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 57 dB

### TRADITIONAL TIMBER FLOOR*

- **DHA L 1.1**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 54 dB

- **DHA L 1.3**
  - 30 mm Battens
  - Twin - 10 mm
  - Final Construction Height: 55 dB

- **DHA H 1.1**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 61 dB

- **DHA H 1.3**
  - 27 mm Resilient Bars
  - Twin - 10 mm
  - Final Construction Height: 62 dB

---

*Traditional timber floor fully-filled with heavy cavity filling

The values given are guide values and may vary depending on the type of overall structure and the individual construction site situation.
In Comparison: Heating reaction of PowerFloor compared to Heated Screed

- Possible Cost Savings up to 30% depending on the living conditions

PowerFloor - an inspiring product

PowerFloor

Advantages

5 Inspiring Advantages

+ Free design planning
+ Even distribution of heat across floor
+ Pleasant radiant heat
+ Low flow temperature
+ Suitable for solar and heat pumps

PowerFloor adapts to the desired temperature faster and can thus reduce operating costs. Source: Arge Stiba
PowerFloor
The system for individual requirements

- Fast reaction time and precise controllability
- Constructions are available to suit all finished floor coverings
- The individually created installation plan ensures easy and fast processing.
- Versatile in use due to low weight and thin construction height of 20 or 24 mm.

- Available with and without high quality 16mm plastic and metal composite pipes.

PowerFloor is ideal for low temperature heating systems. A water temperature control unit allows connection to existing heating systems.

Homogeneous heat distribution
- no cold spots due to the use of the optional aluminium heat conducting plate
### PowerFloor Light

**PowerFloor light**
- Size: Straight element: 1000 x 500 x 20 mm LxWxH
  - Curved element: 250 x 500 x 20 mm LxWxH
- Material: Honeycomb cardboard interior with aluminium strips between pipes on the straight elements. Aluminium not included on curved elements.
- Aluminium Strips: 0.4 mm thick
- Compressive strength: 500 kPA
- Weight: ca. 3.3 kg/m²

### PowerFloor Öko-Plus

**PowerFloor Öko PLUS**
- Size: Straight element: 1000 x 500 x 24 mm LxWxH
  - Curved element: 250 x 500 x 24 mm LxWxH
- Material: Wood fibre insulation boards with aluminium strips between pipes on the straight elements. Aluminium not included on curved elements.
- Aluminium Strips: 0.4 mm thick
- Compressive strength: 200 kPA
- Weight: ca. 5-6 kg/m²

### PowerFloor Öko

**PowerFloor Öko**
- Size: Straight element: 1000 x 500 x 24 mm LxWxH
  - Curved element: 250 x 500 x 24 mm LxWxH
- Material: Wood fibre insulation boards without any aluminium strips on elements.
- Compressive strength: 200 kPA
- Weight: ca. 5-6 kg/m²

---

**Our ecological variant:**
- Without aluminium strips
- Ideal for room temperature control in passive houses

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More information:
[www.wolf-bavaria.com](http://www.wolf-bavaria.com)
PowerFloor - technical data

Packages

PowerFloor light package - pipe distance 250 mm and pipe distance 125 mm

PowerFloor Öko Plus package - pipe distance 250 mm and pipe distance 125 mm

PowerFloor Öko package - pipe distance 125 mm

PowerFloor packages include:

- Floor heating elements
- Perimeter filling elements
- Perimeter flanking strips
- Plastic and metal composite pipes
- Personalised design planning

Detailed information: www.wolf-bavaria.com/downloadcenter/

PowerFloor planning and installation

The PowerFloor elements will be installed according to a plan generated by Wolf Bavaria. For each heating circuit, the metal composite pipe is pressed into the grooves of the elements and connected to the distributor. PowerFloor can be connected to both low-temperature and high-temperature heating systems (with fixed-value control set).
PowerFloor Ordering process

**ENQUIRY / QUOTATION**
- Current situation
- Heat demand required
- Consultancy
- Defining the overall plan
- Quotation

**ORDER**
- Check quotation
- Make official order

**PROCESS ORDER**
- Send drawings to Wolf Bavaria in PDF and DWG / DXF format with the precise position of the heating circuit distributor in each specific area.
- You will then receive the planned layout documents for approval.

**FINAL APPROVAL**
- Verify order
- Sign approval document

**COMPLETION**
- Pick and pack order
- Delivery

**INSTALLATION**
- Installation is based on previously designed layout
- Follow the manufacturer’s installation instructions accurately

Our PowerFloor packages:
- ✓ comprehensive
- ✓ individual plan
- ✓ exclusive solution

More information:
www.wolf-bavaria.com/produktübersicht/
Our service to you - your satisfaction

+ On-site acoustic measurements available.
+ Impact sound tested in accordance with ISO 140.
We measure the sound insulation through floors by placing a tapping machine on the floor in the source room and measure the impact sound heard in the receiving room below.
+ Airborne sound is measured in accordance with ISO 140.
We measure the airborne sound heard through walls and floors by placing a Dodecaeder loudspeaker in the source room and measure the sound heard in the receiving room.
+ The Weighted Standardised Level Difference measurements are derived in accordance with ISO 717.
+ A single value figure is determined for Airborne Sound Insulation which is required to meet building regulations for both new build and renovated separating dwellings.
+ The results are reviewed after consultation and installation.
This measurement procedure leads to satisfied developers, planners, specifiers, home-owners and home occupiers.

