



Clean Rooms

Complete Turnkey Solutions



Rethinking Spaces

Added value

Over time, the Lindner Group has developed into a technically sound, solution-oriented and reliable partner with a rock-solid commercial footing. Our comprehensive product and service portfolio for building envelopes, interior design and insulation technology in almost all fields of application is second to none. True to our motto "Rethinking Spaces" we develop perfectly customised and yet versatile solutions and concepts for your building project. As a 100% family-owned company

we attach particular importance to our environment. With innovative concepts such as Cradle to Cradle®, low-emission products and well thought-out room concepts we create added value for people and their environment. As a service provider and employer we place people at the centre of our activities. Our customers notice this too: we enjoy our work, have conviction in what we do and are proud of what we are capable of achieving.

Stability and growth

Our head office has been in Arnstorf in Lower Bavaria, where we have seen massive growth in recent decades since the company was founded in 1965 by Hans Lindner. We are proud to be the largest employer in the Rottal-Inn district with some 7,100 employees worldwide. We handle 2,500 projects on a daily basis, mostly revolving around our core business of construction. This is complemented by our foundation, the mk | hotels, microbreweries and – most recently – sustainable agriculture and forestry.





New building for Leica Camera AG
Wetzlar, Germany



Many Years of Product Experience in Fitting out Clean Rooms and Operating Theatres



Ideas for greater space

We are continuously developing our systems to be able to satisfy the demands of challenging projects, and to also meet the desire for adaptable room concepts in the future. No matter whether it involves restructuring after refurbishment or an expedient extension in modern working environments, we offer well conceived concepts and flexible solutions for your individual space planning. We provide added value for every area.

- many years of expertise in all disciplines relevant to construction
- sustainable, environmentally tested system products
- great freedom of design for customised room concepts

Many years of product experience

Lindner SE | Clean Rooms in Arnstorf is one of the leading full-service providers for clean rooms, laboratory facilities and operating theatres. With over 100 employees, this division implements construction projects in the pharmaceutical, sterile and medical technology sectors as well as in microelectronics and semiconductor technology. Their range of services extends from consulting and planning to maintenance and other services. The above-average vertical integration of product manufacture enables maximum flexibility for special project-based solutions. The main products used for the interior fit-out of special areas, ceilings, walls, floors and doors are from our own production. Our product range is completed by lighting solutions from Lindner SE | Leuchtenfabrik and technical equipment such as filter fan units and overflow grilles. The international network of Lindner branches enables complete global solutions from one source.

Our production site

Arnstorf – Germany

Manufacture of ceiling, floor and partition systems, lights, facades and clean rooms; production of high quality joinery products for interior fit-out and the fitting-out of cruise liners and ships

- 64,250 m² of production space
- 200,000 m² corporate premises



Main Lindner Group location
Arnstorf, Germany

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Clean Room and Operating Theatre Ceilings

Superior conditions


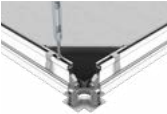




Lindner clean room ceiling systems are designed and manufactured according to your specific needs. All clean room-related standards and regulations are accordingly taken into consideration. You also have the choice of different ceiling types and grid dimensions.

- aluminium grid ceilings
- steel grid ceilings
- aluminium junction ceilings
- ceilings with clip-in tiles





Clean room & operating theatre ceilings

		Technical Data	
		Standard grid dimension	Suspension distance (maximum)
	Line 55A Grid system Our Line 55A aluminium ceiling grid profile has been developed for clean room areas where the low number of joints, flush surfaces and high load bearing capacity of the access level with a narrow face width are decisive.	1,200 x 1,200 mm	1,200 x 1,200 mm (load-bearing version)
	Crossdata 55A Junction system The very good technical properties of this aluminium ceiling system enable it to be used economically across many sectors: the optical industry, surface technology, microsystems technology or precision engineering.	1,200 x 1,200 mm	1,200 x 1,200 mm
	Line 100S Type 2/Line 80S Type 2 Grid system Our Line 100S Type 2/Line 80S Type 2 steel ceiling grid profile is the most versatile ceiling system in the clean room product portfolio. It offers maximum load bearing capacity, maximum suspension distances, concealed media routing and a completely enclosed access level.	1,200 x 1,200 mm	2,400 x 2,400 mm
	Line 100S Type 3 Grid system Our Line 100S Type 3 steel ceiling grid profile is an economical solution for use in clean rooms. The surface can be provided in powder-coated steel or stainless steel. A linear grid ceiling design is possible.	1,200 x 1,200 mm	1,200 x 1,200 mm
	Clip SK Clip-in system Our Clip SK type clip-in cassette ceiling is a fully clean room-compatible system that has frequently proven to be an economical solution in a wide range of clean room applications.	600 x 600 mm 625 x 625 mm	1,200 x 1,200 mm
	Clip K3 Clip-in / fold-down system Compared to the Clip SK system, the K3 cassettes offer the advantage of a clip-in / fold-down feature and bevelled visible sides for perfect sealing possibilities in clean room applications.	600 x 600 mm 625 x 625 mm	1,200 x 1,200 mm

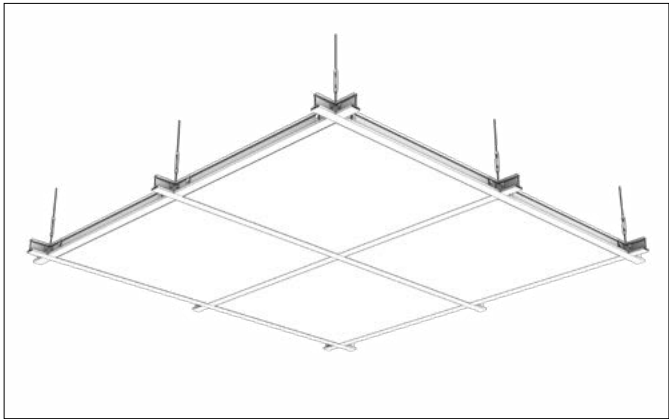
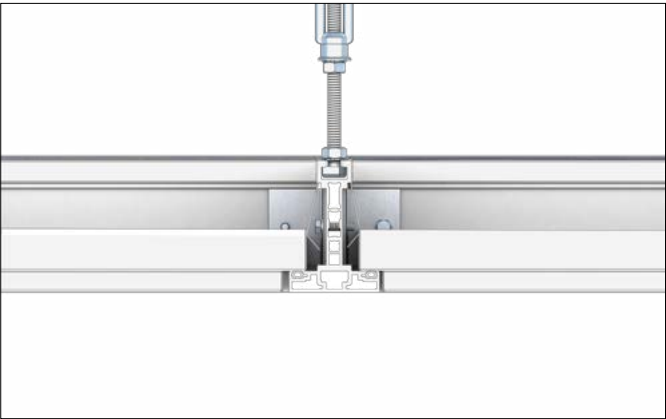
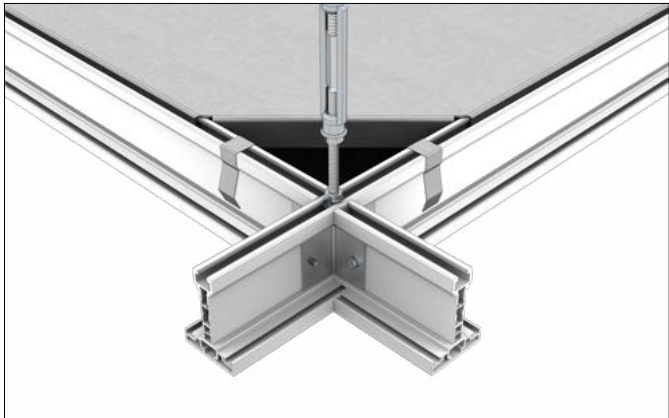


Technical Data				Additional Equipment	Page
Point load (maximum)	Distributed load (maximum)	System height	Visible width of ceiling grid profiles		
150 kg	150 kg/m ²	80 mm	55 mm	Filter fan units, air intake openings, clean room and operating theatre lights, inspection hatches	12
150 kg	150 kg/m ²	80 mm	55 mm	Filter fan units, air intake openings, clean room lights, inspection hatches	14
150 kg	150 kg/m ²	120 mm	100/80mm	Filter fan units, air intake openings, clean room lights, inspection hatches	16/18
–	–	30 mm	100 mm	Filter fan units, air intake openings, clean room and operating theatre lights, inspection hatches	20
–	–	80 mm	–	Filter fan units, air intake openings, clean room and operating theatre lights, inspection hatches	22
–	–	73 mm	–	Filter fan units, air intake openings, clean room and operating theatre lights, inspection hatches	24

Line 55A

Grid system

Our Line 55A load bearing aluminium grid system is ideal for use in the most critical GMP and DIN EN ISO 14644 areas, where a large number of filter fan units are essential. The narrow face width of the support profiles and their high load bearing capacity mean that the largest possible filter area is achieved with FFU full occupancy. The aluminium profiles are ideally suited to accommodate Teardrop lights. The system can be used as a maintenance level for technical trades, optionally with FDA-compliant silicone tube seal.



Application Areas

- Pharmaceutical production and medical technology
- Electronics and semiconductor technology
- Microsystems, precision mechanics and optical
- Surface technology
- Operating theatre technology
- Laboratories and research centres

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system.
Ventilation components	The Line 55A ceiling system is compatible with filter fan units, air outlets, grilles and other ventilation components.
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system.
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems.
Miscellaneous	Sprinklers, smoke detectors or media feeds can be installed through the ceiling panels.

Installation components such as lights or air outlets can be integrated flush into the system depending on the project situation.



Essential Components

Ceiling panels	Flush ceiling panel made of galvanised steel; optional in aluminium
Edge design of ceiling panel	Circumferential Z-edge (flush)
Surfaces	Powder-coating according to RAL or other common colour systems
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling panels are revisable
Aluminium grid profile (support grid)	Extruded aluminium. Surface powder-coated or anodised.
Line 55A suspension unit	For infinitely variable height adjustment of the entire system; suspension from the ceiling slab or from a steel structure.
Load-bearing plate (optional)	For creating a complete load bearing system
Hold-down clamping spring	Clamping spring (spring steel) for holding the ceiling panels down onto the support grid
Silicone tube seal	FDA-compliant silicone tube seal for sealing the entire system
Connectors	Connectors (galvanised steel) for connecting the main and transverse support grids
Wall connection	Perimeter trim for connecting the system to partition walls, masonry, etc. Material: galvanised steel, optionally in aluminium
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

	Non-load bearing	Load-bearing
Standard grid size ¹⁾	1,200 x 1,200 mm	1,200 x 1,200 mm
Maximum suspension distance ²⁾	2,400 x 1,200 mm	1,200 x 1,200 mm
Maximum suspension height	250 mm to any required height	250 mm to any required height
Visible width of ceiling grid profiles	55 mm	55 mm
System height	80 mm	80 mm
System weight ³⁾	Around 15 kg/m ²	around 35 kg/m ²
Joint width	around 3 mm	around 3 mm
Maximum distributed load ⁴⁾	-	150 kg/m ²
Maximum point load ⁴⁾	-	150 kg
Inspection	From below	From below and above
Surfaces	Certified up to GMP Class A, qualification certificates on request	

Standards and Certifications

GMP-compliant design

DIN EN ISO 14644 – compliant implementation

Proof of air permeability according to EN 12114:2000-03

System ceiling design according to EN 13964

Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)

CE performance declaration available via www.Lindner-Group.com

1) Special sizes on request

2) Depending on permanent and additional loads

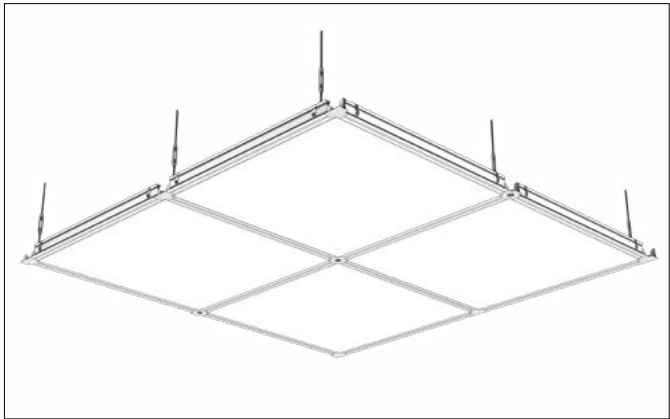
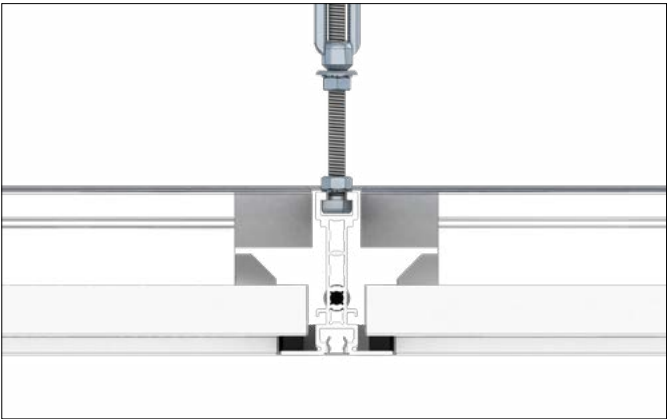
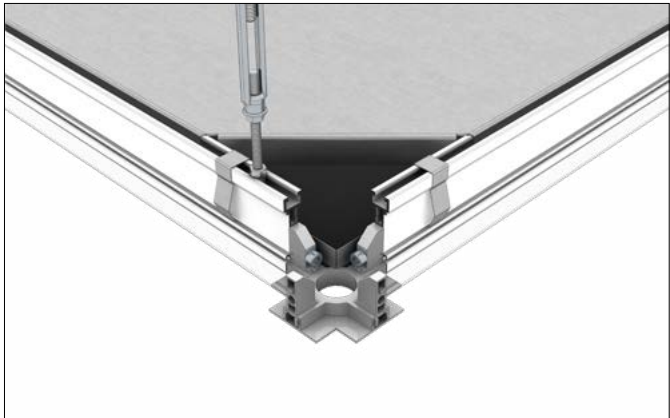
3) Depending on system requirements, excluding fixtures

4) Either a distributed or point load may be applied

Crossdata 55A

Junction system

Specifically developed for use in electronic clean rooms, the Crossdata 55A junction ceiling system offers all the advantages expected from a highly flexible, modular and load bearing ceiling system. The simple system design guarantees fast and consequently economical installation. Various mounting options for filter fan units as well as the option of sprinkler feeds through the junction points are further advantages for use in the electronics industry.



Application Areas

Electronics and semiconductor technology
Microsystems, precision mechanics and optical
Surface technology

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system
Ventilation components	Our Crossdata 55A ceiling system is compatible with filter fan units, air outlets, grilles and other ventilation components
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems
Miscellaneous	Sprinklers, smoke detectors or media feeds can be installed through the ceiling panels

Installation components such as lights or air outlets can be integrated flush into the system depending on the project situation.



Essential Components

Ceiling panel	Made of galvanised steel. Optionally in aluminium.
Edge design of ceiling panel	Circumferential L-edge (not flush)
Surfaces	Powder-coating according to RAL or other common colour systems
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling panels are revisable
Aluminium support profile	Made from extruded aluminium. Surface powder-coated or anodised.
Crossdata 55A suspension unit	For infinitely variable height adjustment of the entire system; suspension from the ceiling slab or from a steel structure.
Load-bearing plate (optional)	For creating a complete load bearing system
Junctions (optional)	Die-cast X-, T- and L-shaped junctions for connecting ceiling grid profiles
Hold-down clamping spring	Clamping spring made of spring steel for holding the ceiling panels down onto the support grid
Wall connection	Galvanised steel perimeter trim for connecting the system to partition walls, masonry, etc. Optionally in aluminium.
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

	Non-load bearing	Load-bearing
Standard grid size ¹⁾	1,200 x 1,200 mm	1,200 x 1,200 mm
Maximum suspension distance ²⁾	1,200 x 1,200 mm	1,200 x 1,200 mm
Maximum suspension height	250 mm to any required height	250 mm to any required height
Visible width of ceiling grid profiles	55 mm	55 mm
System height	80 mm	80 mm
System weight ³⁾	Around 15 kg/m ²	Around 35 kg/m ²
Maximum distributed load ⁴⁾	-	150 kg/m ²
Maximum point load ⁴⁾	-	150 kg
Inspection	From below	From below and above
Standards and certifications	DIN EN ISO 14644 – compliant implementation Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.) CE performance declaration available via www.Lindner-Group.com	

Standards and Certifications

DIN EN ISO 14644 – compliant implementation

Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)

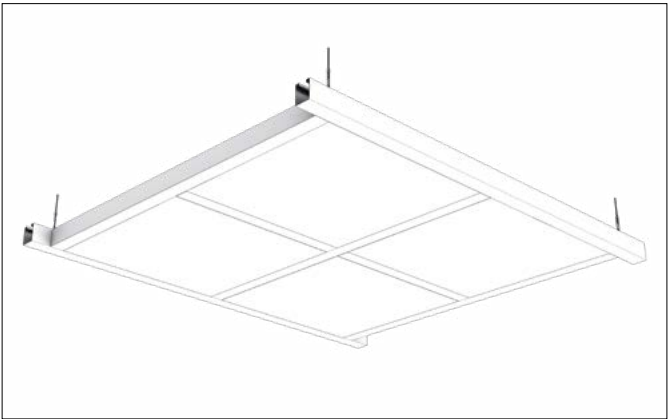
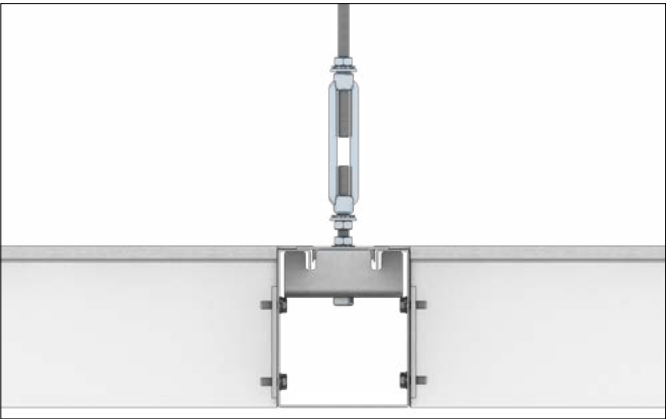
CE performance declaration available via www.Lindner-Group.com

- 1) Special sizes on request
- 2) Depending on permanent and additional loads
- 3) Depending on system requirements, excluding fixtures
- 4) Either a distributed or point load may be applied

Line 100S Type 2

Grid system

Our Line 100S Type 2 load bearing steel grid system offers an absolute maximum of flexibility and modularity for use in clean rooms. Large suspension distances, high access level load bearing capacity, concealed cable and media routing as well as a homogeneous load bearing surface are only some of the advantages of this clean room ceiling that can be used as a maintenance level. The simple system structure ensures fast and efficient installation. The system meets all requirements for GMP and DIN EN ISO 14644 compliant design.



Application Areas

- Pharmaceutical production and medical technology
- Electronics and semiconductor technology
- Microsystems, precision mechanics and optical
- Surface technology
- Operating theatre technology
- Laboratories and research centres

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system
Ventilation components	Our Line 100S Type 2 ceiling system is compatible with filter fan units/air outlets/grilles and other ventilation components
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems
Miscellaneous	Sprinklers, smoke detectors or media feeds can be installed through the strip grid profiles and ceiling panels

Installation components such as lights or air outlets can be integrated flush into the system depending on the project situation.



Essential Components

Ceiling panel	Flush ceiling panel made of galvanised steel. Optionally in stainless steel.
Edge design of ceiling panel	Circumferential hook-in edge (flush)
Surfaces	Powder-coated according to RAL or other common colour systems, polished or brushed stainless steel
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling panels are revisable
Steel grid profile (support grid)	Height 120 mm, width 100 mm. Cable, media routing, sprinklers or smoke detectors can be installed in the grid profiles. Recesses prefabricated at the factory allow cables to be routed within the ceiling system.
Line 100S suspension unit	For infinitely variable height adjustment of the entire system; suspension from the ceiling slab or from a steel structure.
Load-bearing plate	For creating a complete load bearing system
Grid cover	Plastic grid cover to create a homogeneous access surface.
Wall connection	Galvanised steel perimeter trim for fastening the steel band grid to partition walls, masonry, etc. Optional aluminium or stainless steel.
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

Standard grid size ¹⁾	1,200 x 1,200 mm
Maximum suspension distance ²⁾	2,400 x 2,400 mm
Maximum suspension height	290 mm to any required height
Visible width of ceiling grid profiles	100 mm
System height	120 mm
System weight ³⁾	to 50 kg/m ²
Joint width	around 3 mm
Maximum distributed load ⁴⁾	150 kg/m ²
Maximum point load ⁴⁾	150 kg
Inspection	from above
Surfaces	Certified up to GMP class A, qualification certificates on request

Standards and Certifications

GMP-compliant design

DIN EN ISO 14644 – compliant implementation

Proof of air permeability according to EN 12114:2000-03

Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)

CE performance declaration available via www.Lindner-Group.com

1) Special sizes on request

2) Depending on permanent and additional loads

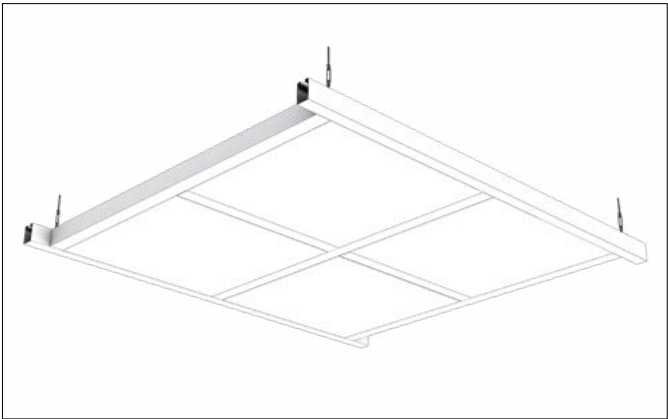
3) Depending on system requirements, excluding fixtures

4) Either a distributed or point load may be applied

Line 80S Type 2

Grid system

Our Line 80S Type 2 load bearing steel grid system offers an absolute maximum of flexibility and modularity for use in clean rooms. Large suspension distances, high access level load bearing capacity, concealed cable and media routing as well as a homogeneous load bearing surface are only some of the advantages of this clean room ceiling that can be used as a maintenance level. The simple system structure ensures fast and efficient installation. The system meets all requirements for GMP and DIN EN ISO 14644 compliant design.



