



Concepts

Products

Service

**All options laid out.**  
FLOOR and more® dry floor system

# Building new solutions.

Lindner undertakes major worldwide projects in all areas of interior finishes, insulation technology, industrial services and building facades. From pre-planning through to project completion Lindner is your partner of choice.

The Company's extensive manufacturing capability enables quality to be strictly maintained whilst allowing maximum flexibility to meet individual project requirements.

Environmental considerations are fundamental to all Lindner's business principles.

Through partnerships with clients Lindner turns concepts into reality.

## Choosing Lindner you have:

**Lindner Concepts:**  
Tailored solutions specifically geared to satisfy individual project requirements

**Lindner Products:**  
Quality materials and systems to the very highest industry standards

**Lindner Service:**  
Comprehensive project management services

# FLOOR and more<sup>®</sup> dry floor system

A floor for every walk of life.



## Your benefits at a glance

- Quick installation
- Ready to use after 24 hours
- Jointless surface
- Wide choice of coverings
- Recommended by the Institute for Building Biology, Rosenheim

# Contents

All options laid out.	5-6
System data – FLOOR and more®	7
System description – FLOOR and more®	8
Lindner substructures	9
FLOOR and more® power	10-11
FLOOR and more® sonic	12-13
FLOOR and more® comfort	14-15
FLOOR and more® hydro	16-17
FLOOR and more® arena	18-19
Static electricity	20
System accessories	21-23
Load-bearing capacity	24-27
Fire protection	28
Sound protection	29
Floor coverings	30-39
Standards and regulations	40-43
We can do it all for you.	44



# All options laid out.

## Lindner FLOOR and more®

The FLOOR and more® panels are manufactured from calcium sulphate at our factory in Dettelbach. Our company uses the very latest production equipment and is one of the world's leading manufacturers of floor systems. A key contributory factor to the quality of dry floors is accuracy in terms of tolerance – achieved by the high technological standards used in production.

### Environmentally-friendly quality.

Lindner's excellent quality is not left to chance, but is ensured by a sophisticated quality management system, demonstrated by our certification to ISO 9001:2000. Samples taken during production are tested against a full range of technical parameters such as stability, breaking load, dimensional accuracy, adhesive values, etc. (over 100 criteria

in all). Our labs are equipped with ultra-modern test equipment, and constantly test edge trims, adhesives, zinc layer thickness etc. Independent institutes test all systems to the accepted standards for noise, fire safety and mechanical resistance. Tests meeting European standards and certification for almost all European countries are part of our portfolio.

### Eco-friendly.

Strategic environmental management is a top priority at Lindner. For this reason, we only use materials that are ecologically tested and approved. We also work continually to reduce our emissions and energy consumption. Before construction starts, we conduct surveys designed to reveal potential savings. Savings that we can pass on to you.



Our high-quality panels for FLOOR and more® are made from recovered paper, recycled gypsum and reprocessed water.

## Everything is possible

The FLOOR and more® hollow floor system offers impressive in-built properties and state-of-the-art technology.

FLOOR and more® is formed by gluing a pedestal substructure to panels made from calcium sulphate – a non-combustible material with superlative structural and physical properties. FLOOR and more® also offers outstanding levels of soundproofing and can be fully loaded after one day – the ideal product for almost any field of application. Additionally, once installed, the floor system is impervious to smoke and combines superb underfoot comfort

with minimal weight. As a manufacturer, we can determine the choice of raw materials used, making it possible to adjust the mixture to the wishes of our clients as well as to their respective markets. The Institute of Building Biology in Rosenheim recommends FLOOR and more® as an environmentally friendly building material. Our gypsum panels are virtually emission-free. FLOOR and more® can be combined with many other systems, offering a great degree of flexibility. There is also a limitless choice of floor coverings.



### Typical areas of use

- Atriums and reception areas
- Museums
- Training and research rooms
- Office and design areas
- Industrial and workshops



ID No. 041-013  
Made from Reused materials/  
Waste Materials



# System data – FLOOR and more®



Panel	Fibre-reinforced calcium sulphate panel with tongue and grooved edges	
Load-bearing capacity	2 kN - 6 kN	
Fire protection		
Reaction to fire performance of the panel	A2, A1 (non-combustible)	
Fire resistance performance	F 30, REI 30 and F 60, REI 60	
System weight	38 kg/sqm - 83 kg/sqm	
Standard finished floor heights	38 mm – 2,000 mm	
Panel thickness	24 mm - 44 mm	
Pedestal spacings	600 mm x 600 mm (other pedestal spacings system-dependent)	
Sound protection		
Normalised flanking level difference $D_{n,f,w}$	44 dB - 57 dB	
Weighted sound reduction index $R_w$	62 dB - 64 dB	
Normalised flanking impact sound pressure level $L_{n,f,w}$	73 dB - 47 dB	
Reduction of impact sound pressure level $\Delta L_w$	11 dB - 29 dB	
Suitable floor coverings	Elastic coverings / textile coverings / HPL / WOODline/ STONEline / loose-laid tiles	
Accessories	<ul style="list-style-type: none"> <li>- Expansion joints</li> <li>- Electrical outlets</li> <li>- Air ventilation outlets</li> <li>- Barriers</li> <li>- Facings</li> <li>- Bridging profiles</li> </ul>	

Please see the system data sheets for more detailed technical information on each system.

# System description – FLOOR and more®

## Panel FLOOR and more®

The FLOOR and more® panel is particularly impressive in terms of stability and environmental compatibility. It was especially developed as a hollow floor and is made from calcium sulphate – a composition of gypsum, high-quality cellulose fibres and water. The edges of the panels are tongue and grooved and glued together, allowing for precise panel alignment. Various panel thicknesses as well as special formats round off the FLOOR and more® product line.

## Load-bearing capacity

We have developed a special manufacturing process to provide our hollow floor panels with more demanding structural specifications, without needing to increase the panel thickness. Steel sheet can also be applied to the under side to increase load bearing capacity.

## Fire protection

FLOOR and more® offers outstanding safety: our careful choice of panel components ensures a fire resistance performance of up to 60 minutes (fire resistance performance F60, REI 60). By gluing the panels this makes them impervious to smoke. The carrier panel is non-combustible.

## System weight

The weight of the system varies from 38 kg/sqm to 83 kg/sqm, depending on customer requests and load-bearing requirements.