3 steps to get an optimal result

ANALYSIS OF CURRENT STRUCTURE │ STEP 01
CONSULTATION ABOUT PROPOSED UPGRADE │ STEP 02
TESTING THE UPGRADED STRUCTURE │ STEP 03
RESULT
The modular construction kit system

The completely dry system solution from Wolf Bavaria:
+ Dry screed (PhoneStar / Wolf Hugo)
+ Underfloor heating (PowerFloor)
+ Sound Insulation (PhoneStar)
+ Wide range of accessories

The advantages:
+ quick, easy and clean installation
+ ecological and economical
+ no additional moisture
+ natural pollutant-free raw materials

One stop shopping
Tailored system

Optimal buildup

Wolf HUGO N & F (Tongue & Groove) or Wolf Decoupling Boards
- Load Distribution
- Even heat distribution

Wolf PowerFloor Underfloor Heating System
- Underfloor Heating in Dry Constructions
- Including Aluminium Heat Distribution Plate

PhoneStar Sound Insulation Boards
- Acoustic Insulation
- Dry Screed
- Load-bearing through PhoneStar

Wolf Protect Decoupling Layer
- Wood Fibre Insulation
- Decoupling Layer

Floor Levelling / Level Sub-Deck Floor
- Levelling Compound
- Layer for Installing Pipes etc

✓ sound insulation boards ✓ underfloor heating ✓ accessories
Modular system solutions

Advantages that inspire:
Dry screed systems compared to wet screed

Wolf Bavaria dry-screed systems

HANDLING
Modular system design elements
One stop shopping

CONSTRUCTION TIME
Shorter construction time due to no drying time required
No additional moisture
Flooring structure completed quickly

ACOUSTIC INSULATION
Significant improvement in airborne and impact sound insulation provided by PhoneStar

CONSTRUCTION HEIGHT / WEIGHT
Reduction of the construction height
Weight saving

COSTS
Co-ordination costs are reduced for both contractors and suppliers of system

Wet-screed

HANDLING
External specialised companies are required

CONSTRUCTION TIME
Drying time necessary

ACOUSTIC INSULATION
Increased risk of sound bridges

CONSTRUCTION HEIGHT / WEIGHT / WATER
Room height loss
Increased floor loading
Introduction of water into building

COSTS
There may be additional costs for CM-Measurements and for the possible surface treatment of the wet screed.

Ideal for walls, floors and ceilings

- New build
- Retrofit
- Timber frame buildings
- Masonry buildings
Excellent results using the correct accessories

**Wolf Protect** - Wood Fibre Decoupling Board for use as a resilient layer below the Wolf Floor Systems

**Wolf Wall Plugs** - for installing PhoneStar directly to masonry walls

**Wolf Tape** - for sealing the cut edges on PhoneStar boards
Special products and accessories

**Time-saving and clean - Wolf Hugo N & F**

*Wolf Hugo N & F (Tongue & Groove)*
- Gypsum fibre dry screed boards with tongue and groove edging. Easy to install using Wolf System Glue rather than screws.

**Wolf Joint Filler**
- Sealant to seal joints and gaps between PhoneStar boards in wall, floor and ceiling installations

**Wolf Decoupling Board**
- to provide a decoupling layer over PhoneStar as a base for tiles and natural stone. It can also be used as a decoupling layer below parquet flooring.

- ✓ dry
- ✓ time-saving ✓ effective

**Equipment**

**Dry Wall Screw**
- to secure plasterboard over PhoneStar boards

**Dry Wall Screw with Fine Thread**
- for PhoneStar over metal structures

**Dry Wall Screw with Coarse Thread**
- for PhoneStar over timber structures
Michael Wolf  
Dipl. Wirtschafts-Ing (FH)  
Accomplishing the impossible only succeeds if one believes it to be possible. /Lewis Carroll/

"Our goal is to consistently optimise existing systems and to develop new innovations. We place a high value on primarily using ecological building materials and we source these materials locally to promote a sustainable business. We hold ourselves responsible for helping to protect the natural environment. This is the basis behind the development of our dry system solutions which pave the way for energy-efficient constructions"
As we strive to expand our range of ecological, functional and dry construction systems, we are continuously developing new products. We focus on buying locally sourced materials because making our environment more sustainable and ecological are important elements in our company's philosophy. To further develop this ethos, we have invested in a large scale SELF Centre (Training, Development, Research and Logistics Centre) at our headquarter's office in Heilsbronn. The spacious premises means there is plenty of scope to provide training and to undertake research and development. Additionally the new warehouse operation will be much more streamlined and efficient.

Federal Award for outstanding and innovative construction product.

We are always thinking about the next step

Laboratories / institutes:
ift Rosenheim • MPA Leipzig
IBB • Kit Karlsruhe • Kiwa
Fraunhofer Institut • TU München

More information: www.wolf-bavaria.com

Our information in this brochure is based on most recent science data accompanied by our experience to the best of our knowledge. The data listed are guidelines and not contract data. These guide values may vary depending on the type of construction. We pass it on without obligation. Changes in the context of technical progress and operational development are reserved. Our information only describes the nature of our products and services and does not represent any guarantees. The customer is not exempt from a thorough examination of the functions or applications of the products by qualified personnel.
One stop shopping

Innovative system solutions for masonry and timber frame constructions in both new and retrofit projects.

Your Wolf Bavaria dealer