Application Areas

Pharmaceutical production
Medical technology
Microsystems, precision mechanics and optical
Surface technology
Laboratories and research centres

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system
Ventilation components	Our Line 80S Type 2 ceiling system is compatible with filter fan units/air outlets/grilles and other ventilation components
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems
Miscellaneous	Sprinklers, smoke detectors or media feeds can be installed through the strip grid profiles and ceiling panels

Installation components such as lights or air outlets can be integrated flush into the system depending on the project situation.



Essential Components

Ceiling panel	Flush ceiling panel made of galvanised steel. Optionally in stainless steel.
Edge design of ceiling panel	Circumferential hook-in edge (flush)
Surfaces	Powder-coated according to RAL or other common colour systems, polished or brushed stainless steel
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling panels are revisable
Steel grid profile (support grid)	Height 120 mm, width 100 mm. Cable, media routing, sprinklers or smoke detectors can be installed in the grid profiles. Recesses prefabricated at the factory allow cables to be routed within the ceiling system.
Line 80S suspension unit	For infinitely variable height adjustment of the entire system; suspension from the ceiling slab or from a steel structure.
Load-bearing plate	For creating a complete load bearing system
Grid cover	Plastic grid cover to create a homogeneous access surface.
Wall connection	Galvanised steel perimeter trim for fastening the steel band grid to partition walls, masonry, etc. Optional aluminium or stainless steel.
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

Standard grid size ¹⁾	1,200 x 1,200 mm
Maximum suspension distance ²⁾	2,400 x 2,400 mm
Maximum suspension height	290 mm to any required height
Visible width of ceiling grid profiles	80 mm
System height	120 mm
System weight ³⁾	to 50 kg/m ²
Joint width	around 3 mm
Maximum distributed load ⁴⁾	150 kg/m ²
Maximum point load ⁴⁾	150 kg
Inspection	from above
Surfaces	Certified up to GMP class A, qualification certificates on request

Standards and Certifications

GMP-compliant design

DIN EN ISO 14644 – compliant implementation

Proof of air permeability according to EN 12114:2000-03

Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)

CE performance declaration available via www.Lindner-Group.com

1) Special sizes on request

2) Depending on permanent and additional loads

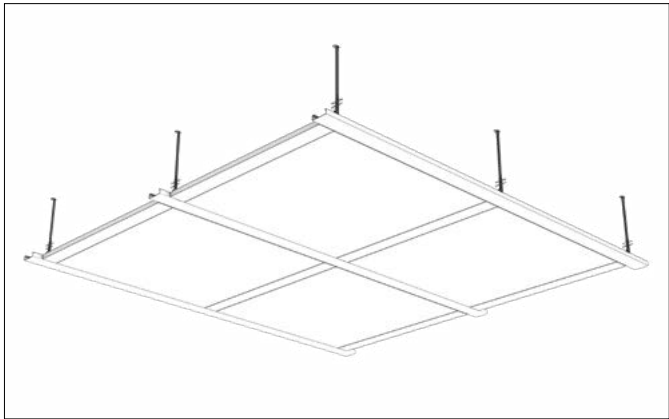
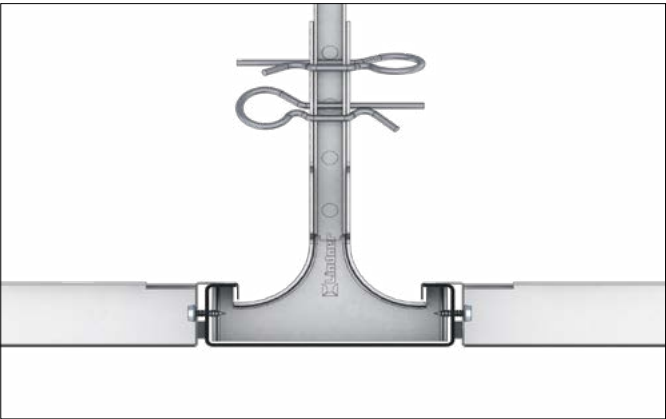
3) Depending on system requirements, excluding fixtures

4) Either a distributed or point load may be applied

Line 100S Type 3

Grid system

The non-load bearing Line 100S Type 3 light steel grid system can be implemented as a cross grid as well as a linear grid. Complete clean room compliance is achieved by sealing the ceiling joints, even in GMP areas with increased requirements. The simple structure of the clean room ceiling enables fast and efficient installation. Safety-relevant components – such as smoke detectors and sprinklers – can be installed in the support grid, which means that the ceiling panels are fully accessible for inspection.



Application Areas

Pharmaceutical production and medical technology

Microsystems, precision mechanics and optical

Surface technology

Laboratories and research centres

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system
Ventilation components	Our Line 100S Type 3 ceiling system is compatible with filter fan units/air outlets/grilles and other ventilation components
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems
Miscellaneous	Sprinklers, smoke detectors or media feeds can be installed through the strip grid profiles and ceiling panels

Installation components such as lights or air outlets can be integrated flush into the system depending on the project situation. (separate suspension required for installation components). No additional loads may be applied to the ceiling system!



Essential Components

Ceiling panel	Flush ceiling panel made of galvanised steel. Optionally in stainless steel.
Edge design of ceiling panel	Z-edge (flush)
Surfaces	Powder-coated according to RAL or other common colour systems, polished or brushed stainless steel
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling panels are revisable
Steel grid profile (support grid)	Height 30 mm, width 100 mm. Sprinklers or smoke detectors can be installed in the grid profiles.
Vernier suspension	Consisting of: Lower section of the vernier hanger Vernier safety pins Upper section of the vernier hanger
Wall connection	Perimeter trim for fastening the system to partition walls, masonry, etc. Designed as an L-bracket with clamping function, material: steel or aluminium.
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

Standard grid size ¹⁾	1,200 x 600 mm 1,200 x 1,200 mm
Maximum suspension distance	1,200 x 1,200 mm
Maximum suspension height	92 mm to any required height
Visible width of ceiling grid profiles	100 mm
System height	30 mm
System weight	Up to 10 kg/m ²
Joint width ²⁾	Around 3 mm
Inspection	From below
Surfaces	Certified up to GMP Class A, qualification certificates on request

Standards and Certifications

GMP-compliant design

DIN EN ISO 14644 – compliant implementation

Proof of air permeability according to EN 12114:2000-03

System ceiling design according to EN 13964

Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)

CE performance declaration available via www.Lindner-Group.com

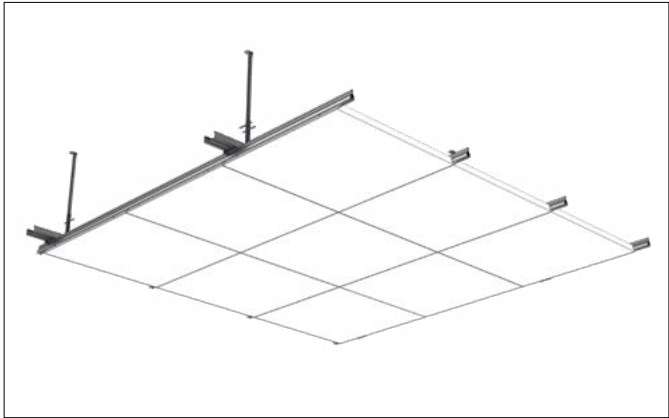
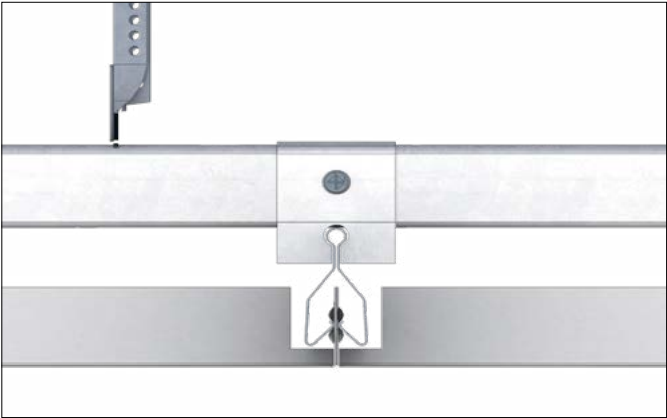
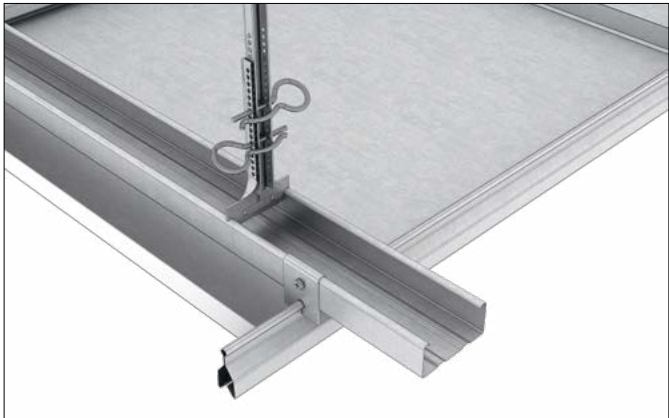
¹⁾ Special sizes on request, linear and cross grid construction possible

²⁾ Joints sealed according to clean room requirements

Clip SK

Clip-in system

Our non-load bearing Clip SK clip-in cassette ceiling system is an economical solution for use in clean rooms and meets all the requirements of a modern clean room ceiling system with regard to GMP design and hygiene. The modular system as well as the high component and surface quality guarantee many years of use in clean rooms. The ceiling cassettes are removable towards the clean room side.



Application Areas

Pharmaceutical production and medical technology

Microsystems, precision mechanics and optical

Surface technology

Operating theatre technology

Laboratories and research centres

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system
Ventilation components	Our Clip SK ceiling system is compatible with filter fan units (separate installation frame required)/air outlets/grilles and other ventilation components
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems
Miscellaneous	Sprinklers, smoke detectors or media feeds can be fitted through the ceiling cassettes

Installation components such as lights or air outlets can be flush integrated into the system depending on the particular project condition. (separate suspension required for installation components). No additional loads may be applied to the ceiling system!



Essential Components

Clip SK ceiling cassette	Flush ceiling cassette made of galvanised steel
Edge design of ceiling cassette	Circumferential L-eding with clamping studs
Surfaces	Powder-coating according to RAL or other common colour systems
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling cassettes are removable
CD-profile	Galvanised steel sheet, suspended as a large grid design
Clip-in profile	Galvanised steel sheet, as fine grid design, for mounting the ceiling cassettes with clamping studs
Cross-connector for clamping profile	Galvanised steel sheet, for connecting the clip-in profile and CD profile
Vernier suspension	Consisting of: Lower section of the vernier hanger Vernier safety pins Upper section of the vernier hanger
Wall connection	Perimeter trim for connecting the system to partition walls, masonry, etc. Designed as an L-bracket with clamping function, material: steel or aluminium.
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

Standard grid size ¹⁾	600 x 600 mm 625 x 625 mm
Maximum suspension distance	1,200 x 1,200 mm
Maximum suspension height	From 80 mm
System height	Around 80 mm
System weight	Up to 10 kg/m ²
Joint width ²⁾	Around 1 mm
Inspection	Ceiling cassettes are removable
Surfaces	Certified up to GMP Class A, qualification certificates on request

Standards and Certifications

GMP-compliant design

DIN EN ISO 14644 – compliant implementation

Proof of air permeability according to EN 12114:2000-03

System ceiling design according to EN 13964

Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)

CE performance declaration available via www.Lindner-Group.com

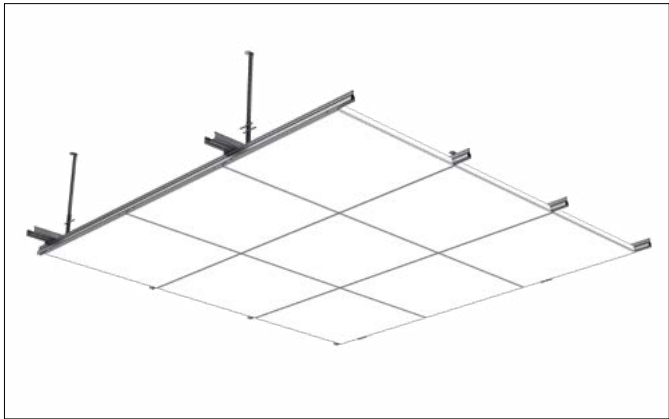
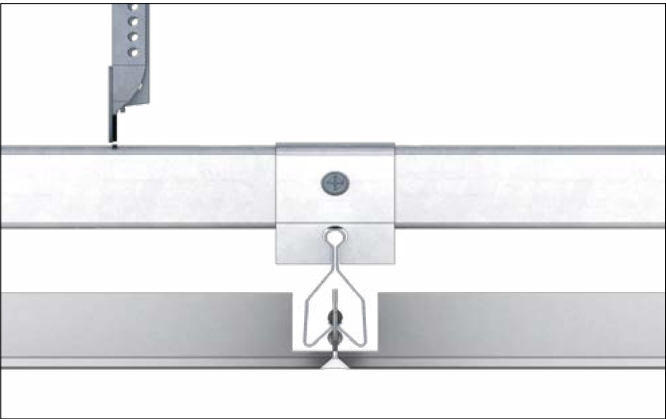
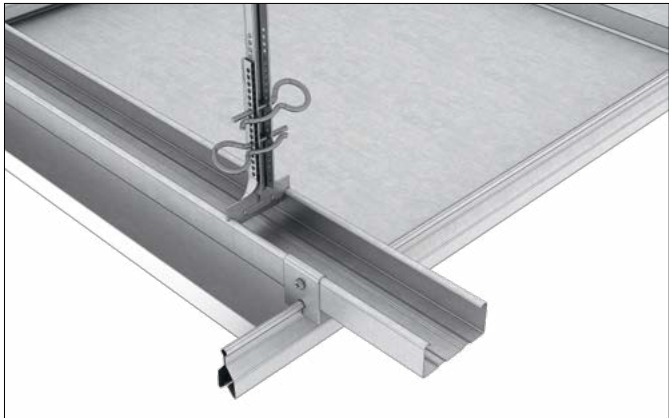
¹⁾ Special sizes on request

²⁾ Joints sealed according to clean room requirements

Clip K3

Clip-in / fold-down system

Our non-load bearing Clip K3 clip-in / fold-down ceiling system with chamfer on the visible side not only offers the advantages of flexible, GMP-compliant and cost-effective construction, but also the possibility of folding down each individual ceiling cassette towards the clean room side. The circumferentially chamfered ceiling cassettes enable easy and quick clean room-compatible sealing of the ceiling joints.



Application Areas

- Pharmaceutical production and medical technology
- Microsystems, precision mechanics and optical
- Surface technology
- Operating theatre technology
- Laboratories and research centres

Additional Equipment

Lights	Recessed and surface-mounted lights from Lindner or other light manufacturers can be integrated into the ceiling system
Ventilation components	Our Clip K3 ceiling system is compatible with filter fan units/air outlets/grilles and other ventilation components
Inspection hatches	System-optimised inspection hatches for maintenance of the ceiling cavity are available for each ceiling system
Air intake flaps	Air intake flaps are available for the "de-energised open" and "de-energised closed" versions of all ceiling systems
Miscellaneous	Sprinklers, smoke detectors or media feeds can be fitted through the ceiling cassettes

Installation components such as lights or air outlets can be flush integrated into the system depending on the particular project condition. (separate suspension required for installation components). No additional loads may be applied to the ceiling system!



Essential Components

Clip K3 ceiling cassette	Flush ceiling cassette made of galvanised steel
Edge design of ceiling cassette	Circumferential L-eding with chamfer and clamping studs
Surfaces	Powder-coating according to RAL or other common colour systems
Gloss level	Approximately 20E in the case of RAL 9010
Access to the ceiling cavity	Ceiling panels are revisable (clamp-fold function)
CD-profile	Galvanised steel sheet, suspended as a large grid design
Clip-in profile	Galvanised steel sheet, as fine grid design, for mounting the ceiling cassettes with clamping studs
Cross-connector for clamping profile	Galvanised steel sheet, for connecting the clip-in profile and CD profile
Vernier suspension	Consisting of: Lower section of the vernier hanger Vernier safety pins Upper section of the vernier hanger
Wall connection	Perimeter trim for connecting the system to partition walls, masonry, etc. Designed as an L-bracket with clamping function, material: steel or aluminium.
Installation and use	Installation and use must be according to the manufacturer's guidelines and the TAIM technical regulations.

CE declarations of performance according to Regulation (EU) No. 305/2011 (Construction Products Regulation) can be obtained via www.Lindner-Group.com

Technical Data

Standard grid size ¹⁾	600 x 600 mm 625 x 625 mm
Maximum suspension distance	1,200 x 1,200 mm
Maximum suspension height	From 80 mm
System height	Around 73 mm
System weight	Up to 10 kg/m ²
Joint width ²⁾ or chamfer width	Around 7 mm
Inspection	Ceiling cassettes are removable
Surfaces	Certified up to GMP class A, qualification certificates on request

Standards and Certifications

GMP-compliant design
DIN EN ISO 14644 – compliant implementation
Proof of air permeability according to EN 12114:2000-03
System ceiling design according to EN 13964
Quality standard according to the technical rules of TAIM (Association of Industrial Metal Ceiling Manufacturers TAIM e.V.)
CE performance declaration available via www.Lindner-Group.com

¹⁾ Special sizes on request

²⁾ Joints sealed according to clean room requirements





Light Guide Optics International, Līvāni, Latvia

Light Guide, a European manufacturer of optical fibres, fibre bundles, cables and laser delivery systems, recently opened a new headquarters in Latvia: In order to meet the ultra-modern demands of science, industry and medicine, modern premises are required.

Lindner manufactured, supplied and installed around 850 m² of Multiclean COP partition walls including glazings. Combined with hinged doors and automatic sliding

doors, these provide functional and modern separation within the building. In addition, 140 m² of Clip K3 ceilings, including luminaires, complete the Līvāni headquarters. To meet Light Guide's exacting requirements, Lindner also installed 200 return air grilles with return air shafts and five UV disinfection material pass-throughs. These provide chemical-free disinfection, using UV radiation to destroy viruses, bacteria and fungi in seconds.

Clean Room and Operating Theatre Lights

A true ray of light

Clean rooms place particularly high demands on the light intensity and sealing of luminaires. Lindner LED clean room lights are compatible with all clean room ceilings. Our lighting calculations ensure they are ideally tailored to your space in advance. You will receive recessed and surface-mounted lights with state-of-the-art LED technology meeting the highest requirements – a true ray of light for your project.