## Installation height

For heights of 500 mm plus we recommend horizontal reinforcement with stringers.

## Hollow floor pedestals

Pedestals are made from galvanised, yellow chromatised steel and adjustable to any height. They are equipped with a precision-engineered adjusting bolt. Different designs are possible depending on height.

## Gluing of pedestals

Pedestals and panels are glued together to form a stable system. Pedestal glue is used to glue the pedestal base to the subfloor and the pedestal head to the FLOOR and more® panel. The tongue and grooved edges of the panels themselves are also glued together. Adhesives of different qualities can be used depending on the environmental requirements.

## Height fixing

A sealant varnish made from low-emission materials is used for this purpose.

## Wall connection

A permanent, pre-stressed wall connection with sealing tape works as a sound decoupling whilst also absorbing horizontal movements.

## Structural subfloor

As a rule, all structural subfloors are sealed to ensure lasting pedestal adherence. We recommend a 2-component finish for air-conducting system floors.

## Suitable floor coverings

Elastic or textile floor coverings, also as broadloom, are highly suitable for our hollow floor system which can be installed as broadloom on the building site. Loose-laid tiles are also suitable. WOODline creates a particularly pleasing feel – while solid stone finishes from our STONEline range can also be used.



# Lindner substructures

## Pedestals

The substructure is an important component of every system floor. The pedestals create the cavity needed to accommodate the services. Lindner metal pedestals can be adjusted to almost any height, therefore compensating for any unevenness in the subfloor. From design to manufacture, including the galvanisation – we produce our pedestal range

entirely in-house. We manufacture highly accurate pedestals for hollow floors. Our many years of experience ensure high load-bearing capacity and excellent durability for all our products. Lindner systems can be combined with one another in many ways, and supplemented with different reinforcement profiles.



### Lindner pedestals

- Large adjustable range
- Corrosion resistant
- High load-bearing capacity
- Easy installation

# FLOOR and more® power

FLOOR and more® power shoulders the weight of heavy-duty situations. In certain circumstances floors need to withstand heavier loads, for example foyers, manufacturing plants, museums and libraries.

In such situations, FLOOR and more® power offers unbeatable load-bearing strength. The floor system carries immense loads.



## Product features

- Special panel composition
- Strengthened pedestals
- Stringers are not required
- Safe for driving over with heavy motorised lifting apparatus



# FLOOR and more<sup>®</sup> sonic

FLOOR and more<sup>®</sup> sonic offers sophisticated air conditioning and perfect acoustics. This product innovation from Lindner makes it possible to supply interiors with fresh air – straight from the floor cavity. Perforated floor panels ensure perfect air flow; the floor covering hides the panel yet allows for seepage ventilation. Heating and Cooling Technology is easy to implement into this advanced flooring system,

ensuring an ideal interior climate and consigning draughts to history. Floor perforations can help with more than just air conditioning: they also absorb sound, thus improving a room's acoustic profile. While modern interior designs which use smooth surfaces will reflect sound, perforated floors will absorb it.



## Product features

- Air flow of up to 1,500 m<sup>3</sup>/h (20 Pa)
- Variety of perforation designs
- Attractive absorption ratio  $\alpha_w$  of 0.75
- Suitable for seepage ventilation coverings



**BOSCH**

Chassis Systems

# FLOOR and more<sup>®</sup> comfort

FLOOR and more<sup>®</sup> comfort creates a pleasant environment for the occupier. Intelligent heating and cooling systems incorporated into the floor panels regulate the interior climate perfectly – both in summer and winter. The system offers integrated, high-performance under floor heating with good heat reflection. In addition FLOOR and more<sup>®</sup> comfort generally operates with a low flow temperature, thus saving energy – simple, efficient yet ensuring

a comfortable living and working environment. Architects can also enjoy more design freedom: radiators are unnecessary, extending the planners' scope when designing the interior layout for foyers and premium quality office space. FLOOR and more<sup>®</sup> comfort can also be installed at an impressively low floor height and is especially lightweight.



## Product features

- Heats up and cools down very quickly
- Almost any floor covering can be used
- Heating capacity 60 - 100 W/sqm and cooling capacity 23 - 45 W/sqm
- Eco-friendly; low flow temperature



# FLOOR and more<sup>®</sup> hydro

Highly-frequented areas of increased humidity, for example foyers in public buildings and hotels or even wet rooms, are a challenge for standard floor systems. Until now, it was difficult to prevent long-term water penetration into the panels within a humid environment. FLOOR and more<sup>®</sup> hydro was especially developed as a solution for these areas.

Humidity-resistant floor panels as well as the most suitable floor coverings and joint fillers are used to effectively prevent water absorption. FLOOR and more<sup>®</sup> hydro can be supplied with a choice of coverings. The high-quality stone covering STONEline is also available for use in prestigious areas.



## Product features

- Suitable for rooms with increased humidity
- High load-bearing capacity
- Suitable for STONEline application





# FLOOR and more<sup>®</sup> arena

The construction of tiered levels in cinemas and concert and lecture halls is always a challenge. We consolidated our experiences from numerous international projects into the development of FLOOR and more<sup>®</sup> arena. Solid and at the same time quick to install, comparatively lightweight but yet carrying a high load capacity, largely prefabricated but likewise extremely flexible – this floor system is a match for every challenge. Calcium sulphate planks make all

the difference; classified to fire performance A1, "non-combustible", preventing any drum effect when walking and acoustically effective, FLOOR and more<sup>®</sup> arena adjusts itself to every type of installation, whether the subfloor is level, sloping or stepped. Radial or polygonal tiering, or a version using the floor plenum for ventilation, are also available.



## Product features

- Non combustible, A1 material, with high load-bearing capacity
- Floor plenum can be modified for ventilation purposes
- Quick installation thanks to high degree of prefabrication
- Substructure and planks from in-house production



# System accessories

## Electrical outlets

As all electrical installations are fed under the hollow flooring, electrical connections can be placed exactly where you want them by the installation of electrical outlets.



## Bridging profiles

For structural reasons bridging is required where pedestals cannot be installed. In such cases we offer special bridging profiles which are easy to install and yet improve dynamic and static load-bearing capacities.



## Transitions

The combination of hollow and raised floors in one building is economically sensible. Different floor constructions are often directly linked together. We offer profiles which are designed to combine these constructions perfectly, both aesthetically and technically. Profiles are installed between the adjacent hollow and raised floor panels, act as support to the panels and also compensate potential height differences.



## Expansion joints

Expansion joint profiles, which are adapted to each application, are used structurally to absorb both horizontal deflection and vertical weighing down of the system.



## Air ventilation outlets

Air ventilation outlets allow the room to be air-conditioned and ventilated without creating draughts. A number of different systems are available:

### - Open system

Ventilation comes directly from the cavity, which is designed as a pressure floor, through the corresponding air ventilation outlets into the room.

### - Closed system

In a closed system, the air is fed through pipes or through cavity barriers with fixed connections to the air ventilation outlets.



## Facings

Staircases, platforms, etc. need to be finished with a front cladding (facing). Where features such as free-standing borders are required, the top edges of the facing will be protected with a stair edging profile. Angles screwed to the subfloor and bracings installed in the upper area of the facing ensure a stable structure.

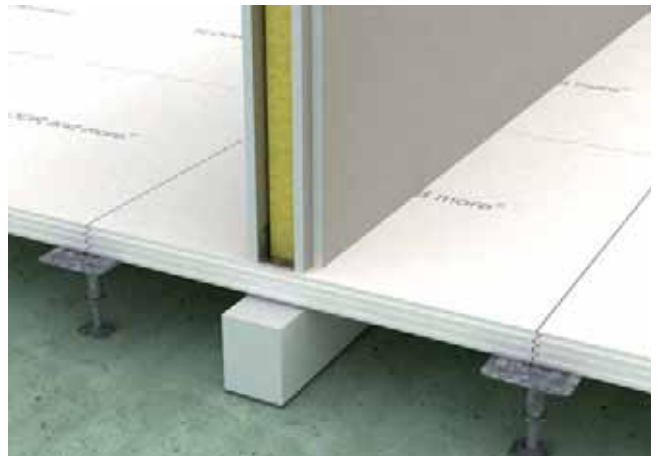
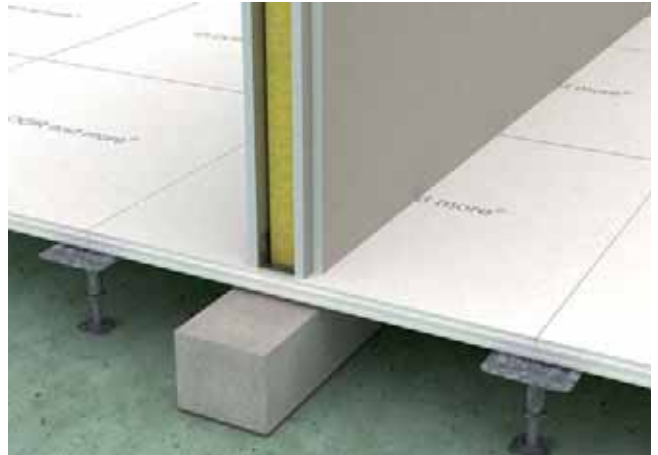


# System accessories

## Cavity barriers

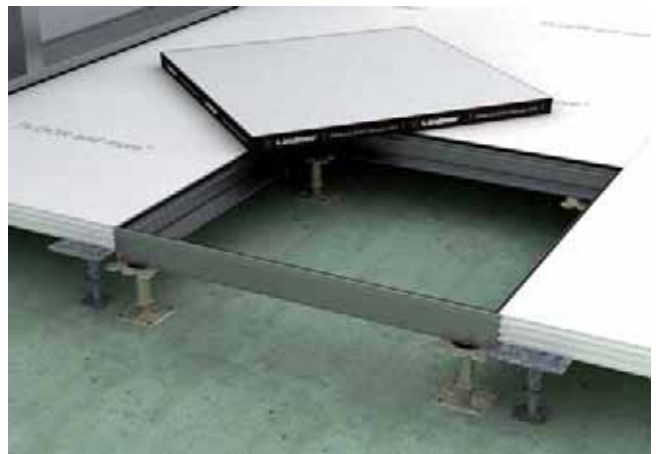
Three different types of cavity barriers can be installed to meet different requirements in the hollow floor area.

- Ventilation barriers  
made from coated chipboard panels
- Fire protection barriers  
made from solid gypsum wall blocks (min. 80 mm)
- Soundproofing barriers  
made from porous concrete (min. 100 mm)



## Revision openings

As a matter of course, hollow floors need to guarantee easy access to services. For this purpose, FLOOR and more® can be equipped with revision openings. The removable floor panels are supported by a sturdy frame which ensures the stability of the floor construction. Edge profiles can be made to match the chosen floor covering – thus integrating the access hatch into the floor area so that it is inconspicuous.



# Static electricity

## Preliminary remarks

Static electricity as a natural phenomenon is familiar to the public, for example when getting an electric shock from door handles after walking across carpets.

These electrical discharges are generally of no danger to the people themselves. People may however be startled and, as a result, make a mistake.

In addition to this, however, there are consequences of static electricity that must be prevented. These range from the destruction of electronic components to the explosion of complete factories.

## Charge measurements

Charge measurements with the walking test,  
DIN 54345 / Part 2

- Measurements of the tendency to electrostatic charge during the walking test

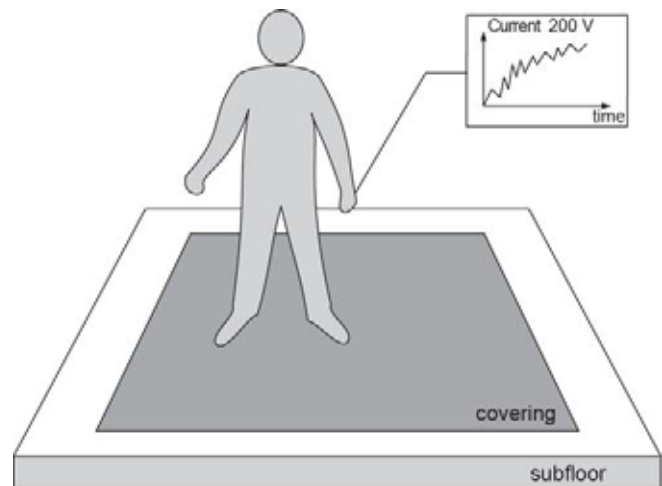
Duration of the walking test:

The charging voltage is measured when the person stands on the floor covering with both feet.