- strictest clean room standards
- long service life
- easy inspection

leuchten.fabrik

Ein Unternehmen der Lindner Group



Clean Room and Operating Theatre Lights

		Technical Data	
		Voltage	Protection class
	LP LED-H/LP LED-U3 LED recessed light LED light for flush installation. This light was developed for clean rooms with the most stringent GMP requirements and is characterised by a seamless transition to the next ceiling panel, as the glass pane is held to the housing without a frame.	220 - 240 V/ 50 - 60 Hz	1
	CP LED-H/CP LED-U3 LED recessed light Our LED light design makes it especially suitable for clean rooms with stringent requirements on hygiene. The glass frame is held in place with a clamped stud fastening, enabling the housing to be opened functionally and above all quickly.	220 - 240 V/ 50 - 60 Hz	1
	SH LED-H/SH LED-U3 LED recessed light Economical LED recessed light in a compact design. Meets all GMP requirements for use in clean rooms. Installation in clip-in cassette and grid ceiling systems as well as in ceiling panel cut-outs is possible at any time.	220 - 240 V/ 50 - 60 Hz	1
	RR-o LED-H/RR-o LED-U3 LED recessed light This ultra-modern LED light is installed as a complete unit including ceiling panel. The pane of glass is permanently fixed to the ceiling panel and the light housing is fitted from above. Ideal for use in Line 100S Type 2 and Line 80S Type 2 load bearing ceiling systems.	220 - 240 V/ 50 - 60 Hz	1
	RP 195 LED LED downlight This round LED recessed downlight for clean room applications is equipped with a highly efficient LED module. The powder-coated housing is made of die-cast aluminium and its single-pane toughened safety glass meets the highest requirements for air-tightness.	220 - 240 V/ 50 - 60 Hz	2
	DL LED LED surface-mounted light This triangular-shaped light is ideal for simple installation between the transition from ceiling to wall where space is limited. The smart design of this surface mounted light enables it to be seamlessly installed.	220 - 240 V/ 50 - 60 Hz	1
	TD-L LED LED surface-mounted light This light can be used as an individual unit or for continuous rows in GMP-compliant laminar flow rooms, since the shape of the light does not impair low-turbulence airflow. The light is surface-mounted on the ceiling grid profile. Available in various amber light versions.	220 - 240 V/ 50 - 60 Hz	1
	RWL 255 LED X-ray warning light for wall mounting LED warning light for recessed installation in a partition system. Closure via optiwhite real glass pane with multiple digital prints. Red LEDs ensure the desired warning message is highlighted particularly intensely when the light is on.	220 - 240 V/ 50 - 60 Hz	2



Technical Data					Page
Ingress protection code	Control gear	Closure	Installation	Light colour	
IP65, ceiling side: IP50	switchable, optional: DALI dimmable	Toughened safety glass with reflector system, homogeneously illuminated ESG safety glass with film	Recessed	4,000K or according to customer requirements	32/33
IP65, ceiling side: IP50	switchable, optional: DALI dimmable	Toughened safety glass with reflector system, homogeneously illuminated ESG safety glass with film	Recessed	4,000K or according to customer requirements	34/35
IP50 or IP54, ceiling side: IP50	switchable, optional: DALI dimmable	Clear acrylic glass with reflector system, homogeneously illuminated, opal acrylic glass	Recessed	4,000K or according to customer requirements	36/37
IP65, ceiling side: IP50	switchable, optional: DALI dimmable	Toughened safety glass with reflector system, homogeneously illuminated ESG safety glass with film	Recessed	4,000K or according to customer requirements	38/39
IP65, ceiling side: IP50	switchable, optional: DALI dimmable	Single-pane toughened safety glass (ESG)	Recessed	4,000K or according to customer requirements	40
IP65, ceiling side: IP20, optional: IP54	switchable, optional: DALI dimmable	Homogeneously illuminated ESG safety glass with film	Surface-mounted	4,000K or according to customer requirements	41
IP40, optional: IP54	switchable, optional: DALI dimmable	Diffuse PMMA profile cover	Surface-mounted	4,000K or according to customer requirements	42-45
IP20	switchable	Toughened safety glass with print	Recessed	red	46

LP LED-H

LED clean room light

LED recessed light suitable for all common ceiling systems. Frameless and jointless light closure with real glass pane and adhesive tape. Version with highly efficient LED modules and lighting technology. Particularly suitable for applications with low room height and reduced luminance. Closure glass with homogeneously illuminated real glass pane or for screen-compatible applications with additional internal microprism pane. Seamless, closed-cell sealing level between housing and cover. Inspection via clamped stud fastening.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Operable from above

Closure

Microprisms for screen-based applications

Black adhesive tape

Technical Data

Type	LP 625 (600) LED-H 4.5	LP 625 (600) LED-H 6.5	LP 1,200 x 300 LED-H 6.0
Lighting system (bAG)	LED 840, 4,640 lm, around 32 W	LED 840, 6,500 lm, around 45 W	LED 840, 6,300 lm, around 50 W
Dimensions approx. L x W x H*	625 x 625 x 95 mm (600 x 600 x 95)	625 x 625 x 95 mm (600 x 600 x 95)	1,200 x 300 x 95 mm
Voltage	220 - 240 V/50 - 60 Hz		
Protection class	1		
Ingress protection code	IP65, ceiling side IP50		
Control gear	Switchable, optional DALI dimmable		
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option		
Colour tone	RAL 9016/customer request		
Closure	ESG single-pane toughened safety glass		

* Plus cable connection



LP LED-U3

LED clean room light

LED recessed light suitable for all common ceiling systems. Frameless and jointless light closure with real glass pane and adhesive tape. Version with unique LED/reflector system with highly efficient all-round glare-free, narrow-beam lighting technology. Particularly suitable for applications with higher room heights and/or higher luminance levels. The low installation height of only 55 mm enables particularly space-saving installation. Seamless, closed-cell sealing level between housing and frame. Inspection via clamped stud fastening.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Operable from above

Black adhesive tape

Technical Data

Type	LP 625 (600) LED-U3 4.5 AG	LP 625 (600) LLED-U3 6.5 AG	LP 625 (600) LED-U3 7.5 AG	LP 1,200 x 300 LED-U3 6.5 AG
Lighting system (AG)	LED 840, 4,530 lm, around 31 W	LED 840, 6,800 lm, around 47 W	LED 840, 7,860 lm, around 55 W	LED 840, 6,800 lm, around 47 W
Dimensions approx. L x W x H*	625 x 625 x 55 mm (600 x 600 x 55)	625 x 625 x 55 mm (600 x 600 x 55)	625 x 625 x 55 mm (600 x 600 x 55)	1,200 x 300 x 95 mm
Voltage	220 - 240 V/50 - 60 Hz			
Protection class	1			
Ingress protection code	IP65, ceiling side IP50			
Control gear	Switchable, optional DALI dimmable			
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option			
Colour tone	RAL 9016/customer request			
Closure	ESG single-pane toughened safety glass			

* Plus cable connection

CP LED-H

LED clean room light

LED recessed light suitable for all common ceiling systems. Closure frame colour coated in the same colour as the ceiling. Version with highly efficient LED modules and lighting technology. Particularly suitable for applications with low room height and reduced luminance. Closure glass with homogeneously illuminated real glass pane or for screen-compatible applications with additional internal microprism pane. Seamless, closed-cell sealing level between housing and frame. Inspection via clamped stud fastening.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Operable from above

Closure

Microprisms for screen-based applications

Technical Data

Type	CP 625 (600) LED-H 4.5	CP 625 (600) LED-H 6.5	CP 1,200 x 300 LED-H 6.0
Lighting system (bAG)	LED 840, 4,640 lm, around 32 W	LED 840, 6,500 lm, around 45 W	LED 840, 6,300 lm, around 50 W
Dimensions approx. L x W x H*	625 x 625 x 95 mm (600 x 600 x 95)	625 x 625 x 95 mm (600 x 600 x 95)	1,200 x 300 x 95 mm
Voltage	220 - 240 V/50 - 60 Hz		
Protection class	1		
Ingress protection code	IP65, ceiling side IP50		
Control gear	Switchable, optional DALI dimmable		
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option		
Colour tone	RAL 9016/customer request		
Closure	ESG single-pane toughened safety glass		

* Plus cable connection



CP LED-U3

LED clean room light

LED recessed light suitable for all common ceiling systems. Closure frame colour coated in the same colour as the ceiling. Version with unique LED/reflector system with highly efficient all-round glare-free, narrow-beam lighting technology. Particularly suitable for applications with higher room heights and/or higher luminance levels. The low installation height of only 55 mm enables particularly space-saving installation. Seamless, closed-cell sealing level between housing and frame. Inspection via clamped stud fastening.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Operable from above

Technical Data

Type	CP 625 (600) LED-U3 4.5 AG	CP 625 (600) LLED-U3 6.5 AG	CP 625 (600) LED-U3 7.5 AG	CP 1,200 x 300 LED-U3 6.5 AG
Lighting system (AG)	LED 840, 4,530 lm, around 31 W	LED 840, 6,800 lm, around 47 W	LED 840, 7,860 lm, around 55 W	LED 840, 6,800 lm, around 47 W
Dimensions approx. L x W x H*	625 x 625 x 55 mm (600 x 600 x 55)	625 x 625 x 55 mm (600 x 600 x 55)	625 x 625 x 55 mm (600 x 600 x 55)	1,200 x 300 x 95 mm
Voltage	220 - 240 V/50 - 60 Hz			
Protection class	1			
Ingress protection code	IP65, ceiling side IP50			
Control gear	Switchable, optional DALI dimmable			
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option			
Colour tone	RAL 9016/customer request			
Closure	ESG single-pane toughened safety glass			

* Plus cable connection

SH LED-H

LED clean room light

LED recessed light suitable for all common ceiling systems. Visible housing powder-coated in the colour of the ceiling. Version with highly efficient LED modules and lighting technology. Particularly suitable for applications with low room height and reduced luminance. Closure glass with homogeneously illuminated opal acrylic diffuser for wide beam light characteristics, optionally for screen-compatible applications with microprism pane. Cover held in frame – fastening via stud fastener.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Operable from above

Closure

Microprisms for screen-based applications

Technical Data

Type	SH 625 (600) LED-H 4.5	SH 625 (600) LED-H 6.5	SH 1,200 x 300 LED-H 6.0
Lighting system (OS)	LED 840, 4,640 lm, around 32 W	LED 840, 6,500 lm, around 45 W	LED 840, 6,300 lm, around 50 W
Dimensions approx. L x W x H*	625 x 625 x 80 mm (600 x 600 x 80)	625 x 625 x 80 mm (600 x 600 x 80)	1,200 x 300 x 80 mm
Voltage	220 - 240 V/50 - 60 Hz		
Protection class	1		
Ingress protection code	IP50, optionally IP54 room side		
Control gear	Switchable, optional DALI dimmable		
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option		
Colour tone	RAL 9016/customer request		
Closure	Opal acrylic glass		

* Plus cable connection



SH LED-U3

LED clean room light

LED recessed light suitable for all common ceiling systems. Visible housing powder-coated in the colour of the ceiling. Version with unique LED/reflector system with highly efficient all-round glare-free, narrow-beam lighting technology. Particularly suitable for applications with higher room heights and/or higher luminance levels. The low installation height of only 55 mm enables particularly space-saving installation. Cover held in frame. Fastening via stud fastening.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Operable from above

Technical Data

Type	SH 625 (600) LED-U3 4.5 KS	SH 625 (600) LLED-U3 6.5 KS	SH 625 (600) LED-U3 7.5 KS	SH 1,200 x300 LED-U3 6.5 KS
Lighting system (AG)	LED 840, 4,530 lm, around 31 W	LED 840, 6,800 lm, around 47 W	LED 840, 7,860 lm, around 55 W	LED 840, 6,800 lm, around 47 W
Dimensions approx. L x W x H*	625 x 625 x 55 mm (600 x 600 x 55)	625 x 625 x 55 mm (600 x 600 x 55)	625 x 625 x 55 mm (600 x 600 x 55)	1,200 x 300 x 55 mm
Voltage	220 - 240 V/50 - 60 Hz			
Protection class	1			
Ingress protection code	IP50, optionally IP54 room side			
Control gear	Switchable, optional DALI dimmable			
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option			
Colour tone	RAL 9016/customer request			
Closure	Clear acrylic glass			

* Plus cable connection

RR-o LED-H

LED clean room light

LED system light as ceiling panel replacement for installation in Line 100S/80S Type 2 ceiling systems. Housing colour coated in the same colour as the ceiling. Version with highly efficient LED modules and lighting technology. Particularly suitable for applications with low room height and reduced luminance. Closure glass with homogeneously illuminated real glass pane or for screen-compatible applications with additional internal microprism pane. Inspection from the ceiling side.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Other ceiling systems on request

Silicone tape between frame and toughened safety glass pane

Technical Data

Type	RR-o 625 LED-H 6.5 bAG	RR-o 312 LED-H 3.0 bAG
Lighting system (bAG)	LED 840, 6,500 lm, around 45 W	LED 840, 3,250 lm, around 23W
Dimensions approx. L x W x H*	1,094 x 1,094 x 120 mm	1,094 x 1,094 x 120 mm
Voltage	220 - 240 V/50 - 60 Hz	
Protection class	1	
Ingress protection code	IP65, ceiling side IP50	
Control gear	Switchable, optional DALI dimmable	
Electrical connection	Rear coupling connector with loose plug and socket, 3-pin (for DALI in each case 5-pin)	
Colour tone	RAL 9016/customer request	
Closure	Microprisms for screen-based applications	

* Plus cable connection



RR-o LED-U3

LED clean room light

LED system light as ceiling panel replacement for installation in Line 100S/80S Type 2 ceiling systems. Housing colour coated in the same colour as the ceiling. Version with unique LED/reflector system with highly efficient all-round glare-free, narrow-beam lighting technology. Particularly suitable for applications with higher room heights and/or higher luminance levels.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Other ceiling systems on request

Silicone tape between frame and toughened safety glass pane

Technical Data

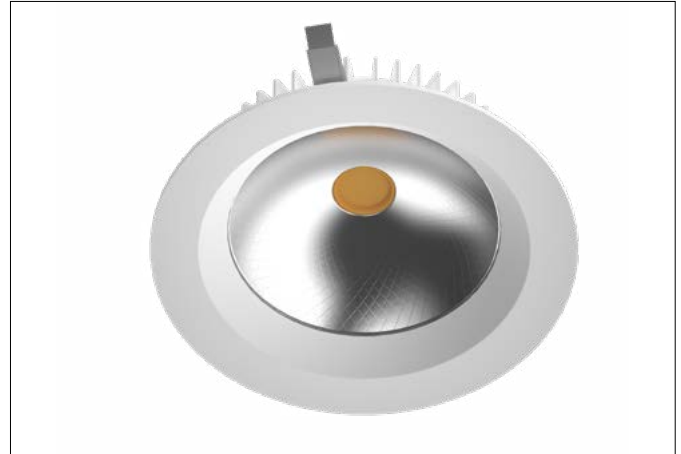
Type	RR-o 625 LED-U3 4.5 AG	RR-o 625 LED-U3 6.5 AG	RR-o 625 LED-U3 7.5 AG
Lighting system (AG)	LED 840, 4,530 lm, around 31 W	LED 840, 6,800 lm, around 47 W	LED 840, 7,860 lm, around 55 W
Dimensions approx. L x W x H*	1,094 x 1,094 x 120 mm	1,094 x 1,094 x 120 mm	1,094 x 1,094 x 120 mm
Voltage	220 - 240 V/50 - 60 Hz		
Protection class	1		
Ingress protection code	IP65, ceiling side IP50		
Control gear	Switchable, optional DALI dimmable		
Electrical connection	Rear coupling connector with loose plug and socket, 3-pin (for DALI in each case 5-pin)		
Colour tone	RAL 9016/customer request		
Closure	ESG single-pane toughened safety glass, clear		

* Plus cable connection

RP 195 LED

LED clean room downlight

LED recessed light suitable for all common ceiling systems. Visible housing powder-coated in the colour of the ceiling. Version with unique LED/reflector system with highly efficient all-round glare-free, narrow-beam lighting technology. Particularly suitable for applications with higher room heights and/or higher luminance levels. Cover held in frame. Fastening via stud fastening.



Additional Equipment

Mounting ring for flush mounting

Electrical connection according to customer requirements

Centring ring for simplified sealing

CRI > 90

Tunable white

Emergency light (after consultation)

Installation in special ceilings (after consultation)

Type	Lighting system	Size approx. D x H
RP 195 1.5 bAG	LED 840, 1,540 Lm, approx. 10 watts	195 x 60 mm
RP 195 2.0 bAG	LED 840, 2,140 Lm, approx. 15 watts	195 x 60 mm
RP 195 2.5 bAG	LED 840, 2,850 Lm, approx. 20 watts	195 x 60 mm
RP 195 1.5 AG	LED 840, 1,650 Lm, approx. 10 watts	195 x 60 mm
RP 195 2.0 AG	LED 840, 2,300 Lm, approx. 15 watts	195 x 60 mm
RP 195 3.0 AG	LED 840, 3,060 Lm, approx. 20 watts	195 x 60 mm

Technical Data

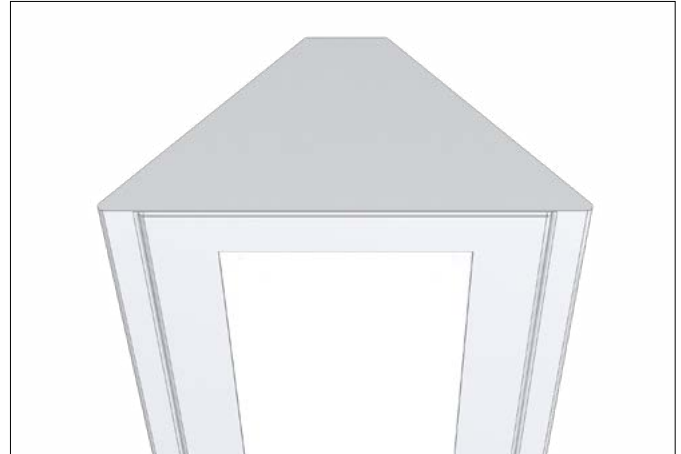
Voltage	220 - 240 V/50 - 60 Hz
Protection class	2
Ingress protection code	IP65, ceiling side IP50
Control gear	Switchable, optional DALI dimmable
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option
Colour tone	RAL 9016/customer request
Closure	ESG single-pane toughened safety glass



DL LED

LED clean room light

LED surface-mounted light for mounting at the transition from ceiling to wall. The lights can be lined up in rows. Suitable corner pieces are available for corners. The design allows the lights to fit seamlessly at the transition between wall and ceiling. Use of highly efficient and durable LED modules. Cover held in frame. Fastening via stud fastening.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

Technical Data

Type	DL LED 600 2.0 bAG	DL LED 900 3.5 bAG	DL LED 1,200 4.5 bAG	DL LED 1,500 6.0 bAG
Lighting system	LED 840, 2,350 lm, around 21 W	LED 840, 3,530 lm, around 31 W	LED 840, 4,700 lm, around 41 W	LED 840, 6,080 lm, around 54 W
Dimensions approx. L x W x H	600 x 140 x 140 mm	900 x 140 x 140 mm	1,200 x 140 x 140 mm	1,500 x 140 x 140 mm
Voltage	220 - 240 V/50 - 60 Hz			
Protection class	1			
Ingress protection code	IP65 in room, IP20 in ceiling, optional IP54			
Control gear	Switchable, optional DALI dimmable			
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option			
Colour tone	RAL 9016/customer request			
Closure	Single-pane toughened safety glass (ESG)			

TD-L LED

LED teardrop light

LED teardrop light for direct mounting on ceiling grid. Opal light cover in streamlined drop shape to avoid air currents. The cover is reliably held by internal stainless steel springs. This makes maintenance easy. The light can be supplied for individual mounting and for continuous row mounting.



Additional Equipment

Emergency light
Electrical connection according to customer requirements
IP54 (at most 2-length strip lights)
Feed-through wiring

Technical Data

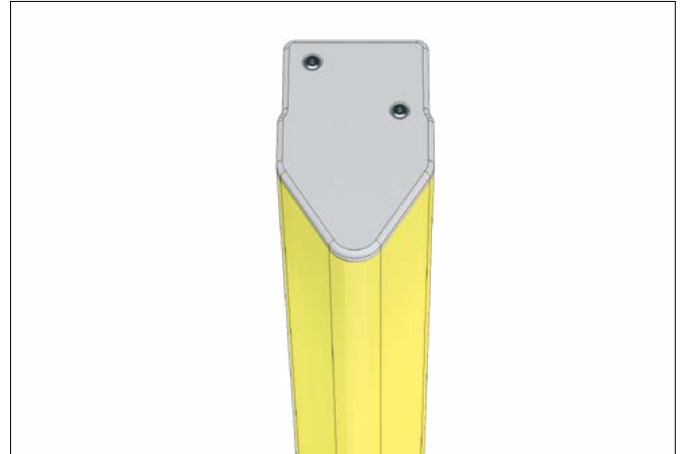
Type	TD-L LED 600 1.5 OA	TD-L LED 900 2.0 OA	TD-L LED 1,200 3.0 OA	TD-L LED 1,500 4.0 OA
Lighting system	LED 840, 1,620 lm, around 12 W	LED 840, 2,430 lm, around 17 W	LED 840, 3,240 lm, around 23 W	LED 840, 4,050 lm, around 28 W
Dimensions approx. L x W x H	600 x 50 x 90 mm	900 x 50 x 90 mm	1,200 x 50 x 90 mm	1,500 x 50 x 90 mm
Voltage	220 - 240 V/50 - 60 Hz			
Protection class	1			
Ingress protection code	IP40			
Control gear	Switchable, optional DALI dimmable			
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option			
Colour tone	RAL 9016/customer request			
Closure	Diffuse PMMA profile cover			



TD-L LED Y3

Teardrop light with amber light

Teardrop surface-mounted light with amber light, equipped with LED technology. Opal light cover in streamlined drop shape to avoid air currents. A filtration effect of the wavelengths (< 500 nm) is guaranteed. The diffusion layer coated on both sides ensures the highest possible efficiency. The cover is fastened without tools via internal stainless steel springs. The light can be supplied for individual mounting and for continuous row mounting.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

IP54 (at most 2-length strip lights)

Feed-through wiring

Technical Data

Type	TD-L y3 640 1.0 OA	TD-L y3 920 1.5 OA	TD-L y3 1,200 2.0 OA
Luminous flux	1,200 lm	1,670 lm	2,150 lm
System capacity	14 W	20 W	25 W
Dimensions approx. L x W x H	640 x 50 x 90 mm	920 x 50 x 90 mm	1,200 x 50 x 90 mm
Voltage	220 - 240 V/50 - 60 Hz		
Protection class	1		
Ingress protection code	IP40		
Control gear	Switchable, optional DALI dimmable		
Electrical connection	Internal 3-pin terminal (DALI 5-pin) – with feed-through wiring option		
Colour tone	RAL 9016 or RAL 9010		
Light colour	Amber light y3		
Closure	Diffuse PMMA profile cover		

TD-L LED Y5

Teardrop light with amber light

Teardrop surface-mounted light with amber light, equipped with LED technology. Opal light cover in streamlined drop shape to avoid air currents. Version with special Amber LED modules with a selective light spectrum. The use of these LED modules means that no additional filter layer is required and the diffusion layer coated on both sides ensures the highest possible efficiency. The cover is fastened without tools via internal stainless steel springs. The light can be supplied for individual mounting and for continuous row mounting.



Additional Equipment

Emergency light
Electrical connection according to customer requirements
IP54 (at most 2-length strip lights)
Feed-through wiring

Technical Data

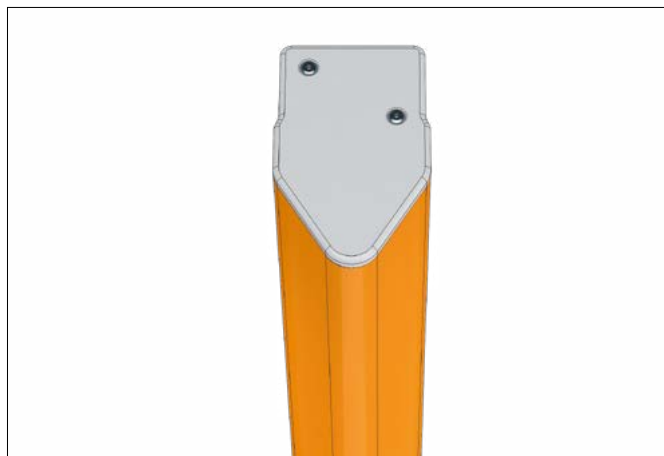
Type	TD-L y5 600 1.0 OA	TD-L y5 1,200 2.0 OA
Luminous flux	1,080 lm	2,160 lm
System capacity	18 W	36 W
Dimensions approx. L x W x H*	600 x 50 x 90 mm	1,200 x 50 x 90 mm
Voltage	220 - 240 V/50 - 60 Hz	
Protection class	1	
Ingress protection code	IP40	
Control gear	Switchable, optional DALI dimmable	
Electrical connection	3-pin internal connection terminal	
Colour tone	RAL 9016 or RAL 9010	
Light colour	Amber light y5	
Closure	Diffuse PMMA profile cover	



TD-L LED Y9

Teardrop light with amber light

Teardrop surface-mounted light with amber light, equipped with LED technology. Opal light cover in streamlined drop shape to avoid air currents. A filtration effect of the wavelengths (< 530 nm) is guaranteed. The diffusion layer coated on both sides ensures the highest possible efficiency. The cover is fastened without tools via internal stainless steel springs. The light can be supplied for individual mounting and for continuous row mounting.