Floor coverings are considered to be antistatic if the charge voltage does not rise above 2,000 V (definition acc. to data sheet EDV 1, Issue 7/84 from the TFI Aachen for carpet flooring).

1 minute (shuffling gait) at 23 °C and at 25% relative air humidity.

A special rubber provided by the National Materials Testing Institute (BAM) is used for the sole material of the shoes. This material is slightly conductive and supplies a resistance of around  $10^9 \Omega$  between the person and a conductive floor.



# Load-bearing capacity

The permissible loading capacity is calculated and tested with the involvement of official bodies. The final results are substantiated by certificates of conformity to the application guideline for the standard DIN EN 13213 or by factory test certificates.

The following key criteria are used:

- Load value
- Supporting surface of the load indenter
- Positioning of the load on the test sample
- Safety factor

The critical load for hollow floors is the point load. Floor systems are assigned a load and deflection

class on the basis of their static load-bearing properties and the related deflection levels. As a rule strip loads and distributed loads are not taken into account, as they are not applicable.

## Point loads



To determine the point load, a static load (such as a table leg) is simulated. On the basis of the permissible point load thus established, the system is generally assigned an appropriate load and deflection class. In accordance with standard practice, the load is applied with a 25 mm x 25 mm indenter.



## Dynamic loads



**To determine the permissible dynamic load (such as a forklift), the following must be taken into account:**

- Weight of the vehicle without load
- Total weight of the vehicle with load
- Max. wheel load
- Contact surface of the tyres or rollers
- Wheelbase
- Max. drive or tow speed
- Number, diameter, width and material of tyres or rollers
- Max. acceleration and deceleration during lifting
- Safety factor

A corresponding safety coefficient will be determined for the ascertained static load (permissible total weight of the vehicle) using the aforementioned factors and multiplied by the max. permissible static load. When selecting a floor covering, one must be sure that the floor covering and adhesive are suitable for these special requirements.

## Distributed loads

Like the point load, the distributed load is a static load. In contrast to the point load, the area of the indenter is 1 sqm. The term distribution load is commonly used in structural engineering. It is used to determine the strength of reinforced concrete floors. For hollow floors, the specification or

assessment of a distributed load is inappropriate. For practical purposes, the indenter of 1 sqm spans the hollow floor grid (60 cm x 60 cm) and thus the individual panel. The panel and pedestal acts here merely as an intermediate layer, transferring the load to the concrete subfloor.

# Load-bearing capacity

## Static values acc. to DIN EN 13213

The European hollow floor standard EN 13213 describes a system test process for panels and pedestals (or substructure) to identify the maximum load and relevant classifications. The load is transferred onto the system using a test indenter

of 25 mm x 25 mm (625 sqmm). The load points shown are to be checked. The failure criteria shown below for classification of the system is the breaking load and the deflection (vertical displacement) with nominal load and load class.

## Load classes

Class <sup>1)</sup>	Breaking load <sup>2)</sup>	Nominal load <sup>3)</sup>	Element class <sup>4)</sup>	Applications and usage scenarios
1	≥ 4,000 N	2,000 N	1	Offices without public access and without heavy equipment
2	≥ 6,000 N	3,000 N	2	Office areas with public access
3	≥ 8,000 N	4,000 N	3	Rooms with increased static loads
4	≥ 9,000 N	4,500 N	-	Areas with fixed seating, design offices
5	≥ 10,000 N	5,000 N	5	Exhibition areas, workshops with light use, storage rooms, libraries
6	≥ 12,000 N	6,000 N	6 <sup>5)</sup>	As with load category 5,000 N, but with increased load requirements, industrial and workshop floors, vault rooms
-	≥ 14,000 N	≥ 7,000 N		Heavy duty floors, production areas, such as clean rooms

1) Classification of the load acc. to DIN EN 13213

2) To determine the breaking load, the load is applied to the weakest point of the panel (see illustration) using a 25 x 25 mm test indenter and is increased until the system fails.

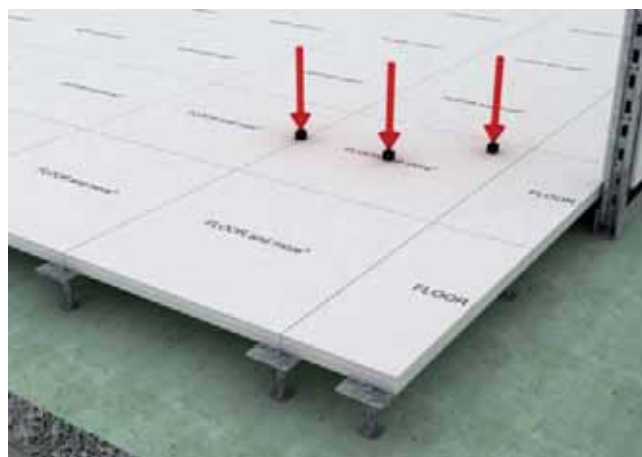
3) The nominal load or load class is determined from the breaking load divided by the safety factor  $\nu = 2$

4) Load classification in accordance with the application guideline for hollow floors

5) Higher breaking/nominal loads are required in individual cases for hollow floors with high load-bearing requirements, see FLOOR and more® power systems

## Deflection

The maximum deflection of the system with the application of the nominal load may not exceed  $l/300$  of its grid length. With the pedestal grid of 600 x 600 mm, the resulting maximum deflection is 2 mm. The admissible deflection is limited to 4 mm with higher spans.



## Static values acc. to RAL-GZ 941

The RAL-GZ 941 standard describes the testing of components for the classification by load classes. The floor panels and pedestals are tested and classified individually. The maximum load is applied to the panel using a 25 mm x 25 mm (625 sqmm) test indenter. The load points shown are to be tested. The

floor panel is supported on solid cylinders. The failure criterion is the breaking load and a maximum panel deflection of 2 mm ( $l/300$ ).

The test standard RAL-GZ 941 is commonly used on an international level and can also be used with tests of hollow floors.