Additional Equipment

Emergency light

Electrical connection according to customer requirements

IP54 (at most 2-length strip lights)

Feed-through wiring

Technical Data

Type	TD-L y9 640 0.5 OA	TD-L y9 920 1.0 OA	TD-L y9 1,200 1.5 OA
Luminous flux	870 lm	1,260 lm	1,660 lm
System capacity	15 W	22 W	29 W
Dimensions approx. L x W x H	640 x 50 x 90 mm	920 x 50 x 90 mm	1,200 x 50 x 90 mm
Voltage	220 - 240 V/50 - 60 Hz		
Protection class	1		
Ingress protection code	IP40		
Control gear	Switchable, optional DALI dimmable		
Electrical connection	3-pin internal connection terminal		
Colour tone	RAL 9016 or RAL 9010		
Light colour	Amber light y9		
Closure	Diffuse PMMA profile cover		

RWL 255

LED clean room light

LED warning light for recessed installation in our partition systems. Closure via optiwhite real glass pane with multiple digital printing. When illuminated, the desired warning sign is highlighted particularly intensely by the use of red LEDs; when not illuminated, only the intrinsic colour of the panel is visible. The light is fastened by means of a knob clamp fastener.



Technical Data

Type	RWL 255 LED
Lighting system	Red LED, around 5 W
Dimensions approx. L x W x H	255 x 130 x 23 mm
Voltage	220 - 240 V/50 - 60 Hz
Protection class	3, driver protection class 2
Ingress protection code	IP20
Control gear	Switchable
Electrical connection	2-pin terminal on external driver
Colour tone	RAL 9016
Closure	ESG single-pane toughened safety glass with print

*plus Cable connection + driver



Hamad General Hospital, Doha, Qatar

The population of Qatar has almost tripled in the last 10 years. This development required massive changes in the country's healthcare system. One of the largest infrastructure projects is the construction of Hamad Medical City in the capital city of Doha. Several hospitals with varying specialities are currently being built, with an investment volume of around 2.4 billion Qatar-Riyal. The recently completed surgical centre, with its 20 operating theatres (including 2 CT scanners and 1 hybrid MRI

scanner) and 50 surgery preparation rooms, extends the surgical capacity of neighbouring Hamad General Hospital. Lindner SE | Clean Rooms was awarded the contract for the complete interior fit-out of the building. In addition to project planning, production, delivery and supervising the installation of all fit-out services, this also included planning for the CT and MRI areas.

Clean Room and Operating Theatre Walls

Flexible and reliable

Looking for a product that can be adapted to spatial changes at any time? Modular design means that individual elements of Lindner clean room and operating theatre walls can be easily moved or replaced, even after installation.

You can also obtain our walls as customised special solutions: in fire, noise or radiation protection versions and with absolutely flush surfaces, for example. All partition systems can of course be easily combined with our floor and ceiling systems.

- all services from a single source
- manufacture to the highest quality standards





Clean Room and Operating Theatre Walls

Technical Data

	Axis grid	Height	Joint width	Wall thickness
Multiclean LVT – Solid partition system Its wide range of design variants means that the Multiclean LVT clean room partition system can be used in the most diverse areas, such as laboratories, clinics, electronics areas, explosion protection areas, etc.	Standard up to 1,200 mm	Standard up to 5,000 mm	4 mm	100 mm
Multiclean CLVT – Solid partition system The partition system excels in high air tightness and is easy to clean and disinfect. GMP- and DIN EN ISO 14644 suitable design. The surface is even, flush, suitable for flush installation and does not contain any outgassing or particle emitting materials.	Standard up to 1,200 mm	Standard up to 5,000 mm	4 mm	100 mm
Multiclean CPH – Solid partition system The Multiclean CPH clean room partition system features a wide range of design variants and a very narrow wall thickness of 80 mm. This combination makes the partition system extremely flexible and versatile.	Standard up to 1,200 mm	Standard up to 4,000 mm	4 mm	80 mm
Multiclean COP – Solid partition system for operating theatres The wall panels can be made of different materials such as stainless steel or HPL (high pressure laminates). All surfaces, joints and connections are designed to facilitate flawless cleaning and disinfection.	Standard up to 1,200 mm	Standard up to 4,000 mm	4 mm	from 100 mm
Multiclean PPH – Solid partition system The partition system excels in high air tightness and is easy to clean and disinfect. GMP- and DIN EN ISO 14644 suitable design. The surface is even, flush, suitable for flush installation and does not contain any outgassing or particle emitting materials.	Standard up to 1,200 mm	Standard up to 5,000 mm	4 mm	80 mm
Multiclean LVT 437, LVT 439, CLVT 437, CPH 448, COP 137 and PPH 480 A wide variety of glazing options are available for our cleanroom partition systems to suit every system.	Standard up to 1,200 mm	Standard up to 3,500 mm	4 mm	100 mm and 80 mm
Cleanlife 618/619 – Glass partition This partition system offers an excellent view of production areas and is therefore used for the likes of visitor and maintenance aisles. This partition system is available with integrated scuff protection, since goods and objects are often transported through such production areas.	Standard up to 1,200 mm	Standard up to 3,500 mm	2 mm	from 12 mm



Acoustics	Fire Protection	Climate Technology	Combinable with	Statics	Page
Sound insulation	Fire resistance class				
R_w = up to 52 dB according to DIN EN ISO 717-1	F 0, F 30 according to DIN 4102, EI 30 according to EN 13501-2 EI 60 according to EN 13501-2	–	Glazing systems, blinds/roller blinds, inspection hatches, scuff protection, radiation protection	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	54
R_w = up to 52 dB according to DIN EN ISO 717-1	F 0	–	Glazing systems, blinds/roller blinds, inspection hatches, scuff protection	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	56
R_w = up to 52 dB according to DIN EN ISO 717-1	F 0	–	Glazing systems, blinds/roller blinds, inspection hatches, scuff protection	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	58
R_w = up to 52 dB according to DIN EN ISO 717-1	F 0, F 30 according to DIN 4102, EI 30 according to EN 13501-2	–	Glazing systems, blinds/roller blinds, inspection hatches, scuff protection, radiation protection,	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	60
R_w = up to 46 dB according to DIN EN ISO 717-1	F 0	–	Glazing systems, blinds/roller blinds, inspection hatches, scuff protection, radiation protection,	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	62
See details page	See details page	–	Blinds/roller blinds	See details page	64-74
–	F 0	–	Scuff protection	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	76-79

Clean Room and Operating Theatre Walls

Technical Data

	Axis grid	Height	Joint width	Wall thickness
Variodata – Clean room partition Our Variodata partition system has been specifically developed for applications in the field of microelectronics and semiconductor electronics. Its post-and-beam construction with clipped filler elements is extremely flexible and suitable for the most diverse technical requirements.	Standard up to 1,200 mm	Standard up to 4,200 mm	–	50 mm
Thermowall – Partition system with heating and cooling technologies The superior hygienic properties of this system's unbroken smooth and closed surface make it preferable to a conventional radiator. Water or electricity are used as the heating and cooling media.	Standard up to 1,200 mm	Standard up to 3,500 mm	4 mm	from 100 mm

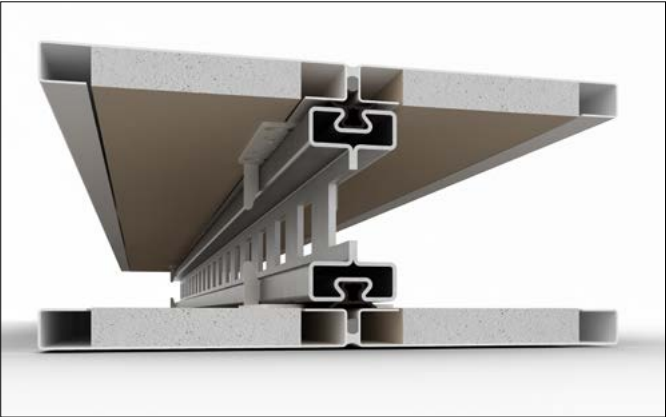


Acoustics	Fire Protection	Climate Technology	Combinable with	Statics	Page
Sound insulation	Fire resistance class				
–	F 0	–	Glazing systems, blinds/roller blinds, scuff protection	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	78
–	F 0	Nominal heating capacity (15K): around 73 W/m ² , nominal heating capacity (29.5K): around 144 W/m ² , nominal cooling capacity (10K): around 40.0 - 60.0 W/m ² according to DIN EN 14240	Glazing systems, blinds/roller blinds, radiation protection, Scuff protection	Installation areas 1 and 2, non-load bearing partition according to DIN 4103	84

Multiclean LVT

Solid partition system in shell construction

Its wide range of design variants means that the Multiclean LVT clean room partition system can be used in the most diverse areas, such as pharmaceutical production facilities, laboratories, clinics, explosion protection areas, etc. The system meets all requirements for GMP and DIN EN ISO 14644 compliant design.



Application Areas

Pharmaceutical production and medical technology

Microsystems, precision mechanics and optical industry

Surface technology

Operating theatre technology

Laboratories and research centres

Additional Equipment

Glazing systems Multiclean LVT 437 and Multiclean LVT 439

Blinds/roller blinds

Inspection hatches

Scratch protection

Radiation protection



Technical Data

Supporting construction	Consisting of edged or roll-formed steel profiles, galvanised or coated
Panelling	Shell construction with hook-in system Metal shell: 13 mm <ul style="list-style-type: none"> • Stainless steel polished and brushed (Duplo grinding) • Coil-coating, colour RAL 9010 • Powder-coating according to RAL or other common colour systems
Joints and connections	The element joints are optionally sealed in accordance with clean room requirements or sealed with a beading profile; floor, ceiling and wall connections are implemented depending on requirements
Element thickness (wall thickness)	100 mm (with 13 mm panelling)
Standard width (axial dimension)	1,200 mm ^{1) 2)}
Wall heights	Up to 5,000 mm (subject to EB) ^{1) 2)}
Weight	38 - 42 kg/m ²
Joint width between the elements	4 mm (standard)

Acoustics

up to 52 dB R_w according to DIN EN ISO 717-1

Fire Protection

F 0; F 30 according to DIN 4102; EI 30, EI 60 according to EN 1364-1

Surfaces

Certified up to GMP Class A, qualification certificates on request

Standards and Regulations

GMP-compliant design

DIN EN ISO 14644 – compliant design

Proof of air permeability according to EN 12114:2000-03

DIN 4103 non-load bearing internal partition walls

DIN 18202 Tolerances in building construction – Structures

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

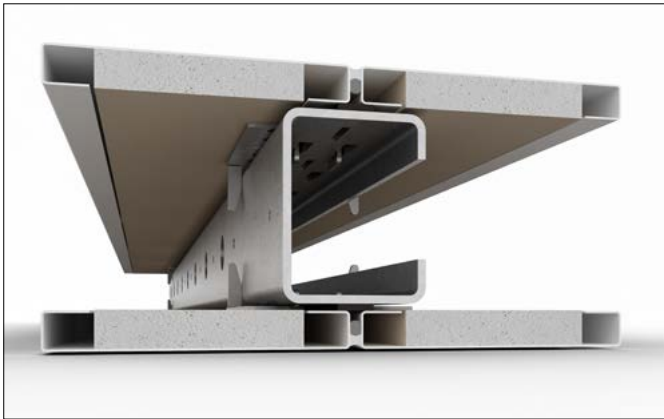
Multiclean CLVT

Solid partition system in lightweight construction

Non-load-bearing solid partition system in lightweight construction that meets the wide variety of requirements on interior design and engineering.

This movable partition system can be combined with various glazings and complemented by numerous accessories.

The partition system excels in high air tightness and is easy to clean and disinfect. GMP- and DIN EN ISO 14644 suitable design. The surface is even, flush, suitable for flush installation and does not contain any outgassing or particle emitting materials. The partition joints are optionally sealed with a clean room suitable sealant.



Application Areas

Pharmaceutical industry and medical engineering

Electronics and semiconductor industry

Microsystems-, precision mechanics- and optical industry

Laboratories and research centres

Surface treatment technology

Data processing centres

Additional Equipment

Glazing system Multiclean CLVT 437

Blinds/roller blinds

Inspection hatches

Scratch protection



Technical Data

Substructure	The substructure consists of galvanized or coated folded steel profiles
Panelling	Modular design with hook-in system Metal shell 13 mm <ul style="list-style-type: none"> • Galvanised sheet steel • Powder coating acc. to RAL or other common colour systems • Coil-Coating, colour RAL 9010 • Stainless steel ground and polished
Joints and connections	The element joints are optionally sealed in accordance with cleanroom requirements or sealed with synthetic profile. Floor, ceiling and wall connections are carried out according to requirements.
Partition thickness	100 mm
Axial grid	1,200 mm (standard) ^{1) 2)}
Partition height	up to 6,000 mm (depending on installation area ^{1) 2)})
System weight	35 - 45 kg/m ²
Joint width	4 mm (standard)

Acoustics

up to 52 dB R_w acc. to DIN EN ISO 717-1 (depending on design)

Fire Protection

F0

Standards and Regulations

DIN 18202 tolerances in building construction – branches of building industry

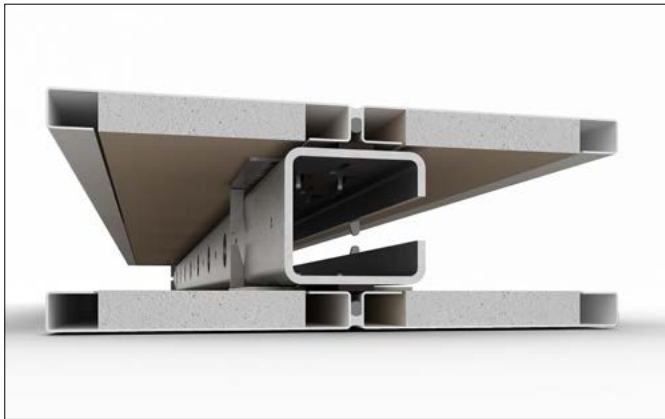
1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean CPH

Solid partition system in shell construction

Our Multiclean CPH clean room partition system, which meets the most diverse demands with respect to room design and technology, is characterised by its slim wall thickness of 80 mm and meets all the requirements of a modern clean room partition system with regard to GMP design and hygiene.



Application Areas

Pharmaceutical production and medical technology

Microsystems, precision mechanics and optical industry

Surface technology

Laboratories and research centres

Additional Equipment

Glazing system Multiclean CPH 448

Blinds/roller blinds

Inspection hatches

Scratch protection

Radiation protection



Technical Data

Supporting construction	Consisting of edged or roll-formed galvanised steel profiles
Panelling	Shell construction with hook-in system Metal shell: 13 mm - Stainless steel polished and brushed (Duplo grinding) - Coil-coating, colour RAL 9010 - Powder coating according to RAL or other common colour systems
Joints and connections	The panel joints can optionally be sealed in a cleanroom-compatible manner or sealed with a synthetic profile.
Element thickness (wall thickness)	80 mm (with 13 mm panelling)
Standard width (axial dimension)	1,200 mm ^{1) 2)}
Wall heights	Up to 4,000 mm (subject to EB ^{1) 2)}) Up to 5,600 mm (special design)
Weight	38 - 42 kg/m ²
Joint width between the elements	4 mm (standard)

Acoustics

R_w up to 52 dB according to DIN EN ISO 717-1 (depending on execution)

Fire Protection

F0

Standards and Regulations

GMP-compliant design

DIN EN ISO 14644 – compliant design

Proof of air permeability according to EN 12114:2000-03

DIN 4103 non-load bearing internal partition walls

DIN 18202 Tolerances in building construction - Structures

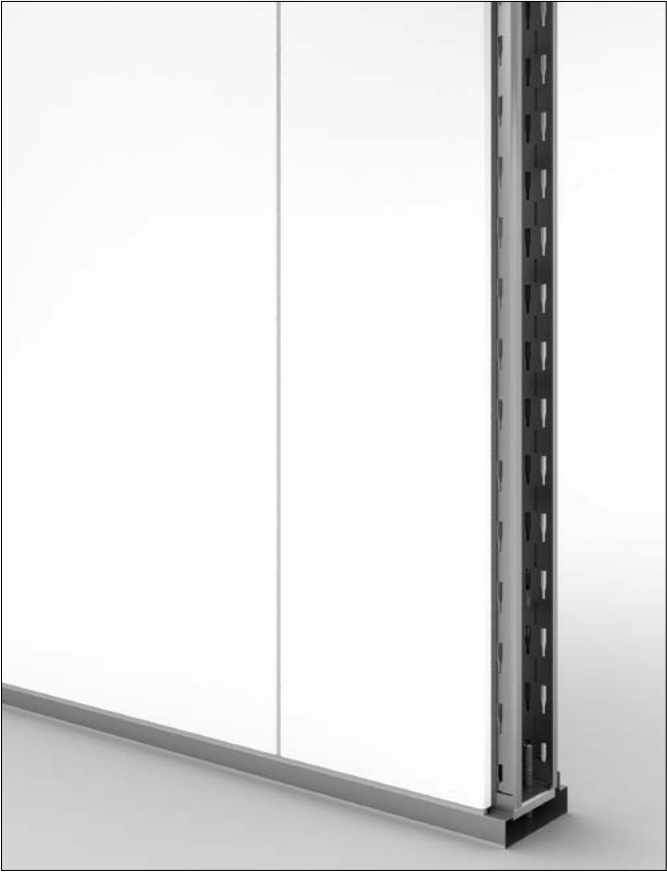
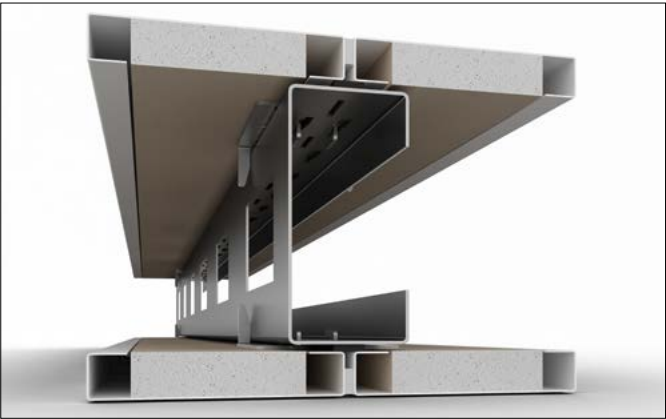
1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean COP

Solid partition system in shell construction

Our Multiclean COP partition system was specifically designed for installation in operating theatres. The wall panels can be made of different materials such as stainless steel, glass or HPL (high pressure laminates). All surfaces, joints and connections to adjoining components are designed to facilitate flawless cleaning and disinfection.



Application Areas

Operating theatre technology

Hospitals

Additional Equipment

Glazing system Multiclean COP 137

Blinds/roller blinds

Inspection hatches

Radiation protection



Technical Data

Supporting construction	Consisting of edged steel profiles, galvanised or coated
Panelling	Shell construction with hook-in system: Metal shell: 19 mm - Stainless steel polished and brushed (Duplo grinding) - Powder coating according to RAL or other common colour systems - HPL laminate - Glass
Joints and connections	The element joints are optionally sealed according to clean room requirements or sealed with a beading profile. Floor, ceiling and wall connections are carried out according to requirements.
Element thickness (wall thickness)	from 150 mm
Standard width (axial dimension)	1,200 mm ¹⁾
Wall heights	Up to 4,000 mm (depending on wall thickness) ¹⁾
Weight	38 - 60 kg/m ²
Joint width between the elements	4 mm (standard)

Acoustics

R_w up to 52 dB according to DIN EN ISO 717-1

Radiation Protection

Depending on requirements and design, an appropriate lead equivalent value of 0.2 to 0.4 is possible. A further increase in the equivalent lead value can be implemented as an option.

Fire Protection

F0

Standards and Regulations

DIN 18202 Tolerances in building construction - Structures

DIN 4103 non-load bearing internal partition walls

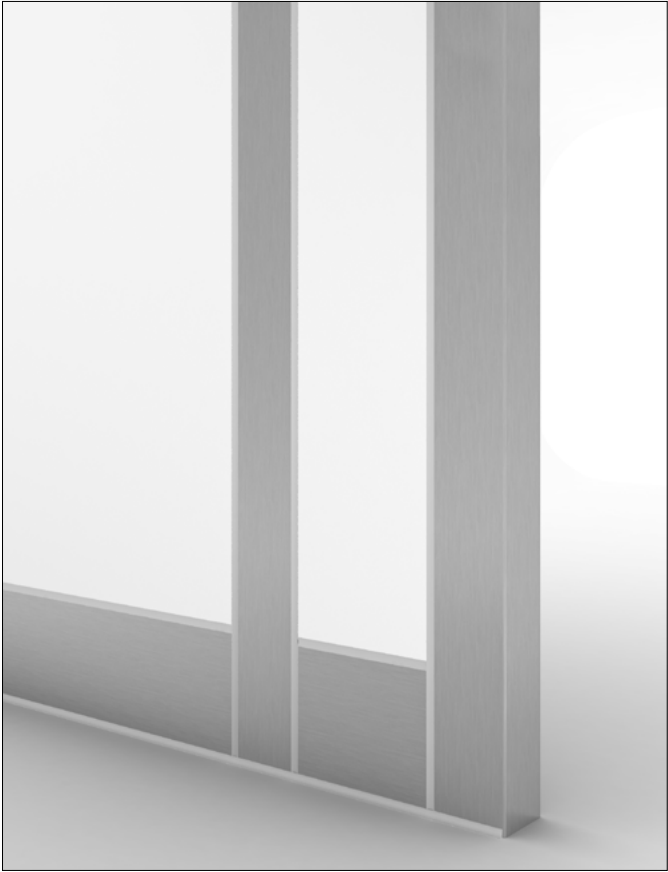
¹⁾ The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean PPH

Solid partition system in shell construction

Non-load-bearing solid partition system in lightweight construction that fulfils a wide range of interior design and technical requirements.