## Load classes

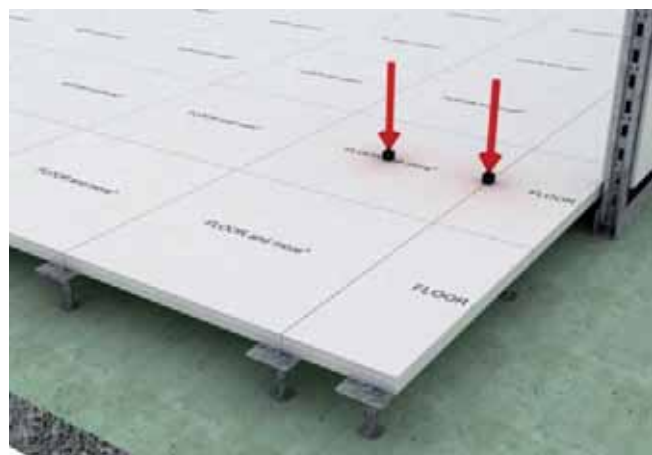
Class <sup>1)</sup>	Breaking load <sup>2)</sup>	Nominal load <sup>3)</sup>	Deflection <sup>4)</sup>	Applications and usage scenarios
1	≥ 6,000 N	3,000 N	max. 2 mm	Offices with a high proportion of communication equipment, telephone exchanges, engineering offices, auditoriums, training and treatment rooms
2	≥ 8,000 N	4,000 N	max. 2 mm	Computer rooms with more demanding requirements, print rooms, industrial floors with light traffic, storage rooms, workshops with light use and libraries
3	≥ 10,000 N	5,000 N	max. 2 mm	Computer rooms with more demanding requirements, print rooms, industrial floors with light traffic, storage rooms, workshops with light use and libraries
4	≥ 10,000 N	> 5,000 N	max. 2 mm	Floors with forklift traffic, industrial and workshop floors, vault rooms

1) Classification of load acc. to RAL-GZ 941

2) To determine the breaking load, the load is applied with a 25 x 25 mm test indenter to the area in the second grid field (see illustration) and is increased until the supporting layer fails.

3) The nominal load is determined from the breaking load divided by the safety factor  $v = \min. 2$

4) Where the panel is loaded with the nominal load, the maximum permissible deflection is  $l/300$ .



# Fire protection

Hollow floors allow you to install all of the technical services such as cabling, supply and disposal systems, ventilation, heating, air-conditioning, etc. exactly where you want them.

Installations of this kind also have to comply with requirements in the case of fire. The following criteria must be considered:

- Protection of adjacent escape routes
- Protection of neighbouring or other facilities
- Maintaining the stability of partition walls, with and without fire-resistance, which are in contact with the flooring
- Fire-resistance of the structure
- Combustibility and reaction to fire performance
- Protection against a fire in the floor cavity

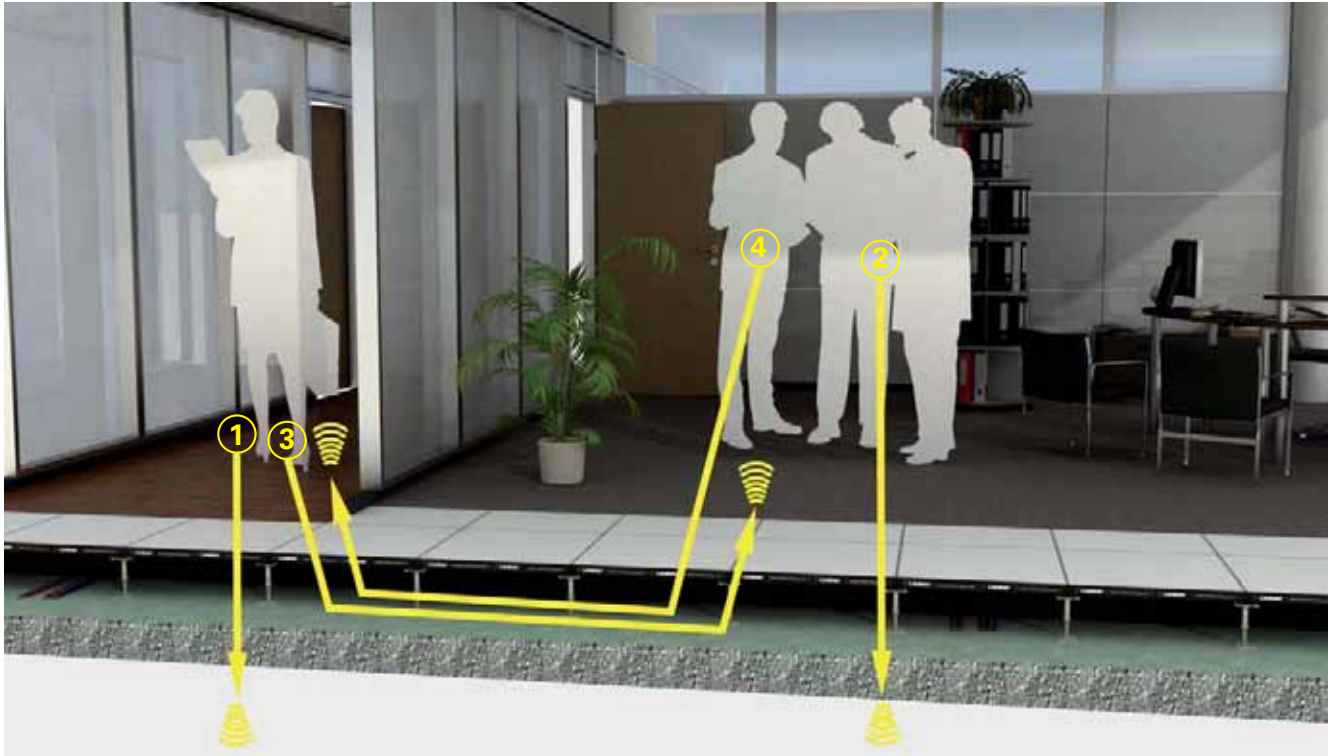
Further details and fire protection regulations can be found in Lindner documentations dealing with Fire Protection, the "Exemplary System Floor Directive" (MSysBöR) issue September 2005 and in the "Exemplary pipe work Directive" (MLAR) issue November 2005. Further information is also available in data sheet 11 of the BVS (Bundesverband Systemböden)

When operating cable and channel systems, fires resulting from incidents such as overheating cannot be ruled out. In this event the system floor structure must withstand this fire loading. In Germany fire testing to DIN 4102/2 is carried out to a temperature requirement as per ETK (standard temperature curve).



Fire resistance performance test of a system floor under load according to DIN 4102/2.

# Sound protection



## 1 Reduction of impact sound pressure level $\Delta L_w$ tested to DIN EN ISO 140-8

Laboratory test measurement is carried out vertically, i.e. from floor to floor with a standard ceiling, allowing comparison between different systems. Higher values are favourable.

## 2 Weighted sound reduction index $R_w$ tested to DIN EN ISO 140-3

Laboratory test measurement is carried out vertically, i.e. from floor to floor, with a standard ceiling, allowing comparison between different systems. Higher values are favourable.

## 3 Normalised flanking impact sound pressure level $L_{n,f,w}$ tested to DIN EN ISO 10848-2

Laboratory test measurement is carried out horizontally in combination with a highly sound-proofing partition which is suspended from the ceiling and touches the surface of the system floor. Lower values are favourable.

## 4 Normalised flanking level difference $D_{n,f,w}$ tested to DIN EN ISO 10848-2

Laboratory test measurement is carried out horizontally in combination with a highly sound-proofing partition which is suspended from the ceiling and touches the surface of the system floor. Higher values are favourable.

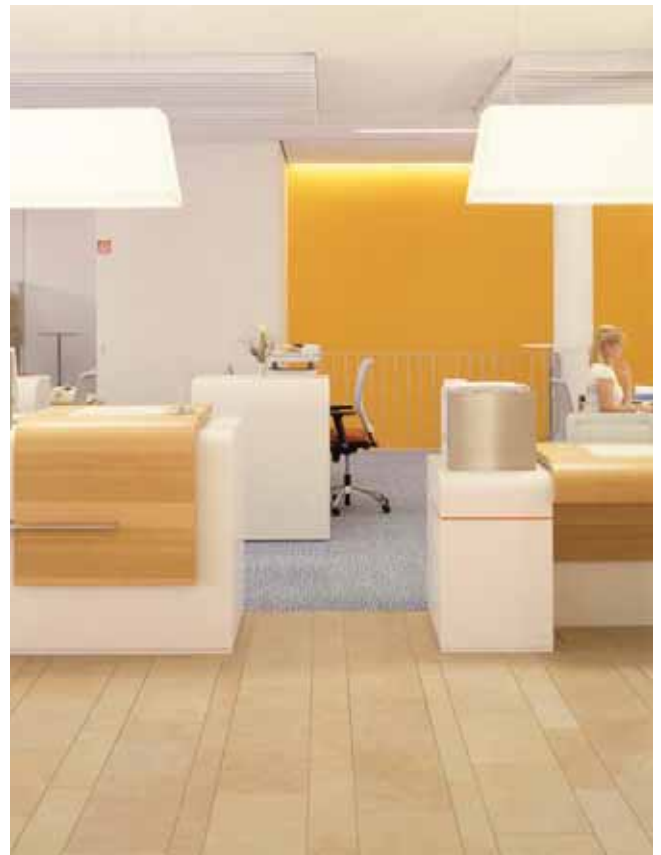
Consider the correction degree according to VDI 3762 to calculate the values on the construction site. Combinations of raised and hollow floors are to be assessed individually. The corrective allowance should be specified by the planner.

# Floor coverings

## Standard coverings

A range of floor coverings individualise your FLOOR and more®. In general, all standard floor coverings are available, such as rubber, PVC or carpet; in addition Lindner also offers WOODline and STONEline. All surfaces, as well as parquet and stone

coverings, can be factory- bonded to the floor panels. The monolithic surface of FLOOR and more® means that any size of covering is possible. Broadloom coverings which are easy to install can be used to minimise costs.



## Possible coverings

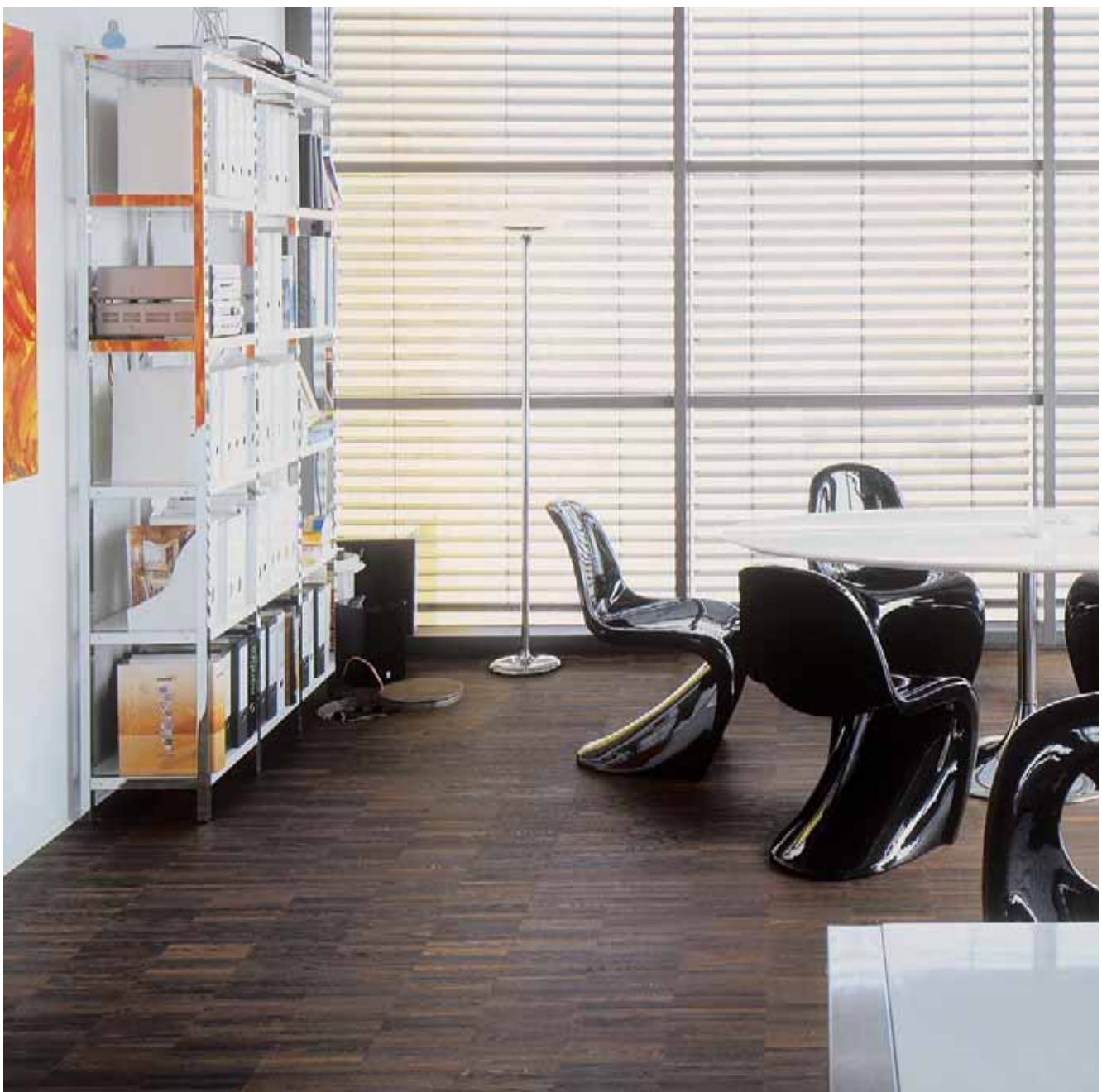
- Elastic coverings
- Textile coverings
- WOODline
- STONEline
- Loose-laid tiles