This movable partition wall can be combined with the Multiclean PPH 480 glazing system and supplemented with numerous accessories. The partition system is characterised by high impermeability and easy cleaning and disinfection. GMP and DIN EN ISO 14644-compliant design. The surface is smooth, even, allows flush mounting and contains no outgassing or particle-emitting materials. The wall joints are optionally sealed for cleanroom compatibility.



Application Areas

- Pharmaceutical production and medical technology
- Operating theatre technology
- Laboratories and research centres
- Surface technology

Additional Equipment

- Glazing system Multiclean PPH 480
- Blinds/roller blinds
- Inspection hatches
- Radiation protection



Technical Data

Supporting construction	Consisting of 80 mm visible stainless steel square tubes and folded or roll-formed galvanised steel profiles
Metal – Panelling	<p>Shell construction with hook-in system Metal shell: 13 mm</p> <ul style="list-style-type: none"> – Grinded and brushed stainless steel (duplo-grinding) – Grinded stainless steel – Coil-coating (duplex) Color: RAL 9010 – Powder coated according to RAL – Powder coated according <p>Inlay and building material class Panelling system in composite with finished surface acc. to EN 13501</p> <ul style="list-style-type: none"> – plasterboard B-s1,d0 (B1) – plasterboard A2-s1,d0 (A2) – reinforcement profiles A2-s1,d0 (currently still under review with target specification) – aluminium honeycomb and rear shell A2-s1,d0 (A2)
Joints and connections	The joints between the elements are optionally sealed with cleanroom suitable material or with a clamping profile. Floor, ceiling and wall connections according to the requirements.
Element thickness (wall thickness)	80 mm (13 mm metal shell)
Standard width (axial dimension)	1,200 mm (standard) ¹⁾²⁾ min. 100 mm up to max. 1,420 mm (depending on the panelling)
Wall heights	up to max. 5,000 mm (depending on installation area ¹⁾²⁾)
Weight	38 - 41 kg/m ²
Joint width between the elements	4 mm (standard)

Acoustics

up to 46 dB R_w according to DIN EN ISO 717-1

Standards and Regulations

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) With triple glazing

3) ESG = single-pane toughened safety glass

4) LSG = laminated safety glass

5) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean LVT 437

Glazing system for partition system Multiclean LVT

The glazing consists of two divided aluminium frames with glued panes. These frames are hooked into the stud work on each side. The glazing with flush bonding and laterally suspended, all-round aluminium frames emphasises the transparency and openness of the rooms.

The unique bonding technology from Dow Corning® does not require any edging and is a guarantee for maximum reliability and durability. A wide range of design variants, from full glazing, partial glazing to indirect glazing, with a choice of vertical or horizontal glass divisions, is readily available.



Application Areas

Pharmaceutical production and medical technology

Operating theatre technology

Laboratories and research centres



Technical Data

Supporting construction	Consisting of edged or roll-formed steel profiles, galvanised or coated
Glazing	Consisting of two aluminium frames on each of which one pane is glued. This flush construction means the face width of the glued surface is 20 mm, whereby the face width in the ceiling connection can also be 32 mm if tolerance compensation is required. The two frames are hooked into the stud construction. Standard glazing is 6 mm toughened safety glass or 8 mm laminated safety glass.
Joints and connections	The element joints are optionally sealed according to clean room requirements or sealed with a beading profile. Floor, ceiling and wall connections are carried out according to requirements.
Design versions	Room-high glazing, balustrade glazing, indirect glazing, can be equipped with blinds and roller blinds
Standard width (axial dimension)	1,200 mm ^{1) 5)}
Element thickness (wall thickness)	100 mm
Glazing heights	Up to 3,500 mm ^{1) 5)}
Weight	35 - 40 kg/m ² (as room-high glazing)
Joint width between the elements	4 mm (standard)
Pane thickness / type	6 mm or 8 mm toughened safety glass ³⁾ , 8 mm laminated safety glass ⁴⁾
Bonding	Type: based on ETAG 002, using the structural glazing process Material: 2C silicone; colour: similar to light grey, white, black Temperature resistance: -50° C to +150° C

Radiation Protection

It is possible to design the glazing with radiation protection depending on the requirements and design

Acoustics

R_w up to 46 dB according to DIN EN ISO 717-1 (as room-high glazing)

Fire Protection

F 0, F 30 according to DIN 4102 ²⁾, EI 30, EI 60 according to EN 1364-1 ²⁾

Standards and Regulations

DIN 18202 Tolerances in building construction - Structures

DIN 1249 Glass in building, glass edges - Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) With triple glazing

3) ESG = single-pane toughened safety glass

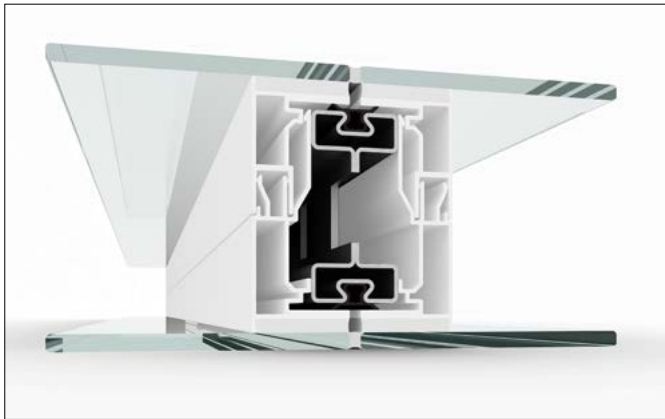
4) LSG = laminated safety glass

5) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean LVT 439

Glazing system for partition system Multiclean LVT

Clean room glazing comprising aluminium frame profiles clipped together and bonded panes. Bonding the panes using Dow Corning® bonding technology means that a visible circumferential frame of around 34 mm is created. The elements are attached to the stud work by screwing. The standard glass panes are single-pane toughened safety glass (ESG) with 6 mm or 8 mm thickness or laminated safety glass (LSG) with 8 mm thickness. This glazing can be designed as room-high glazing, balustrade or indirect glazing. The element joints are sealed according to clean room requirements or sealed with a beading profile. This glazing can be combined with the Logic Multiclean LVT solid partition system.



Application Areas

Pharmaceutical production and medical technology

Operating theatre technology

Laboratories and research centres



Technical Data

Supporting construction	Consisting of edged or roll-formed steel profiles, galvanised or coated
Glazing	Consisting of two aluminium frames on each of which one pane is glued. This flush construction means the visible circumferential width of the adhesive surface is around 34 mm. The frames are screwed into the stud construction on one side and the second frame is clipped against it from the other side. Standard glazing is 6 mm ESG
Joints and connections	The element joints are optionally sealed according to clean room requirements or sealed with a beading profile. Floor, ceiling and wall connections are carried out according to requirements.
Design versions	Room-high glazing, balustrade glazing, indirect glazing, can be equipped with blinds and roller blinds
Standard width (axial dimension)	1,200 mm ^{1) 4)}
Element thickness (wall thickness)	100 mm
Glazing heights	Up to 3,500 mm ^{1) 4)}
Weight	35 - 40 kg/m ² (as room-high glazing)
Joint width between the elements	4 mm (standard)
Pane thickness / type	6 mm or 8 mm ESG ²⁾ , 8 mm LSG ³⁾ optionally possible
Bonding	Type: Based on ETAG 002, using the structural glazing process Material: 2C silicone; colour: similar to light grey, white, black Temperature resistance: -50° C to +150° C

Radiation Protection

It is possible to design the glazing with radiation protection depending on the requirements and design

Acoustics

R_w up to 41 dB according to DIN EN ISO 717-1 (as room-high glazing)

Fire Protection

F 0

Standards and Regulations

DIN 18202 Tolerances in building construction - Structures

DIN 1249 Glass in building, glass edges - Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) ESG = single-pane toughened safety glass

3) LSG = laminated safety glass

4) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean CLVT 437

Glazing system for partition system Multiclean CLVT

The cleanroom glazing element consists of two aluminium frames and glass panels glued onto the frames. The glass panels are flush with the aluminium frame – only the bonding of the glass panels along the system studs is visible. The glass panels are hooked into the system studs.

This glazing system can be combined with the partition system Multiclean CLVT.

The glazing system excels in high air tightness and is easy to clean and disinfect. GMP- and DIN EN ISO 14644 suitable design. The surface is even, flush, suitable for flush installation and does not contain any outgassing or particle emitting materials. The partition joints are optionally sealed with a clean room suitable sealant.



Einsatzbereiche

Pharmaceutical production and medical technology

Laboratories and research centres



Technical Data

Substructure	Consisting of folded or roll formed steel profiles, galvanized or varnished
Glazing element	<p>Substructure consisting of two aluminium frames with one glass panel glued onto each frame. Flush design with 35 mm visible bonding along the edges or optionally 55 mm at the top.</p> <p>Both frames are hooked into the stud construction. Standard glass thickness is 6 mm toughened safety glass.</p>
Joints and connections	<p>The joints between the elements are optionally sealed with cleanroom suitable material or with a clamping profile.</p> <p>Connection to floor, ceiling and walls according to the requirements.</p>
Design options	<ul style="list-style-type: none"> • room-high glazing • balustrade glazing • overhead light glazing • available with venetian blinds and roller blinds
Standard with dimension (axial dimension) ²⁾	1,200 mm ^{1) 4)}
Element thickness (partition thickness)	100 mm
Glazing height	up to max. 3,500 mm (undivided up to max. 3,000 mm) ^{1) 4)}
Weight	40 - 55 kg/m ² (room-high glazing)
Width of joints between elements	4 mm (standard)
Glass Thickness / Quality	6 mm or 8 mm ESG ²⁾ , 8 mm VSG ³⁾
Bonding	<p>Type: structural glazing (Following ETAG 002)</p> <p>Material: Two-component silicon</p> <p>Colour: white. Options: light grey and black</p> <p>Temperature resistance: -50° C up to +150° C</p>

Acoustics

up to 46 dB R_w acc. DIN EN ISO 717-1 (depending on design)

Standards and Regulations

DIN 18202 Toleranzen im Hochbau – Bauwerke (building construction tolerances – buildings)

DIN 1249 Flachglas im Bauwesen; Glaskanten; Begriff, Kantenformen und Ausführungen (flat glass in building industry; edge of glass pane; term, edge shape and finish)

DIN EN ISO 12543 Glas im Bauwesen – Verbundglas und Verbundsicherheitsglas (glass in building industry – laminated glass and laminated safety glass)

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) ESG = toughened safety glass

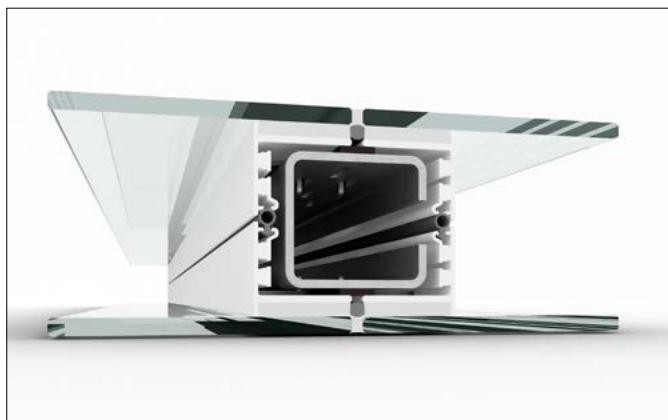
3) VSG = laminated safety glass

4) The maximum wall height and the maximum axis grid may vary depending on the building physics requirements and material combinations

Multiclean CPH 448

Glazing system for partition system Multiclean CPH

Clean room glazing consisting of two aluminium frames with glued-on panes. The panes are flush with the aluminium frame so that only the adhesive surface behind them is visible. The elements are hooked into the stud work and the element joints are sealed according to clean room requirements. This glazing can be combined with the Multiclean CPH solid partition system.



Application Areas

Pharmaceutical production and medical technology

Operating theatre technology

Laboratories and research centres



Technical Data

Supporting construction	Consisting of edged or roll-formed steel profiles, galvanised or coated
Glazing	Consisting of two aluminium frames on each of which one pane is glued. This flush construction means the visible circumferential width of the adhesive surface is around 35 mm, or optionally 55 mm at the top. The two frames are hooked into the stud construction. Standard glass panes are 6 mm ESG.
Joints and connections	The element joints are optionally sealed according to clean room requirements or sealed with a beading profile. Floor, ceiling and wall connections are carried out according to requirements.
Design versions	Room-high glazing, balustrade glazing, indirect glazing, can be equipped with blinds
Standard width (axial dimension)	1,200 mm ^{1) 4)}
Element thickness (wall thickness)	80 mm
Glazing heights	Up to 3,500 mm (undivided 3,000 mm) ^{1) 4)}
Weight	35 - 40 kg/m ² (as room-high glazing)
Joint width between the elements	4 mm (standard)
Pane thickness / type	6 mm or 8 mm ESG ²⁾ or 8 mm VSG ³⁾
Bonding	Type: Based on ETAG 002, using the structural glazing process Material: 2C silicone; colour: similar to light grey, white, black Temperature resistance: -50° C to +150° C

Radiation Protection

It is possible to design the glazing with radiation protection depending on the requirements and design

Acoustics

R_w up to 44 dB according to DIN EN ISO 717-1 (depending on design)

Fire Protection

F 0

Standards and Regulations

DIN 18202 Tolerances in building construction - Structures

DIN 1249 Glass in building, glass edges - Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) ESG = single-pane toughened safety glass

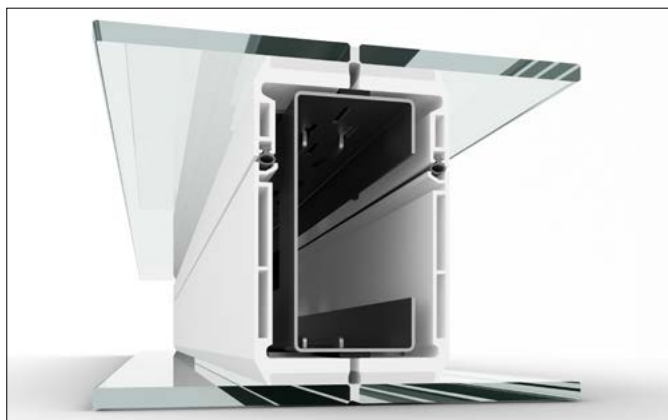
3) VSG = Laminated safety glass

4) The maximum wall height and the maximum module width can differ depending on the building physics

Multiclean COP 137

Glazing system for partition system Multiclean COP

The glazing consists of two divided aluminium frames with glued panes. These frames are hooked into the stud work on each side. The glazing with flush bonding and laterally suspended, all-round aluminium frames emphasises the transparency and openness of the rooms. The unique bonding technology does not require any edging and is a guarantee for maximum reliability and durability. A wide range of design variants, from full glazing, partial glazing to indirect glazing, with a choice of vertical or horizontal glass divisions, is readily available. It is also possible to integrate electric blinds, roller blinds and radiation protection panes.



Application Areas

Operating theatre technology

Hospitals



Technical Data

Supporting construction	Consisting of edged steel profiles, galvanised (standard) or coated
Glazing	Consisting of two aluminium frames on each of which one pane is glued. The visible circumferential width of the bonded surface is 32 mm. The two frames are hooked into the stud construction. Standard glass panes are 6 mm ESG.
Joints and connections	The element joints are optionally sealed according to clean room requirements or sealed with a beading profile. Floor, ceiling and wall connections are carried out according to requirements.
Design versions	Room-high glazing, balustrade glazing, indirect glazing, can be equipped with blinds and roller blinds
Standard width (axial dimension)	1,200 mm ^{1) 5)}
Element thickness (wall thickness)	150 mm
Glazing heights	Up to 3,500 mm (undivided 3,000 mm) ^{1) 5)}
Weight	35 - 40 kg/m ² (as room-high glazing)
Joint width between the elements	4 mm (standard)
Pane thickness / type	6 mm or 8 mm toughened safety glass ³⁾ , 8 mm laminated safety glass ⁴⁾
Bonding	Type: Based on ETAG 002, using the structural glazing process Colour: light grey, white, black Temperature resistance: -50° C to +150° C

Radiation Protection

It is possible to design the glazing with radiation protection depending on the requirements and design

Acoustics

up to 46 dB R_w according to DIN EN ISO 717-1 (room-height glazing)

Fire Protection

F30 according to DIN 4102 ²⁾, EI30, EI60 according to EN 1364-1 ²⁾

Standards and Regulations

DIN 18202 Tolerances in building construction – Structures

DIN 1249 Glass in building, glass edges – Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) With triple glazing

3) ESG = single-pane toughened safety glass

4) LSG = laminated safety glass

5) The maximum wall height and the maximum module width can differ depending on the building physics

Multiclean PPH 480

Glazing system for partition system Multiclean PPH

Cleanroom glass element consisting of two aluminium frames with glued-on panes. The panes are flush with the aluminium frame so that only the adhesive surface behind them is visible.

The elements are hooked into the system uprights. This glazing can be combined with the Multiclean PPH solid wall system. The glazing system is characterised by high impermeability and easy cleaning and disinfection. GMP and DIN EN ISO 14644-compliant design. The surface is smooth, even, enables flush mounting and contains no outgassing or particle-emitting materials. The wall joints are optionally sealed for cleanroom compatibility.



Application Areas

Pharmaceutical production and medical technology

Operating theatre technology

Laboratories and research centres



Technical Data

Supporting construction	Consisting of 80 mm visible stainless steel square tubes and folded or roll-formed galvanised steel profiles.
Glazing	Consists of a two-piece aluminium frame onto each of which a glass pane is glued. With this flush design the visible width of the adhesive surface is 20 mm. For the visible width it is possible to be as wide as 32 mm for ceiling junctions (tolerance compensation). The two frames hook into a stud construction. Standard glass thicknesses are 6 mm toughened safety glass or 8 mm laminated safety glass.
Joints and connections	The joints between the elements are optionally sealed with cleanroom suitable material or with a clamping profile. Connection to floor, ceiling and walls according to the requirements.
Design versions	Room-high glazing, balustrade glazing, overhead light glazing, available with venetian blinds and roller blinds
Standard width (axial dimension)	1,200 mm (standard) ^{1) 4)}
Element thickness (wall thickness)	80 mm
Glazing heights	up to max. 3,500 mm (undivided 3,000 mm) ^{1) 4)}
Weight	35 - 40 kg/m ² (room-high glazing)
Joint width between the elements	4 mm (standard)
Pane thickness / type	6 mm oder 8 mm ESG ²⁾ , 8 mm VSG ³⁾
Bonding	Type: Following ETAG 002 – structural glazing Material: Two-component silicon Colour: Similar to light grey, white, black Temperature resistance: -50° C up to +150° C

Acoustics

up to 46 dB R_w according to DIN EN ISO 717-1 (room-height glazing)

Fire Protection

F0

Standards and Regulations

DIN 18202 Tolerances in building construction – Structures

DIN 1249 Glass in building, glass edges – Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) ESG = Single-pane toughened safety glass

3) VSG = Laminated safety glass

4) The maximum wall height and the maximum module width can differ depending on the building physics

Cleanlife 618

All-glass wall

Our continuous, post-free Cleanlife 618 glazing creates an open and transparent effect in your premises. The use of multi-part aluminium profiles, powder-coated or anodised as required, is suitable for horizontal and vertical connection to the building.



Application Areas

Pharmaceutical production and medical technology

Operating theatre technology

Laboratories and research centres



Technical Data

Supporting construction	Aluminium profile
Glazing	Single pane safety glass, 12 mm
Joints and connections	Joints: vertical joints with transparent acrylic adhesive tape and silicone sealant. The element joints are sealed according to clean room standards. Connection: with aluminium profile or with silicone. Floor, ceiling and wall connections are executed according to requirement.
Design versions	Room-high glazing with stainless steel floor trim
Standard width (axial dimension)	up to 1,500 mm ^{1) 2)}
Element thickness (wall thickness)	80 mm or 100 mm
Glazing heights	Standard up to 3,500 mm ^{1) 2)}
Weight	around 25 - 50 kg/m ² (all-glass wall) ± 10 mm in height and width
Joint width between the elements	2 mm
Pane thickness / type	12 mm
Glass surface	Films, screen printing, enamel

Radiation Protection

It is possible to design the glazing with radiation protection depending on the requirements and design

Acoustics

up to 34 dB R_w acc. DIN EN ISO 717-1

Fire Protection

F0

Standards and Regulations

DIN 18202 Tolerances in building construction – Structures

DIN 1249 Glass in building, glass edges – Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) The maximum wall height and the maximum module width can differ depending on the building physics

Cleanlife 619

All-glass wall

Our continuous, post-free Cleanlife 619 glazing creates an open and transparent effect in your premises. The use of multi-part aluminium profiles, powder-coated or anodised as required, is suitable for horizontal and vertical connection to the building. It is possible to feed media through the stainless steel base.



Application Areas

Pharmaceutical production and medical technology

Laboratories and research centres



Technical Data

Supporting construction	Aluminium profile
Glazing	Single-pane toughened safety glass ≥ 12 mm
Joints and connections	Joints: vertical joints with transparent acrylic adhesive tape and silicone sealant. The element joints are sealed according to clean room standards. Connection: with aluminium profile or with silicone. Floor, ceiling and wall connections are executed according to requirement.
Design versions	Room-high glazing with stainless steel floor trim
Standard width (axial dimension)	up to 1,500 mm ^{1) 2)}
Element thickness (wall thickness)	100 mm
Glazing heights	up to 3,500 mm ^{1) 2)}
Weight	around 25 - 50 kg/m ² (all-glass wall) ± 10 mm in height and width
Joint width between the elements	2 mm
Pane thickness / type	≥ 12 mm
Glass surface	Films, screen printing, enamel

Radiation Protection

It is possible to design the glazing with radiation protection depending on the requirements and design

Acoustics

up to 40 dB R_w acc. DIN EN ISO 717-1

Fire Protection

F 0

Standards and Regulations

DIN 18202 Tolerances in building construction – Structures

DIN 1249 Glass in building, glass edges – Terms and definitions, characteristics of edge types and finishes

DIN EN ISO 12543 Glass in building – Laminated glass and laminated safety glass

DIN 4103 non-load bearing internal partition walls

1) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

2) The maximum wall height and the maximum module width can differ depending on the building physics

Variodata

Solid partition system in post-and-beam construction

Our Variodata clean room partition system has been specifically developed for applications in the field of microelectronics and semiconductor electronics. The post-and-beam construction with clipped filling elements is extremely flexible during assembly and disassembly and is suitable for the most diverse technical requirements.



Application Areas

Electronics and semiconductor technology

Microsystems, precision mechanics and optical industry



Technical Data

Glazing	Balustrade glazing, float, ESG ¹⁾ , LSG ²⁾ pane thicknesses: 6 – 9 mm
Standard width (axial dimension)	1,200 mm
Element thickness (wall thickness)	50 mm
Wall heights	Up to 4,200 mm (subject to EB) ^{3) 4)}
Built-in and attachment parts	<ul style="list-style-type: none"> • Single or double leaf swing doors or sliding doors, high-speed doors, etc. • An overflow grille can be integrated • Material or document airlocks
Filling material	<ul style="list-style-type: none"> • Polystyrene (building material class B1) Density: 25 kg/m³ Thermal conductivity class WLG 035 - 040 • Mineral wool (building material class A1) Density: 50 kg/m³ Thermal conductivity class WLG 035
Materials and surfaces	<ul style="list-style-type: none"> • Aluminium Powder-coating according to RAL or other common colour systems Anodised • Steel sheet (standard) Powder-coating according to RAL or other common colour systems Coil -coating in colour RAL 9010

Fire Protection

F 0

Standards and Regulations

DIN 18202 Tolerances in building construction - Structures

DIN 4103 non-load bearing internal partition walls

1) ESG = single-pane toughened safety glass

2) LSG = laminated safety glass

3) Installation area according to statics (EB 1 or EB 2); non-bearing partition wall according to DIN 4103

4) The maximum wall height and the maximum module width can differ depending on the building physics





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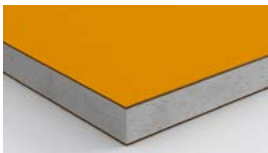
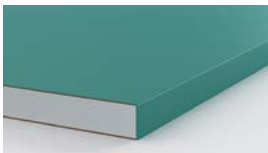
Cannabis pharmaceutical company, Marslev, Denmark

This biopharmaceuticals company produces cannabis for medicinal use in its Danish branch. Besides growing the plants in modern hybrid greenhouses, research into different cannabis varieties is also conducted on site. In association with its Danish general contractor, Lindner followed the plans of architectural firm Koppenhöfer + Partners to realise clean room areas in Class ISO 9/GMP D.




Our load bearing Line 80S ceiling system with a face width of 80 mm was used for the interior fit-out. The recessed Lindner LED lights integrated within the ceiling ensure powerful laboratory lighting and are sealed all around for clean room compatibility. Our Lindner Pharma 80S partition system with high quality stainless steel wall shells connects to the ceiling system. This was executed partly in Duplo grinding and partly in white RAL 9003 powder-coating. Directly adjacent to the clean room area are wet rooms with washing stations for cleaning the cannabis plants, which are also in stainless steel. Our Swing Pharma 80 door system –

partly with automatic actuation and airlock control – is flush-mounted within the partition systems of the various rooms, and its glass insert provides an impression of transparency. The integrated Inline 2 interlocking system locks the door systems in the personnel airlocks against each other to prevent cross-contamination. Our Lindner door systems are complemented by high-speed doors from the manufacturer Assa Abloy, which also have mutual interlocking. The clean room furniture comes from specialists Kemmlit and, like the entire personnel airlock furnishing, was supplied and installed by Lindner. Stainless steel media columns installed free-floating on the load bearing ceiling, a retrofit special solution from Lindner, ensure the power and media supply.

HPL Wall Panels

		Overall thickness
	HPL CF Board Cement-bound carrier board with HPL (high pressure laminate) applied on both sides or alternatively CPL (continuous pressure laminate).	Around 12 mm (depending on the laminate)
	HPL GF Board Gypsum fibre bound carrier board with HPL (high pressure laminate) applied on both sides or alternatively CPL (continuous pressure laminate) and ABS plastic edge applied on 4 sides (acrylonitrile butadiene styrene).	Around 13 mm or 19 mm (depending on the laminate)

Metal Wall Panels

		Overall thickness
	Metal A 13 Metal wall shell with aluminium honeycomb core and back shell	13 mm
	Metal VP 13 Metal wall shell with reinforcing profiles glued to the back	13 mm
	Metal G13/G19 Metal wall shell with plasterboard inlay	13 mm or 19 mm

1) During transport, storage, installation and subsequent indoor climate conditions

2) Depending on the selected laminate

3) Special formats available on request



4) Special sheet thicknesses available on request



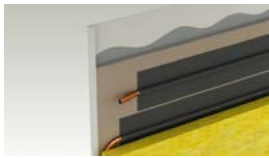
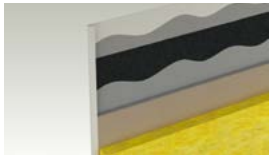

Technical Data				Climate Technology
Laminate	Bonding	Residual moisture content of carrier panel	Dimensions	
Coated on both sides with HPL or CPL according to DIN EN 438; standard thicknesses 0.6 mm or 0.8 mm, other thicknesses on request; Visible side: Colours according to manufacturer's collection; Reverse side: without colour requirement	2C HPL Composite Plus bonding	Up to 15 %	Up to 1,230 mm x 2,980 mm ²⁾	Temperature: +5°C to +40°C Relative humidity: 40% to 70% ¹⁾
Coated on both sides with HPL or CPL according to DIN EN 438; standard thicknesses 0.6 mm or 0.8 mm, other thicknesses on request; Visible side: Colours according to manufacturer's collection; Reverse side: without colour requirement	D4 waterproof	–	Up to 1,230 mm x 2,980 mm ²⁾	Temperature: +5°C to +40°C Relative humidity: 40% to 70% ¹⁾

Technical Data			Surfaces
Material	Sheet thicknesses	Dimensions	
Electro-galvanised steel sheet Stainless steel Aluminium	0.75 mm to 1.0 mm ⁴⁾	Up to 1,264 mm x 3,782 mm ³⁾	Powder-coating according to RAL or other common colour systems Coil-coating in colour RAL 9010 Stainless steel polished and brushed (Duplo grinding)
Electro-galvanised steel sheet Stainless steel	1.0 mm ⁴⁾	Up to 1,316 mm x 3,889 mm ³⁾	Powder-coating according to RAL or other common colour systems Coil-coating in colour RAL 9010 Stainless steel polished and brushed (Duplo grinding)
Electro-galvanised steel sheet Stainless steel Aluminium	0.75 mm to 1.0 mm ⁴⁾	Up to 1,252 mm x 3,782 mm ³⁾	Powder-coating according to RAL or other common colour systems Coil-coating in colour RAL 9010 Stainless steel polished and brushed (Duplo grinding)

Glass Wall Panels

		Overall thickness
	Multiclean COP 191 Graphics Aluminium profile with glass pane applied on one side and digital print	Around 19 mm
	Multiclean COP 191 Aluminium profile with glass pane applied on one side	Around 19 mm

Thermowall

		Standard width (grid dimension)	Wall heights
	Lindner Thermowall Type 1 Heating and cooling partition system Lindner Thermowall was specially developed for use in operating theatres and clean rooms. Thermal conduction profiles made of aluminium and meandering copper pipe are applied to the reverse side of the glass pane for heating or cooling fed through these profiles. This ensures an almost loss-free transfer of thermal energy. This system has the advantage that heating or cooling surfaces can be flexibly integrated within rooms. The superior hygienic properties of the wall's continuous smooth and closed surface make it preferable to a conventional radiator.	1,200 mm	up to 3,500 mm
	Lindner Thermowall Type 2 Heating partition system 45 V/AC Lindner Thermowall was specially developed for use in operating theatres and clean rooms. Heating fleeces are laminated between the metal shell on the room side and the stiffening element on the rear. This ensures an almost loss-free transfer of thermal energy. This system has the advantage that heating surfaces can be flexibly integrated within rooms. The superior hygienic properties of the wall's continuous smooth and closed surface make it preferable to a conventional radiator.	1200 mm	up to 3,500 mm
	Lindner Thermowall Type 3 – HPL Heating and cooling partition system Lindner Thermowall was specially developed for use in operating theatres and clean rooms. Heating or cooling registers are mounted on the back of the cladding for heating or cooling. This system has the advantage that heating or cooling surfaces can be flexibly integrated within rooms. The superior hygienic properties of the wall's continuous smooth and closed surface make it preferable to a conventional radiator.	1200 mm	up to 3,500 mm

1) During transport, storage, installation and subsequent indoor climate conditions
 2) Depending on the selected laminate


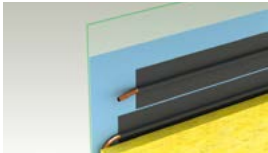

3) Special formats available on request
 4) Special sheet thicknesses available on request



Technical Data			Climate Technology
Graphics – Printing process	Bonding	Dimensions	
Photo-realistic ceramic motif print Aspect ratio: up to 1:20 Compatible file formats: JPEG, TIFF, PDF Resolution for optimal motif print: 150 – 300 dpi at 1:1	10 mm Single-pane toughened safety glass (ESG-H)	Up to 1,260 mm x 3,010 mm ²⁾	Temperature: +5°C to +40°C Relative humidity: 40% to 70% ¹⁾
–	10 mm Single-pane toughened safety glass (ESG-H)	Up to 1,300 mm x 3,500 mm	Temperature: +5°C to +40°C Relative humidity: 40% to 70% ¹⁾

Technical Data			Fire Protection	Climate Technology
Connection of the heating and cooling technology	Dimensions	Joint width between the elements		
The respective active wall panels can be coupled together in parallel or in series up to a pressure loss of around 30 kPa. Connection to the distribution line is via plastic piping.	Property-specific production	4 to 8 mm (4 mm as standard)	Metal wall shell in building material class A2 according to DIN EN 13501-1	LVT steel sheet wall shell, powder-coated with GKF inlay: Nominal heating capacity (15 K) around 73 W/m ² Nominal heating capacity (29.5 K) around 144 W/m ² Nominal cooling capacity according to DIN EN 14240 (10K) around 40.0 - 60.0 W/m ² ¹⁾
The respective active wall panels are connected in parallel and connected to a 45 V/AC supply.	Property-specific production based on a prefabricated heating fleece; Width: 600 mm Maximum length: 2500 mm	4 to 8 mm (4 mm as standard)	–	Steel sheet wall shell, powder-coated with GKF inlay: Nominal heating capacity (18K) around 230 W/m ² ¹⁾
The respective active wall panels can be coupled together in parallel or in series up to a pressure loss of around 30 kPa. Connection to the distribution line is via flexible hoses.	Property-specific production		–	HPL wall shell with aluminium thermal conductivity profile and copper pipe: Nominal heating capacity (15 K) around 100 W/m ² Nominal heating capacity (29.5 K) around 216 W/m ² Nominal cooling capacity according to DIN EN 14240 (10K) around 65 W/m ²

Thermowall

		Standard width (grid dimension)	Wall heights
	Lindner Thermowall Type 4 – Glass Heating partition system 45 V/AC Lindner Thermowall was specially developed for use in operating theatres and clean rooms. Heating fleeces are laminated on the back of the glass pane for heating. This ensures an almost loss-free transfer of thermal energy. This system has the advantage that heating surfaces can be flexibly integrated within rooms. The superior hygienic properties of the wall's continuous smooth and closed surface make it preferable to a conventional radiator.	1,200 mm	up to 3,500 mm
	Lindner Thermowall Type 5 – Glass Heating and cooling partition system Lindner Thermowall was specially developed for use in operating theatres and clean rooms. Thermal conduction profiles made of aluminium and meandering copper pipe are applied to the reverse side of the glass pane for heating or cooling fed through these profiles. This ensures an almost loss-free transfer of thermal energy. This system has the advantage that heating or cooling surfaces can be flexibly integrated within rooms. The superior hygienic properties of the wall's continuous smooth and closed surface make it preferable to a conventional radiator.	1,200 mm	up to 3,500 mm
	Lindner Thermowall Type 6 – HPL Heating partition system 45 V/AC Lindner Thermowall was specially developed for use in operating theatres and clean rooms. Heating fleeces are laminated on the back of the HPL board for heating. This ensures an almost loss-free transfer of thermal energy. This system has the advantage that heating surfaces can be flexibly integrated within rooms. The superior hygienic properties of the wall's continuous smooth and closed surface make it preferable to a conventional radiator.	600 mm	up to 2,200 mm



Technical Data			Fire Protection	Climate Technology
Connection of the heating and cooling technology	Dimensions	Joint width between the elements		
The respective active wall panels are connected in parallel and connected to a 45 V/AC supply.	Property-specific production based on a prefabricated heating fleece; Width: 600 mm; Maximum length: 2,500 mm	4 to 8 mm (4 mm as standard)	–	Single-pane 10 mm ESG safety glass and heating fleece: Nominal heating capacity (15K) around 135 W/m ² . Nominal heating capacity (45 K) around 401 W/m ² At a mains voltage of 30 V/AC
The respective active wall panels can be coupled together in parallel or in series up to a pressure loss of around 30 kPa. Connection to the distribution line is via plastic piping.	Property-related production	4 to 8 mm (4 mm as standard)	–	10 mm single pane safety glass with aluminium thermal conductivity profiles and copper pipe: Nominal heating capacity (15 K) around 100 W/m ² Nominal cooling capacity according to DIN EN 14240 (10K) around 65.0 W/m ²
The respective active wall panels are connected in parallel and connected to a 45 V/AC supply.	Property-related production	4 to 8 mm (4 mm as standard)	–	13 mm HPL wall shell with heating fleece: Nominal heating capacity (20K) 230 W/m ² at a mains voltage of 45 V/AC

Clean Room and Operating Theatre Doors

A clean closure

Top-quality clean room doors specially manufactured by Lindner ensure high impermeability in your rooms. They are manufactured without any organic materials and equipped with surfaces suitable for clean rooms. The requirements of all applicable clean room standards are always met. We also supply doors meeting fire, smoke and noise protection requirements under the applicable EU directives and DIN standards. A high degree of convenience – coupled with optimum safety.

- high transparency due to glass panes
- tailored to Lindner wall systems
- potential for integrating scuff protection
- option for special fixtures as per customer request



Clean Room and Operating Theatre Doors

	Door leaf thickness	Overall door frame width
Swing MPH 1- and 2-leaf clean room door <p>The door unit can be designed as a complete package with automatic drive, sluice control, holding magnet or other electrical components. Whether for simple manual use, automated or as a complex system integrated with airlock controls – the options are almost unlimited. Specifically designed special solutions can be implemented at any time for individual projects.</p>	42 mm	up to 1,200 mm
Swing F MPH 1- and 2-leaf clean room door <p>The door unit can be designed as a complete package with automatic drive, sluice control, holding magnet or other electrical components. Whether for simple manual use, automated or as a complex system integrated with airlock controls – the options are almost unlimited. Specifically designed special solutions can be implemented at any time for individual projects.</p>	77 mm	Up to 1,200 mm
Swing MOP 1- and 2-leaf hinged door <p>Our Lindner Swing MOP can be designed as a complete package with automatic operation, airlock control, holding magnet or other electrical components. Whether for simple manual use, automated or as a complex system integrated with airlock controls – the options are almost unlimited. The door leaf has a thickness of 40 mm and the door gap is 3 – 4 mm. Specifically designed special solutions can be implemented at any time for individual projects.</p>	40 mm	Up to 1,200 mm
Swing HPL 1- and 2-leaf clean room door <p>Our Lindner Swing HPL can be designed as a complete package with automatic operation, airlock control, holding magnet or other electrical components. Whether for simple manual use, automated or as a complex system integrated with airlock controls – the options are almost unlimited. The door leaf has a thickness of 40 mm and the door gap is 3 – 4 mm. Specifically designed special solutions can be implemented at any time for individual projects.</p>	40 mm	Up to 1,200 mm
Swing Variodata 1- and 2-leaf hinged door <p>Our Lindner Swing Variodata can be designed as a complete package with automatic operation, airlock control, holding magnet or other electrical components. Whether for simple manual use, automated or as a complex system integrated with airlock controls – the options are almost unlimited. The door leaf has a thickness of 50 mm. Specifically designed special solutions can be implemented at any time for individual projects.</p>	50 mm	Up to 1,200 mm



Technical Data		Acoustics	Additional Equipment	Page
Overall door frame height	Frame width	Sound insulation		
Around 2,200 mm	80/65 mm	$R_{w,p}$ = up to 35 dB according to DIN EN ISO 140-03	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection, radiation, laser protection and sound insulation	96
Around 2,200 mm	80/65 mm	On request	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection	98
Around 2,200 mm	80/65 mm	R_w = up to 35 dB according to DIN EN 20140-3 (ISO 140-3: 1995)	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection, radiation, laser protection and sound insulation	100
Around 2,200 mm	80/65 mm	R_w = up to 35 dB according to DIN EN 20140-3 (ISO 140-3: 1995)	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection, radiation, laser protection and sound insulation	102
Around 2,200 mm	80/65 mm	On request	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection	104

Clean Room and Operating Theatre Doors

	Door leaf thickness	Overall door frame width
Slide MPH 1- and 2-leaf sliding door Lindner clean room and operating theatre sliding doors are specifically designed for use in clean rooms and hospitals and are precisely matched to the requirements in the different areas. The door system can optionally be designed with one or two leaves, running in or in front of the wall and at room height.	40 - 50 mm	Up to 1,400 mm (1-leaf)
Slide MOP 1- and 2-leaf sliding door The door system can optionally be designed with one or two leaves, running in or in front of the wall and at room height. Our Lindner Slide MOP comprises a door leaf 40 - 50 mm thick and a steel frame. Both manual and automatic actuators are available as actuator variants. Specifically designed special solutions can be implemented at any time for individual projects.	40 - 50 mm	Up to 1,400 mm (1-leaf)
Slide-In MPH 1- and 2-leaf sliding door The unique technical and architectural feature of the Slide-In GLS door system is that this sliding door runs inside the adjacent partition wall system.	30 - 40 mm	Up to 1,400 mm (1-leaf)
Slide GLS 1- and 2-leaf sliding door Our Slide GLS sliding door system offers maximum transparency due to the very high proportion of glass and small cross-section of its stainless steel frame.	40 - 50 mm	Up to 1,400 mm (1-leaf)
Slide HPL 1- and 2-leaf sliding door The door system can optionally be designed with one or two leaves, running in or in front of the wall and at room height. Our Lindner Slide HPL comprises a door leaf 40 - 50 mm thick and a steel frame. Both manual and automatic actuators are available as actuator variants. Specifically designed special solutions can be implemented at any time for individual projects.	40 - 50 mm	Up to 1,400 mm (1-leaf)



Technical Data		Acoustics	Additional Equipment	Page
Overall door frame height	Frame width	Sound insulation		
Up to 2,200 mm	50/50 mm	$R_w = 37$ dB according to DIN EN 10140-2	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, radiation/laser protection and sound insulation	106
Up to 2,200 mm	50/50 mm	$R_w = 37$ dB according to DIN EN 10140-2	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, radiation/laser protection and sound insulation	108
Up to 2,200 mm	80/80 mm	On request	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection	110
Up to 2,200 mm	50/50 mm	On request	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection	112
Up to 2,200 mm	50/50 mm	$R_w = 37$ dB according to DIN EN 10140-2	Fittings, sensors and installation components, blinds/roller blinds, airlock functionality, scuff protection	114

Swing MPH

1-/2-leaf hinged door

The Swing MPH door system, specially designed for use in GMP areas, offers maximum flexibility for a wide range of applications. For example, both a laser protection and a radiation protection variant for special areas in GMP production can be realized without any visual changes. The door leaf made of powder-coated, galvanized sheet steel is extremely impact- and scratch-resistant and offers excellent resistance to cleaning agents and disinfectants. The Swing MPH door system is also available as a complete unit with automatic drive, interlock control, holding magnet or other electrical components. Whether for manual use, automated or as a complex system integrated into interlock control systems – the options are extremely varied. The door leaf has a thickness of 42 mm and the door gap is 3 - 4 mm.



Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Galvanised steel sheet, material thickness: 0.75 - 1.00 mm Stainless steel, material thickness: 0.75 - 1.00 mm
Outer shell surface		Powder-coated according to RAL Powder-coated according to other common colour systems Stainless steel Duplo-ground (polished k240 and brushed) HPL, design according to RAL-HPL, design according to other common colour systems
Installations/ structures	Fittings	Knob/knob Handle/knob Handle/handle
	Hinges	VX – hinge Concealed hinge
	Main latch locks	Mortise lock class 4 Panic – mortise lock
	Door seals (optional)	with frame seal with drop-down seal
	Glazing (optional)	without blinds/roller blind with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	Flush installation
	Special glazing requirements (optional)	Radiation protection Laser protection
	Additional installation variants	Additional latches Reed contacts Electric strike Strike plate Scratch protection



Frame

Outer shell material	Galvanised steel sheet, material thickness: 0.75 - 1.00 mm stainless steel, material thickness: 0.75 - 1.00 mm
Outer shell surface	Powder-coated according to RAL Powder-coated according to other common colour systems Stainless steel Duplo-ground (polished k240 and brushed) HPL, design according to RAL-HPL, design according to other common colour systems
Operating elements	Operating button ¹⁾ Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ Contactless operating elements ¹⁾
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button Traffic light LED-RGB
Special frame requirements (optional)	Radiation protection

Door Actuator/Door Closer

Door closer	Internal door closer Overhead door closer
Actuator type	Automatic actuator according to EN 16005/DIN 18650
Special requirements (optional)	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Acoustics

Up to $R_w = 35$ dB according to DIN EN 20140-3 (ISO 140-3: 1995) ²⁾

Application Areas

Pharmaceutical facilities
Operating theatre technology
Intensive care units
Laboratories

¹⁾ Only in combination with automatic actuators

²⁾ Only valid for single leaf doors

Swing F MPH

1-/2-leaf hinged door

Specially designed for use in GMP areas, the Swing-F MPH door system offers maximum flexibility for a wide range of applications. The aluminum tubular frame construction with powder-coated surfaces is extremely impact- and scratch-resistant and offers excellent resistance to cleaning agents and disinfectants. The Swing-F MPH door system is also available as a complete unit with automatic drive, interlock control, holding magnet or other electrical components. Whether for manual use, automated or as a complex system integrated into interlock control systems - the options are extremely varied. The door leaf is flush on both sides and has a thickness of 77 mm.



Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Frame: Aluminium profile Glazing: ESG, LSG insulating glass pane
Outer shell surface		Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Glass with digital print is an option
Installations/ structures	Fittings	Knob/knob Handle/knob Handle/handle
	Hinges	Concealed hinge (Tectus)
	Main latch locks	Mortise lock class 4 Panic - mortise lock Profile cylinder
	Door seals (optional)	with frame seal with drop-down seal
	Glazing (optional)	without blinds/roller blind with internal electric blind with internal manual blind
	Glazing installation variant	flush installation without cover frame
	Additional installation variants	Additional latches Reed contacts Electric strike Strike plate Scratch protection



Frame

Material	Aluminium profile
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems
Operating elements	Operating button ¹⁾ (permanently open, passage for people and beds), Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)

Door Actuator/Door Closer

Door closer	Internal door closer Overhead door closer
Actuator type	Automatic actuator according to EN 16005/DIN 18650
Special requirements (optional)	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Application Areas

Clean rooms
Laboratories

¹⁾ Only in combination with automatic actuators

Swing MOP

1-/2-leaf hinged door

The Swing MOP door system, specially designed for use in hospitals, offers maximum flexibility for a wide range of applications. For example, both a laser protection and a radiation protection variant for operating theatres or X-ray rooms can be implemented without any visual changes. The door leaf made of powder-coated, galvanized sheet steel is extremely impact- and scratch-resistant and offers excellent resistance to cleaning agents and disinfectants. The Swing MOP door system is also available as a complete unit with automatic drive, interlock control, holding magnet or other electrical components. Whether for manual use, automated or as a complex system integrated into interlock control systems – the options are extremely varied. The door leaf has a thickness of 40 mm and the door gap is 3 - 4 mm.



Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Galvanised steel sheet, material thickness: 0.75 – 1.00 mm Stainless steel, material thickness: 0.75 – 1.00 mm
Outer shell surface		Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel HPL design according to customer requirements Glass with digital print is an option
Installations/ structures	Fittings	Knob/knob Handle/knob Handle/handle
	Hinges	VX – hinge Concealed hinge Screw-on hinge
	Main latch locks	Mortise lock class 4 Panic - mortise lock Profile cylinder
	Door seals (optional)	with frame seal with drop-down seal
	Glazing (optional)	without blinds/roller blind with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	Flush installation with screwed-on cover frame
	Special glazing requirements (optional)	Radiation protection Laser protection
	Additional installation variants	Additional latches Reed contacts Electric strike Strike plate Scratch protection



Frame

Outer shell material	Galvanised steel sheet, material thickness: 1.50 - 2,00 mm stainless steel, material thickness: 2.00 mm
Outer shell surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Operating elements	Operating button ¹⁾ (permanently open, passage for persons, beds) Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)
Special frame requirements (optional)	Radiation protection

Door Actuator/Door Closer

Door closer	Internal door closer Overhead door closer
Actuator type	Automatic actuator according to EN 16005/DIN 18650
Special requirements (optional)	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Acoustics

Up to $R_w = 35$ dB according to DIN EN 20140-3 (ISO 140-3: 1995) ²⁾

Application Areas

Operating theatre technology
Intensive care units
Laboratories

¹⁾ Only in combination with automatic actuators

²⁾ Only valid for single leaf doors

Swing HPL

1-/2-leaf hinged door

The Swing HPL door system, specially designed for use in hospitals, offers maximum flexibility for a wide range of applications. For example, both a laser protection and a radiation protection variant for operating theatres or X-ray rooms can be realized without any visual changes. The HPL (High Pressure Laminate) door leaf surface is extremely impact and scratch resistant and offers excellent resistance to cleaning agents and disinfectants. The Swing HPL door system is also available as a complete unit with automatic drive, interlock control, holding magnet or other electrical components. Whether for manual use, automated or as a complex system integrated into interlock control systems – the options are extremely varied. The door leaf has a thickness of 40 mm and the door gap is 3 - 4 mm.



Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		HPL (High Pressure Laminate)
Outer shell surface		HPL design according to customer requirements
Installations/ structures	Fittings	Knob/knob Handle/knob Handle/handle
	Hinges	VX – hinge Concealed hinge Screw-on hinge
	Main latch locks	Mortise lock class 4 Panic - mortise lock Profile cylinder
	Door seals (optional)	with frame seal with drop-down seal
	Glazing (optional)	without blinds/roller blind with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	Flush installation with screwed-on cover frame
	Special glazing requirements (optional)	Radiation protection Laser protection
	Additional installation variants	Additional latches Reed contacts Electric strike Strike plate Scratch protection



Frame

Outer shell material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm stainless steel, material thickness: 2.00 mm
Outer shell surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Operating elements	Operating button ¹⁾ (permanently open, passage for persons, beds) Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)
Special frame requirements (optional)	Radiation protection

Door Actuator/Door Closer

Door closer	Internal door closer Overhead door closer
Actuator type	Automatic actuator according to EN 16005/DIN 18650
Special requirements (optional)	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Acoustics

Up to $R_w = 35$ dB according to DIN EN 20140-3 (ISO 140-3: 1995) ²⁾

Application Areas

Operating theatre technology
Intensive care units
Laboratories

¹⁾ Only in combination with automatic actuators

²⁾ Only valid for single leaf doors

Swing Variodata

1-/2-leaf hinged door

The Swing Variodata door system, specially designed for use in microelectronics applications, offers maximum flexibility for a wide range of applications. The Swing Variodata door system can also be designed as a complete unit with automatic drive, interlock control, holding magnet or other electrical components. Whether for manual use, automated or as a complex system integrated into interlock control systems – the options are extremely varied. The door leaf has a thickness of 50 mm.



Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Frame material		Aluminium profile, material thickness: 2.00 mm
Door panel material		Galvanised steel (0.75 mm thick) Aluminium (1.00 mm thick) Glazing: ESG, LSG insulating glass pane
Outer shell surface		Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Coil-coated in RAL 9010
Installations/ structures	Fittings	Knob/knob Handle/knob Handle/handle
	Hinges	Glass door hinge VX mount for glass door leaf
	Main latch locks	Mortise lock class 3 Panic - mortise lock Profile cylinder
	Door seals (optional)	Frame seal Retractable seal (optional)
	Glazing (optional)	without blinds/roller blind with internal electric blind with internal electric roller blind
	Glazing installation variant	Clipped version with glass strips
	Additional installation variants	Additional latches Reed contacts Electric strike Strike plate



Frame

Outer shell material	Aluminium profile, material thickness: 2.00 mm
Outer shell surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems
Operating elements	Operating button ¹⁾ Big pad push-button ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)

Door Actuator/Door Closer

Door closer	Overhead door closer
Actuator type	Automatic actuator according to EN 16005/DIN 18650
Special function (optional)	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Application Areas

Operating theatre technology
Laboratories

¹⁾ Only in combination with automatic actuators

Slide MPH

Sliding door

The Slide MPH door system, specially designed for use in GMP areas, offers maximum flexibility for a wide range of applications. This means that both a laser protection and a radiation protection variant for special areas in GMP production can be realized without any visual changes. The door leaf made of powder-coated, galvanized sheet steel or stainless steel is extremely impact- and scratch-resistant and offers excellent resistance to cleaning agents and disinfectants. The single or double-leaf door system runs in front of the wall and consists of a 40 mm thick door leaf and a running gear box made of powder-coated, galvanized sheet steel or stainless steel. The sliding door can be equipped with an automatic drive or a manually operated track.



Application Areas

Pharmaceutical facilities

Operating theatre technology

Intensive care units

Laboratories

Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Galvanised steel sheet, material thickness: 0.75 - 1.00 mm stainless steel, material thickness: 0.75 - 1.00 mm
Outer shell surface		Powder-coated according to RAL Powder-coated according to other common colour systems Stainless steel Duplo-ground (polished k240 and brushed) HPL, design according to RAL-HPL, design according to other common colour systems
Installations/ structures	Fittings	Handle/bar handle (on both sides or on one side) Shell handle (on both sides or on one side)
	Built-in lock (optional)	Bar lock (prepared for Euronorm profile cylinder or bathroom version)
	Door seals (optional)	Rebate seal (on the main closing edge of the door leaf) Vertical seal (on the rear edge of the door leaf) Horizontal seal (at the top of the door leaf) Horizontal drop-down seal (at the bottom of the door leaf)
	Glazing (optional)	with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	flush installation without cover frame with screwed-on cover frame
	Special glazing requirements (optional)	Radiation protection Laser protection



Frame

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 1.50 - 2.00 mm
Surface	Powder-coated according to RAL Powder-coated according to other common colour systems Stainless steel Duplo-ground (polished k240 and brushed)
Operating elements	Standard (visible with the drive box cover hinged upwards) Room-high (actuator box integrated in the ceiling with inspection cover that can be folded down)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button Traffic light LED-RGB
Special frame requirements (optional)	Radiation protection

Actuator Profile

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 1.50 - 2.00 mm
Surface	Powder-coated according to RAL Powder-coated according to other common colour systems Stainless steel Duplo-ground (polished k240 and brushed)
Type	Standard (visible with the drive box cover hinged upwards) Room-high (actuator box integrated in the ceiling with inspection cover that can be folded down)
Attachments (optional)	Bacteria slide

Door Actuator

Actuator type	Automatic actuator according to EN 16005/DIN 18650 Manual actuator
Special function	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
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Fire Protection

T 0

Acoustics

R_w up to 37 dB according to ISO 10140-2 ²⁾
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Leakage

EN 12207 – Class 3

1) Only in combination with automatic actuators
2) Only valid for single leaf doors

Slide MOP

Sliding door

The Slide MOP door system, specially designed for use in hospitals, offers maximum flexibility for a wide range of applications. For example, both a laser protection and a radiation protection variant for operating theatres or X-ray rooms can be realized without any visual changes. The door leaf made of powder-coated, galvanized sheet steel or stainless steel is extremely impact- and scratch-resistant and offers excellent resistance to cleaning agents and disinfectants. The single or double-leaf door system runs in front of the wall, consists of a 40-50 mm thick door leaf and a running gear box made of powder-coated, galvanized sheet steel or stainless steel. The sliding door can be equipped with an automatic drive or a manually operated track.



Application Areas

Operating theatre technology

Intensive care units

Laboratories

Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Galvanised steel sheet, material thickness: 0.75 - 1.00 mm stainless steel, material thickness: 0.75 - 1.00 mm
Outer shell surface		Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Installations/ structures	Fittings	Handle/bar handle (on both sides or on one side) Shell handle (on both sides or on one side)
	Built-in lock (optional)	Bar lock (prepared for Euronorm profile cylinder or bathroom version)
	Door seals (optional)	Rebate seal (on the main closing edge of the door leaf) Vertical seal (on the rear edge of the door leaf) Horizontal seal (at the top of the door leaf) Horizontal drop-down seal (at the bottom of the door leaf)
	Glazing (optional)	with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	flush installation without cover frame with screwed-on cover frame
	Special glazing requirements (optional)	Radiation protection Laser protection



Frame

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 2.00 mm
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Operating elements	Operating button ¹⁾ (permanently open, passage for persons, beds) Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)
Special frame requirements (optional)	Radiation protection

Actuator Profile

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 2.00 mm
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Type	Standard (visible with the drive box cover hinged upwards) Room-high (actuator box integrated in the ceiling with inspection cover that can be folded down)
Attachments (optional)	Bacteria slide

Door Actuator

Actuator type	Automatic actuator according to EN 16005/DIN 18650 Manual actuator
Special function	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Acoustics

R_w up to 37 dB according to ISO 10140-2 ²⁾

Leakage

EN 12207 – Class 3

¹⁾ Only in combination with automatic actuators

²⁾ Only valid for single leaf doors

Slide-In MPH

Sliding door

The Slide-In MPH door system, specially designed for use in GMP areas, offers maximum flexibility for a wide range of applications. The frame system made of extruded aluminum profiles with powder-coated surfaces is extremely impact- and scratch-resistant and offers excellent resistance to cleaning agents and disinfectants. The single or double-leaf door system can be designed to run in front of or inside the wall and consists of a 30 - 40 mm thick door leaf. The sliding door can be equipped with an automatic drive or a manually operated track.



Application Areas

Pharmaceutical facilities

Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Galvanised steel sheet, material thickness: 0.75 – 1.50 mm Stainless steel, material thickness: 0.80 mm – 1.50 mm
Outer shell surface		Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Installations/ structures	Fittings	Handle/bar handle (on both sides or on one side) Shell handle (on both sides or on one side)
	Built-in lock (optional)	Bar lock (prepared for Euronorm profile cylinder or bathroom version)
	Door seals (optional)	Rebate seal (on the main closing edge of the door leaf) Vertical seal (on the rear edge of the door leaf) Horizontal seal (at the top of the door leaf) Horizontal drop-down seal (at the bottom of the door leaf)
	Glazing installation variant	flush installation without cover frame with screwed-on cover frame



Frame

Material	Aluminium profile
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems
Operating elements	Operating button ¹⁾ (permanently open, passage for persons, beds) Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)

Actuator Profile

Material	Aluminium profile
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems
Type	Standard (with the actuator cover hinged to the front)

Door Actuator

Actuator type	Automatic actuator according to EN 16005/DIN 18650 Manual actuator according to DIN EN 16005/DIN 18650
Special function	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0	
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¹⁾ Only in combination with automatic actuators

Slide GLS

Sliding door

The Slide GLS door system, specially designed for use in hospitals, offers maximum flexibility for a wide range of applications. The door leaf made of two 6 - 8 mm thick toughened safety glass panes with an internal stainless steel frame offers excellent resistance to cleaning agents and disinfectants. The single or double-leaf door system runs in front of the wall and consists of a 40 - 50 mm thick door leaf and a running gear box made of powder-coated, galvanized sheet steel or stainless steel. The sliding door can be equipped with an automatic drive or a manually operated track.



Application Areas

Operating theatre technology

Intensive care units

Laboratories

Pharmaceutical facilities

Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		Frame: Stainless steel, galvanised steel sheet Glazing: ESG, LSG insulating glass pane
Outer shell surface		Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Installations/ structures	Fittings	Handle/bar handle (on both sides or on one side) Shell handle (on both sides or on one side)
	Built-in lock (optional)	Bar lock (prepared for Euronorm profile cylinder or bathroom version)
	Door seals (optional)	Rebate seal (on the main closing edge of the door leaf) Vertical seal (on the rear edge of the door leaf) Horizontal seal (at the top of the door leaf) Horizontal drop-down seal (at the bottom of the door leaf)
	Glazing (optional)	with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	flush installation without cover frame with screwed-on cover frame
	Special glazing requirements (optional)	Radiation protection Laser protection



Frame

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 2.00 mm
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Operating elements	Operating button ¹⁾ (permanently open, passage for persons, beds) Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)
Special frame requirements (optional)	Radiation protection

Actuator Profile

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 2.00 mm
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Type	Standard (visible with actuator cover hinged upwards); room-high (actuator cover integrated in the ceiling with inspection hatch that can be folded down)
Attachments (optional)	Attachments (optional)

Door Actuator

Actuator type	Automatic actuator according to EN 16005/DIN 18650 Manual actuator according to DIN EN 16005/DIN 18650
Special function	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Leakage

EN 12207 – Class 3

¹⁾ Only in combination with automatic actuators

Slide HPL

Sliding door

The Slide HPL door system, specially designed for use in hospitals, offers maximum flexibility for a wide range of applications. For example, both a laser protection and a radiation protection variant for operating theatres or X-ray rooms can be realized without any visual changes. The HPL (High Pressure Laminate) door leaf surface is extremely impact and scratch resistant and offers excellent resistance to cleaning agents and disinfectants. The single or double-leaf door system runs in front of the wall, consists of a 40 - 50 mm thick door leaf and a stainless steel running gear box. The sliding door can be equipped with an automatic drive or a manually operated track.



Application Areas

Pharmaceutical facilities

Intensive care units

Laboratories

Door Leaf

Number of leaves		1-leaf door panel 2-leaf door panel
Outer shell material		HPL (High Pressure Laminate)
Outer shell surface		HPL design according to customer requirements
Installations/ structures	Fittings	Handle/bar handle (on both sides or on one side) Shell handle (on both sides or on one side)
	Built-in lock (optional)	Bar lock (prepared for Euronorm profile cylinder or bathroom version)
	Door seals (optional)	Rebate seal (on the main closing edge of the door leaf) Vertical seal (on the rear edge of the door leaf) Horizontal seal (at the top of the door leaf) Horizontal drop-down seal (at the bottom of the door leaf)
	Glazing (optional)	with internal electric blind with internal manual blind with internal electric roller blind
	Glazing installation variant	flush installation without cover frame with screwed-on cover frame
	Special glazing requirements (optional)	Radiation protection Laser protection



Frame

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 2.00 mm
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Operating elements	Operating button ¹⁾ (permanently open, passage for persons, beds) Rubber pad impact button on the frame ¹⁾ Big pad push-button ¹⁾ (remote location) Contactless control elements ¹⁾ (integrated in the adjacent wall)
Operating elements/signalling (optional)	Push-buttons for operating the integrated electric blinds and shutters Emergency button (for airlock function) RGB LED traffic light (for airlock function)
Special frame requirements (optional)	Radiation protection

Actuator Profile

Material	Galvanised steel sheet, material thickness: 1.50 - 2.00 mm Stainless steel, material thickness: 2.00 mm
Surface	Powder-coated in RAL 9010 Powder-coated according to RAL Powder-coated according to other common colour systems Duplo-ground stainless steel (polished and brushed) Ground K240 stainless steel
Type	Standard (visible with the drive box cover hinged upwards) Room-high (actuator box integrated in the ceiling with inspection cover that can be folded down)
Attachments (optional)	Bacteria slide

Door Actuator

Actuator type	Automatic actuator according to EN 16005/DIN 18650 Manual actuator according to DIN EN 16005/DIN 18650
Special function	Airlock function according to requirements

Safety Precautions

Sensors (optional)	Monitoring of door movements according to DIN 18650 and DIN EN 16005
Movement resistance monitoring	Electronic monitoring of the movement resistance (dynamic force limitation) during opening and closing; the door stops and remains stopped as soon as the specified resistance prevents the door leaves from moving

Fire Protection

T 0

Acoustics

$R_w = 37$ dB according to ISO 10140-2 ²⁾

Leakage

EN 12207 – Class 3

¹⁾ Only in combination with automatic actuators

²⁾ Only valid for single leaf doors





Dornbirn Hospital, extension of operating theatre area, Dornbirn, Austria

Dornbirn Hospital invested around 22.5 million euros in the extension of its operating centre. Seven new rooms, ranging in size from 44 to 52 m², were added to the existing six operating theatres. The new operating theatres were equipped to an equally high standard of construction to ensure the greatest possible flexibility.

Lindner SE | Clean Rooms contributed partition systems and sliding doors to the extension with seven new operating theatres. The partitions involve a system in shell construction, the design of which accommodates various parts of the building services and makes them usable for the staff by means of appropriate fixtures. Examples of this

are the ventilation ducts and their outlets into the room as well as the media ducts with integrated workstations. At selected points, large windows with radiation protection features and interior darkening were incorporated into the partitions. The clean room sliding doors were also designed in accordance with the required radiation protection, for which a flush integrated lead glazing was also constructively implemented. The doors moreover support the processes in the hospital given their automatic operation and the integration of control elements for various functions.

Clean Room Airlocks

Everything under control

Airlocks are essential for zoning in a clean room. Airlocks are sealed areas located between two or more rooms, e.g. those with a different clean room class. Their purpose is to control the air flow between rooms if a room is to be accessed or material transported.

Lindner offers different air lock versions and control systems – entirely according to your individual needs.