## WOODline

The floor has always been an essential part of a highly specified room. Whether in a conference room or in the modern office, parquet floors make you feel good. Lindner parquet floors are manufactured from solid wood to the highest quality standards and are particularly durable and comfortable to walk on.

The combination of a range of woods, designs and finishes means that all ideas are possible.

The installation of a FLOOR and more® WOODline is easy and efficient: the parquet is already factory-applied and just has to be sanded and sealed on site.



# Floor coverings

## Types of wood

Maple, bamboo, steamed bamboo, steamed beech, light beech, oak, smoked oak, ash, olive ash, jatoba, cherry, merbau, walnut and teak. These wood types

are only a small selection from our range. Other types of wood are available on request.



Maple



Bamboo



Steamed bamboo



Steamed beech



Light beech



Oak



Smoked oak



Ash





Olive ash



Jatoba



Cherry



Merbau



Walnut



Teak

As with all natural products, wood differs in colour and structure. Print colours cannot reproduce the colour of the parquet exactly, therefore small differences might occur.

The wooden surfaces are offered oiled or varnished.

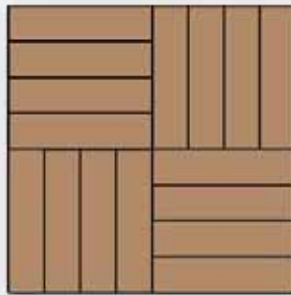
# Floor coverings

## Types of designs

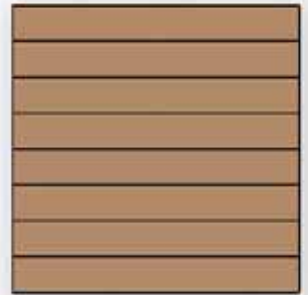
3-strip



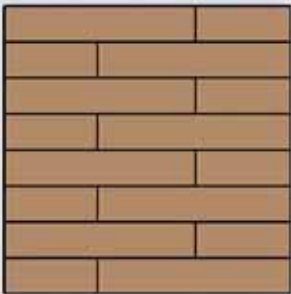
Cube, fourfold



Large baton



2-strip



Mosaic



Industrial parquet





**Surface**  
Pre-sanded wooden surface ready for varnishes and oils

**Covering**  
High-quality wood panels in different designs and woods

**Carrier panel**  
Calcium sulphate panel with tongue and grooved edges

**Barrier**  
Counteracting foil and humidity barrier

### Advantages of varnished finishes:

- Extremely hard surface
- Highly wear resistant
- Low maintenance
- Resistant against bacteria and microorganisms
- Adjustable gloss level

### Advantages of oiled finishes:

- Low maintenance
- Damage through use is easy to resolve
- Ecologically friendly
- Maintains natural surface structure



# Floor coverings

## STONEline

STONEline offers a range of natural and artificial stone and ceramic tiles, factory bonded to our calcium sulphate panels.

Countless types of stones from a wide range of countries are available, as well as a great variety of colours.

New manufacturing techniques mean that the combined "sandwich" of stone and calcium sulphate panel can be processed as a single unit. This innovative production technology allows us to provide you with all-in-one solutions.

During manufacture of FLOOR and more® panels with stone, the joints are made to fit 100% accurately. The precisely fitting panels ensure a uniform joint width. The use of a colour-coordinated joint filler completes the aesthetic effect.



## Types of stone

A variety of stone surfaces is available to suit the design, use and load-bearing requirements of every interior: hard-wearing granite for extreme, long-term usage; highly valued, high-quality marble for

high-class interiors, a wealth of artificial stones and ceramic coverings offering a range of surface options to suit modern design requirements.

## Ceramic and artificial stone: versatile and exquisite

A comprehensive, carefully-graded product range enables us to satisfy a wide variety of requirements in terms of function and aesthetics. Countless combinations of colours, sizes and patterns make it possible to fulfil almost any individual design.



Micron 60GL



Micron 60DG



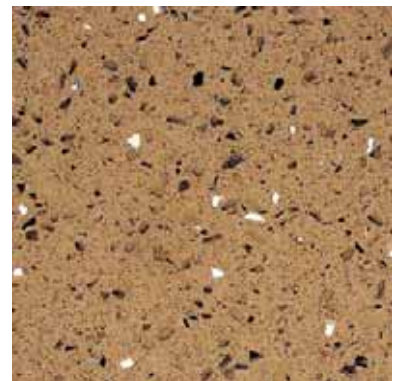
Micron 60N



35-50-05



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# Floor coverings

## Natural stone for the highest standards

By using a variety of different stones, one can create individual highlights and give each interior its own particular style. The following types of stones are a small selection from our range.



Galaxy



Rosa Sardo



Juparanà Colombo



Nero Africa



Padang TG 36



Bianco Sardo Perla



Beola Ghiandonata



Imperial White



Carrara

As with all natural products, stone varies slightly in colour and structure. Printer inks cannot match the colour tones of stone perfectly: minor differences in colour are therefore possible.

Other stone coverings are available on request.



**Surface**  
Factory-applied stone in a wide variety of types

**Joint**  
Factory-bonded stone panels ensure a precise joint alignment which is sealed with joint filler once dry.

**Carrier layer**  
Calcium sulphate panel with tongue and grooved edges

## Surface finishing

- Polished surfaces will bring out the full natural stone structure and colour
- Finely-burnished surfaces are classified to the slip resistance level R9
- With layered stones (e.g. Juparanà Colombo), the cutting of untreated blocks, either "with the grain" or "against the grain", and the choice of a suitable surface finish can create a variety of different appearances

## Advantages

- Stability, low maintenance and durability
- Quick and economic installation due to factory-applied covering
- Natural stone from selected international stone reserves
- Application and formatting to one tenth of a millimetre

# Standards and regulations

## Association of System Floors (Bundesverband Systemverband e.V.)

The coming together of European countries and the creation of standards and laws to regulate this free market has resulted in medium-sized companies forming syndicates, so that they can increase their influence with public institutes and standardisation opposite their European counterparts.

This resulted in the Association of System Floors, founded on 1st January 1995 to represent the interests of medium-sized companies, such as the "Fachgemeinschaft Doppelböden" (Trade Community Raised Floors) or the "Fachverband Hohlraumböden" (Trade Association of Hollow Floors).

In addition to this synergy between associations, the Association of System Floors will also continue to support the European standardisation for raised floors in the CEN. This standardisation is intended to establish top-quality technical offers for raised floor products.

Please refer to the website of the "Bundesverband Systemböden e.V." ([www.systemboden.de](http://www.systemboden.de)) for up-to-date information, particularly BVS data sheets on system floor specifications, the overview on standard certified system floors and the German system floor ABP (General Constructional Supervisory Test Certificate) central register.

Lindner AG is a member of the Association of System Floors.

## DIN EN 13213 Hollow Floors

System floors, particularly hollow floors, are used in every modern administrative and office building and as such are an everyday product for planners and architects.

System floors also fulfil many safety tasks. The planner has to deal with many building regulations, technical requirements and products.

The DIN EN 13213 standard has introduced standardised European testing procedures and load classes for system floors based on the Construction Product Directive. The corresponding application guidelines are based on European standards, whilst taking into account the German Building Regulations Act and the generally recognised regulations on the technology in nationally applicable requirements and regulations. At the same time, they also regulate procedures for certifying standards compliance.

The full set of DIN standards can be requested from Beuth Verlag GmbH, Burggrafenstraße 6, 10787 Berlin, Tel. (030) 26 01 – 22 60, [www2.beuth.de](http://www2.beuth.de).





## Application guideline for DIN EN 13213 Hollow Floors

In the application guideline for use, as part of the DIN EN 13213, essential requirements and features are specified regarding the suitability of a hollow floor for use and traffic, setting a safety standard for the construction process.

System floors are being developed continually in both a technical and scientific sense. As a result, the application guideline needs to be adjusted regularly to the latest technology.



Only system floors that are produced in compliance with the standards, and which comply with the requirements of the application guideline in terms of construction, stability, materials, workmanship and life of product conformity are awarded the certificate for raised and hollow floors.

Monitoring of the safety standards is carried out by continual in-house monitoring and by regular external testing by neutral testing institutes and bodies in accordance with the application guideline. Monitoring of safety standards guarantees adherence to the criteria required for suitability for use and traffic and so represents a reliable marker when choosing a floor system.

Installation of a certified hollow floor is a guarantee for the users and owners that it complies with the latest technology in terms of safety, liability and industrial workplace regulations.

The guidelines for use are continuously added to and developed, to keep up to date with technical progress. The current version can be requested from the Association for System Floors.

# Standards and regulations

## RAL-GZ 941 Quality Control System floor

The RAL-GZ 941 Quality Control directive was developed as the basis for a high standard of quality by the Raised Flooring Quality Association. This directive was published in October 1989. The RAL authors have set themselves the target of creating a universal and comparable test criterion.

RAL-GZ 941 is one of the best-known guidelines internationally and represents the basis for quality and safety in many countries that have no national regulation on system floors. RAL assesses the components of a system floor and describes tests for stability, material composition, workmanship and durability.

Regular quality inspections are performed by the manufacturer and are monitored by independent, external institutes.

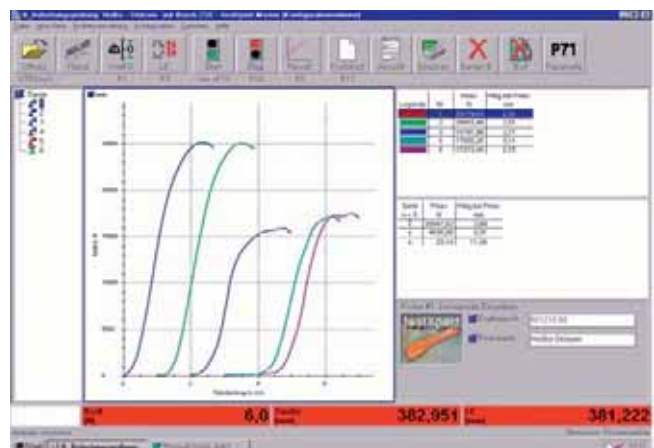
System tests (panel on a substructure) are not included by RAL-GZ 941.



## Workshop testing

As with all other rules and regulations, suitable test criteria for workshops (workshop test certificates) are specified for practical application, ensuring the smooth function of hollow floors with a special requirement profile.

The type and validity of the tests were put together by the LGA (State Trade Agency) in Nuremberg.



## We can do it all for you.

### Lindner Concepts:

- Insulation Engineering and Industrial Service
- Clean Rooms and Laboratories
- Airports and Airlines
- Railways and Tunnels
- Studios and Concert Halls
- Interior Fit-out and Furnishings
- Cruise Liner and Ship Fit-out
- Hotels and Resorts
- General Contracting

### Lindner Products:

- Facades
- Ceiling Systems
- Lights and Lighting Systems
- Partition Systems
- Doors
- Floor Systems
- Heating and Cooling Technologies
- Dry Lining Systems

### Lindner Service:

- Green Building
- Deconstruction and Gutting
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- Maintenance
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