- the airlock function is available for all Lindner Clean Room Doors
- transfer hatch and airlock dimensions can be project-specific



Clean Room Airlocks

	Page
Doclock document hatch <p>The document hatch is primarily used to pass documents out of or into the production areas as quickly as possible. It is also suitable for delivering prototypes or random samples for quality control without the need for costly and time-consuming passage of personnel through the airlocks. The document hatch can be integrated flush with the wall on both sides from a wall thickness of 100 mm. Standard height and width: 492 x 492 mm for DIN A4</p>	121
Matlock material hatch <p>The main purpose of the material hatch is to transfer material from one area to another as quickly as possible without a person having pass between the areas. The Matlock has two doors (opposite to each other or across a corner), which are electrically interlocked. The locking state is indicated by traffic lights. The locking time can optionally be set via a timer. Standard height and width: projected-related</p>	122/123
Decontamination airlock <p>For particularly sensitive areas the airlock can be designed as a decontamination airlock. The air speed of 30 m/s removes any particles adhering to clothing. Standard height and width: projected-related</p>	–

Interlocking Systems



Locking system inline 2

Door control systems of this type are required when two or more doors are to be interlocked. This decentrally organised system is capable of interlocking up to 16 doors as standard.



Doclock

Document hatch

The document hatch is primarily used to pass documents out of or into the production areas as quickly as possible. It is also suitable for delivering prototypes or random samples for quality control without the need for costly and time-consuming passage of personnel through airlocks.

It has two glass doors that are electrically locked together. This is a "preferably open" locking system in which the respective opposite side is only locked as soon as one of the two doors is opened.

Above a wall thickness of 100 mm the document hatch can be integrated flush with the wall on both sides.



Technical Data

Housing	Galvanised and powder-coated steel sheet
Doors	Single pane safety glass ESG
Interlocking system	Electrically locked via 24 VDC, ready to plug in for 230 VAC in the wall/ceiling
Accessories	Stainless steel holder for documents
Height x width (unit)	492 mm x 492 mm
Depth	100 mm (+2 x 45 mm handles)
Height x width x depth (inside)	325 mm x 384 mm x 88 mm
Weight	7 kg
Voltage (input)	200 - 277V AC
Frequency (input)	50/60 Hz
Voltage (internal)	24V DC
Power consumption	250 mA/6 W

Options

Housing	Stainless steel
Interlocking system	Red-green traffic light Emergency stop button
Ventilation	Connection for on-site ventilation above 150 mm installation depth can be integrated above and below, lateral only for installation depths < 150 mm

Matlock

REG material hatch

The main purpose of the material hatch is to transfer material from one area to another as quickly as possible without someone having pass between the areas. The very small footprint of the hatch and the fact that the ceiling is almost completely covered with a recirculation unit means the air exchange rate is several hundred times per hour. The dwell time according to GMP specifications is therefore only a few seconds. The Matlock has two doors (opposite to each other or across a corner), which are electrically interlocked. As standard this is a "preferably open" locking system in which the respective opposite side is only locked as soon as one of the two doors is opened. The hatch can optionally be set as "preferably closed" or provided with an adjustable locking time.



Technical Data

Housing/interior	Stainless steel
Doors	All-glass 6 mm door leaf, toughened safety glass
Interlocking system	Electrically interlocked via 24 VDC Ready to plug in for 230 VAC in the wall/ceiling Traffic light signal red – green Emergency stop button Locking times 0 - 3,600 seconds (door-specific) Potential-free contacts for door opening detection via building control system Contact for interlocking via an external signal Contact for release via an external signal
Depth x width	600 mm x 600 mm (standard), up to 1,200 mm
Height	600 mm (standard), from 300 mm to 1,600 mm
Voltage (input)	230 VAC
Frequency (input)	50 Hz
Power consumption	0.35 A/12 W

Options

Doors	Stainless steel door leaf, 24 mm with glass cut-out Arrangement of the doors at the corner Laminated safety glass (also available as yellow, red or radiation protection glazing) Vertical sliding door opening downwards
Interlocking system	Preferably closed (with release button or external signal)
Lighting	Lighting by means of LED lights Disinfection via UVC lamps
Ventilation	Supply air with H14 filter cell Recirculation fan with H14 filter cell Connection to external ventilation for pressure maintenance Exhaust G4 air filter cell in floor Exhaust H14 air filter cell in floor (not in pure recirculation mode) Pressure sensor or pressure switch for filter monitoring Analogue pressure display on housing Aerosol feed nozzle



Matlock

WND material hatch

The material hatch is primarily used to pass material out of or into the production areas as quickly as possible. It is also suitable for delivering prototypes or random samples for quality control without the need for costly and time-consuming passage of personnel through airlocks. It has two doors with a glass cut-out that are electrically locked together. This is a "preferably open" locking system in which the respective opposite side is only locked as soon as one of the two doors is opened.

The material hatch is made from the already planned partition system and standardised fixtures.

It can also be equipped with an air circulation fan, which makes it an active unit. Connection to on-site ventilation systems is also possible.



Technical Data

Housing	Partition system, according to customer specifications
Doors	Doors, according to customer specifications
Ventilation	Connection to on-site ventilation can be integrated
Air circulation	Standard FFU 6/6 size, control via data bus or 0-10 V signal Filtering via H14 filter, pre-filter optional
Interlocking system	Electrically interlocked via 24 VDC Ready to plug in for 230 VAC in the wall/ceiling Emergency stop button Traffic light signal Potential-free contact for BMS
Lighting	Lighting by means of LED lights Disinfection via UVC lamps
Width x height	300 - 1,200 mm x 300 - 2,000 mm
Depth	300 - 2,000 mm
Voltage (input)	230 VAC
Frequency (input)	50 Hz
Power consumption of locking system	24 VDC/0.8 A/20 W
Power consumption for air circulation	0.1 - 0.28 A/25 - 65 W

Options

Interior	Stainless steel
Doors	Laminated safety glass (LSG) Yellow glazing (photolithography) Red glazing (livestock) Radiation protection glazing
Ventilation	Openings for partially active overflow Air circulation unit Connection to air conditioning system

Clean Room Ventilation Technology

Pure quality

Lindner ventilation components meet all criteria to keep your clean room free from particles and germs. We equip all clean room technology zones with the necessary ventilation components: from adjustable ceiling outlets for supply and/or exhaust air to software-controlled filter fan units and overflow grilles for wall installation.

- coordinated ventilation components
- numerous options
- innovative concepts



Supply Air

Filter fan unit

Filter fan units (FFUs) are used in many areas to reduce the particle concentration in clean room technical equipment or in sections of an overall facility. The FFU is a ready-to-connect unit for use in clean rooms with turbulent mixed ventilation or laminar flow up to class 3 according to DIN EN ISO 14644-1. Integration into all types of Lindner SE | Clean Rooms ceilings is standardised.

Filter Fan Upside Down (FFUSD)

This air recirculation unit has been specifically developed for use in clean rooms with a restricted carcass height and floor space, as is often the case in revitalisation projects.

Exhaust Air

Ventilation grilles and exhaust air ducts are integrated into the partition elements to remove airflows from a clean room. These ventilation grilles are installed flush with the clean room partition.

Various designs of exhaust air grilles are available. They include adjustable grilles, grilles to meet radiation protection requirements, or lint screens. The grilles can, if required, be dismantled without the need for tools.

Filter cassettes that are to be changed on the room side can be integrated in areas subject to high levels of dust.

An interface for subsequent trades can be created via the clean room ceiling.



Technical Data			Climate Technology (optional)		Page
Width x length	Height	Air flow	Cooling performance	Heating performance	
Standard: 1,200 x 1,200 mm 1,200 x 600 mm 600 x 600 mm	From 290 mm including filter	Standard 0.45 m/s	Up to 6 K difference	–	128
Width x height x depth	Air circulation volume	Supply air volume	Cooling performance	Heating performance	
1,000 x 2,500 x 400 mm	1,500 m ³ /h	to 500 m ³ /h	Up to 2.5 kW	Up to 5 kW	130

	Standard	Options	Page
	Galvanised or stainless steel; integrated flush with the partition system; all custom ventilation grilles can be integrated; grilles can also be changed without the need for tools; width from 200 to 1,100 mm; depth from 50 to 500 mm	Inspection door Filter (G4 – H14); integrated within the partition; powder-coated in the partition colour	132

Supply Air

Turbulence wanted

Air circulation is the central functionality of a clean room. It keeps the room clean within the process-related parameters through continuous particle reduction and via the air conditioning. This can be achieved particularly efficiently by means of decentralised units. Our air recirculation units are consequently an energy-saving contribution to any clean room operation. Regardless of whether they are installed in the ceiling or retrofitted in the room.

- all application areas
- space saving
- energy efficient



Supply Air

Filter fan unit

Filter fan units (FFUs) are used in many areas to reduce the particle concentration in clean room systems or sections of an overall facility. The FFU is a ready-to-connect unit for use in clean rooms with turbulent mixed ventilation or

laminar flow up to class 3 according to DIN EN ISO 14644-1. Integration into all types of Lindner SE | Clean Rooms ceilings is standardised.

Product Features

Control via a 0–10-V signal, modbus, ebm-bus or g-bus possible
Filter change optionally from above or below
Can be combined with a heat exchanger
Ready-to-connect solution

Filter Fan Upside Down (FFUSD)

This air recirculation unit has been specifically developed for use in clean rooms with a restricted carcass height and floor space, as is often the case in revitalisation projects.

Product Features

Supply air intake without additional diffusers
Implementation of room class GMP B (ISO 14644-1 6.0)
Very low space requirement
Innovative ventilation concept
Ready-to-connect solution
Retrofitting, without dismantling the space-forming shell

Technical Data

Width x height x depth: 1,000 x 2,500 x 400 mm
Air circulation volume: 1,500 m³/h
Air volume of supply air: up to 500 m³/h

Climate Technology (optional)

Cooling performance: up to 2.5 kW
Heating performance: up to 5 kW



GP Grenzach, Ready-to-fill syringe unit FS4, Grenzach-Wyhlen, Germany

GP Grenzach Produktions GmbH is an independent subsidiary of Bayer HealthCare. It produces, packages and distributes high quality medicinal products and medical devices for the pharmaceutical healthcare market. Lindner

SE | Clean Rooms realised airlocks, ceilings, partitions, glazed return air shafts, lights in clean room classes A to C, filter fan units, transfer hatches, special solutions and clean room curtains at the GP Grenzach facilities.

Exhaust Air






A clean solution

Compatible with our partition systems, we offer products that form the interface to other trades. A cross-system integration of functionality and design is consequently guaranteed across the entire product range.

- revisable, flush-mounted filter exhaust systems
- can be used in all sterile and clean room zones
- innovative exhaust air concepts
- coordinated systems



Ventilation Grille

	<p>Antisept</p> <p>This simple ventilation grille can be used in supply and exhaust air systems. It can be used as an overflow opening in a wall or door between two rooms, flush mounted on both sides. The air passage area has a free cross-section of 5 - 80 %.</p>
	<p>Fibresept</p> <p>This lint filter can be used in exhaust air systems, in overflows between two rooms and in doors, flush mounted on both sides. The design was specifically developed for operating theatres according to VDI 6022 and DIN 1946 and it can be heated in an autoclave.</p>
	<p>Lamelle</p> <p>This baffle grille can be used in supply and exhaust air systems. It can be used as an overflow opening in a wall or door between two rooms, flush mounted on both sides. The air passage area through the baffles has an open cross-section of 67%. It is particularly easy to clean.</p>
	<p>Radiesorb</p> <p>This radiation-absorbing ventilation grille can be used in exhaust air systems, in overflows between two rooms and in doors. The design ensures a complete overlap of the two elements with effectiveness equivalent to up to 2 mm of lead. This unit has been specifically designed for operating theatres according to VDI 6022, DIN 1946 and taking into account DIN 6812.</p>
	<p>Variovent</p> <p>This adjustable ventilation grille can be used in exhaust air systems, in overflows between two rooms and in doors. The ventilation grille has an adjustment plate to regulate the air flow volume. Three sizes are held in stock for air volumes between 30 and 1,200 m³/h.</p>



Technical Data				Page
Cut-out width	Cut-out height	Air volumes	Free cross section	
Up to 1,200 mm	Up to 1,200 mm	Inflow velocity on perforated surface: up to 2 m/s	Up to 80 %	136
Up to 0.5 m ²		Inflow velocity on screen surface: up to 3 m/s	Up to 38 %	137
Up to 1,200 mm	Up to 1,500 mm	Inflow velocity on slatted surface: up to 2 m/s	67 %	138
Up to 1,000 mm	Up to 600 mm	Inflow velocity on slatted surface: up to 1 m/s	Around 25 %	139
variovent 2: 600 mm variovent 3: 450 mm variovent 4: 300 mm	variovent 2: 450 mm variovent 3: 300 mm variovent 4: 200 mm	variovent 2: 150 - 1,200 m ³ /h variovent 3: 50 - 500 m ³ /h variovent 4: 30 - 200 m ³ /h	variovent 2: around 35 % variovent 3: around 35 % variovent 4: around 35 %	140

Type Antisept

Ventilation grille/overflow grille

This ventilation grille can be used in supply air and exhaust air systems as well as in overflows between two rooms and in doors. The shape is specially designed for standard-compliant clean room systems. Its small construction depth means the ventilation grille can be integrated flush on both sides regardless of wall thickness. The air passage area

is formed by a selectable perforation with a free cross-section of 5 - 80 %. The compact design also gives the grille a very high degree of stability and torsional rigidity. The frame shape makes the overflow grille self-supporting and independent of the wall construction.



Installation of the "antisept" ventilation grille
Installation case "spigot", only exemplary



Installed "antisept" ventilation grille
Installation case "spigot", only exemplary

Possible Materials

Brushed stainless steel

Duplo grinding

Coated steel

Anodised aluminium

Installation Cases

Sealed – whereby a gap of 4 mm around the circumference is sealed with clean room compatible sealant (tool required)

Clamped – whereby the grille is held in place by means of clamping springs fixed in the installation soffit (hook tool required)

Spigots – the soffit on the grille contains turned parts that are matched to the grille (disassembly without tools)

Magnets – here magnets are fixed in the grille, which hold the grille to a counter frame mounted in the cavity (disassembly without tools)

Technical Data

Width of cut-out	Up to 1,200 mm
Height of cut-out	Up to 1,500 mm
Air flow rate	Up to 4 m/s
Free cross section	Up to 80 %

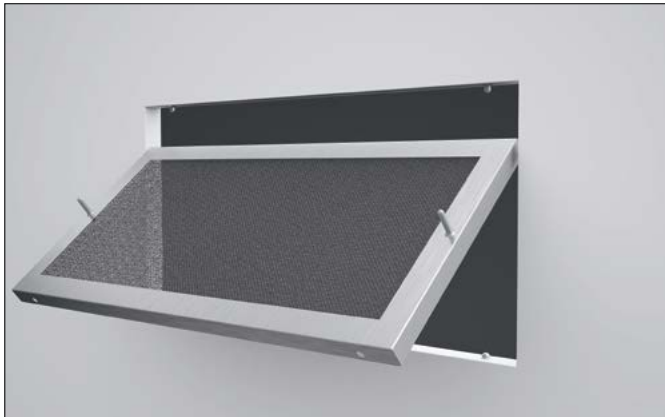


Type Fibresept

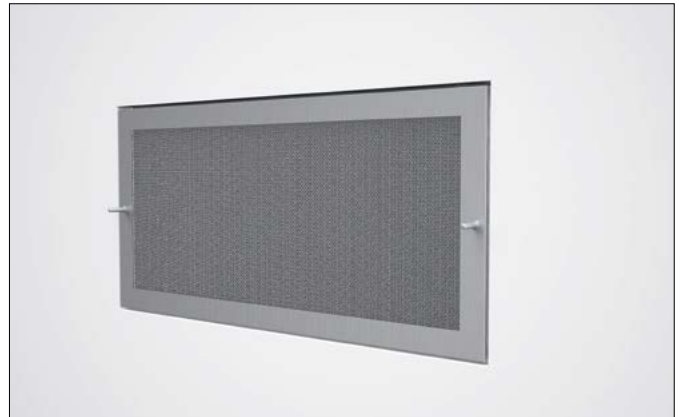
Ventilation grille/overflow grille

The lint filter can be used in exhaust air systems as well as in overflows between two rooms and in doors. The design was specifically developed for operating theatres according to VDI 6022 and DIN 1946. Its small construction depth means the lint filter can be integrated flush on both sides regardless of wall thickness. The air passage surface is

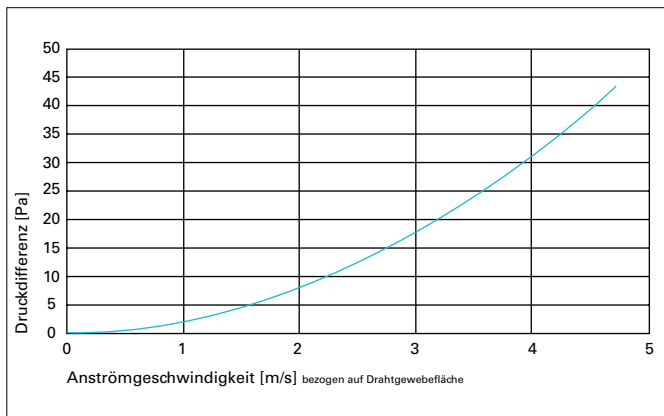
evenly distributed by the wire mesh. The compact design also gives the filter a high degree of stability and torsional rigidity. The frame shape makes the lint filter self-supporting and independent of the wall construction.



Installation of "fibresept" ventilation grille



Installed "fibresept" ventilation grille



Pressure losses for the "fibresept" lint filter

Possible Materials

Brushed stainless steel

Duplo grinding

Technical Data

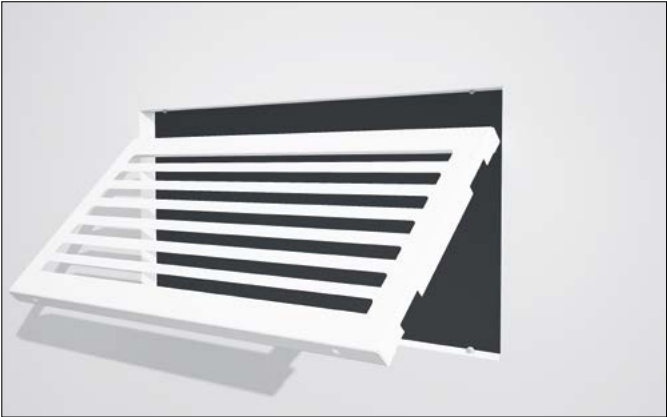
Cut-out width x height	Up to 0.5 m ²
Air flow rate	Up to 4 m/s Inflow velocity on screen surface
Free cross section	Up to 38 %

Type Lamelle

Ventilation grille/overflow grille

This ventilation grille can be used in supply air and exhaust air systems as well as in overflows between two rooms and in doors. The shape is specially designed for standard-compliant clean room systems. Its small construction depth means the ventilation grille can be integrated flush on both

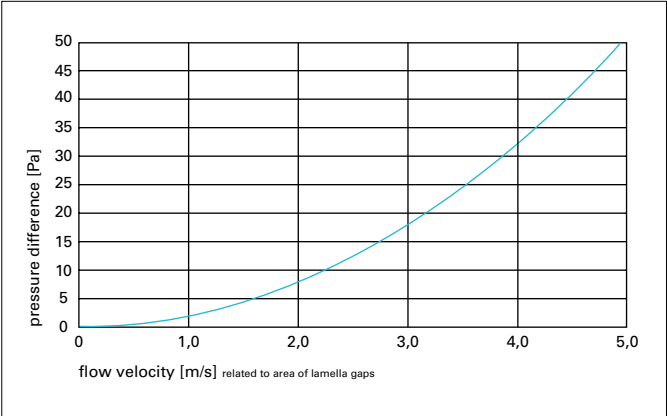
sides regardless of wall thickness. The compact design also gives the grille a very high degree of stability and torsional rigidity. The frame shape makes the overflow grille self-supporting and independent of the wall construction.



Installation of "lamelle" ventilation grille



Installed "lamelle" ventilation grille



Pressure losses for the "radiasorb" lint filter

Possible Materials

Brushed stainless steel

Duplo grinding

Coated steel

Anodised aluminium

Technical Data

Width of cut-out	Up to 1,200 mm
Height of cut-out	Up to 1,500 mm
Air flow rate	Up to 5 m/s
Free cross section	67 %



Type Radiasorb

Ventilation grille/overflow grille

This ventilation grille can be used in exhaust air systems as well as in overflows between two rooms and in doors. It is integrated flush on both sides of the wall or door element. The gap dimensions are adjusted for different component thicknesses to ensure that the two elements are completely covered. This unit has been specifically designed for operating theatres according to VDI 6022, DIN 1946 and taking into account DIN 6812. Different functional layers can

be applied on the reverse side depending on the application:

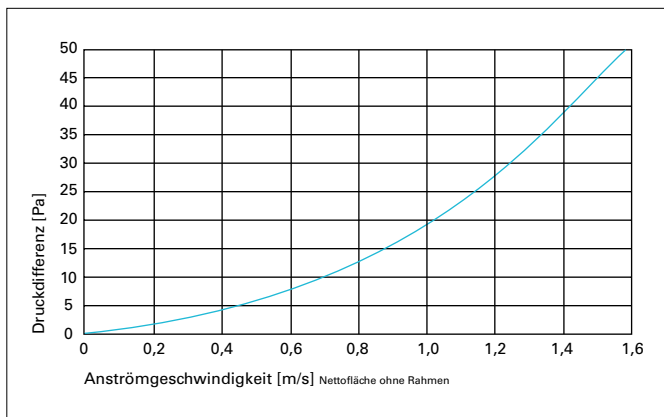
- Lead foil \Rightarrow Lead equivalent up to 2 mm
- matt black \Rightarrow Largely lightproof
- sound absorbing \Rightarrow telephone soundproofing



Installation of "radiasorb" ventilation grille



Installed of "radiasorb" ventilation grille



Pressure losses for the "radiasorb" lint filter

Possible Materials

Brushed stainless steel

Duplo grinding

Coated steel

Technical Data

Width of cut-out	Up to 1,000 mm
Height of cut-out	Up to 600 mm
Air flow rate	Up to 4 m/s Inflow velocity 1 m/s
Free cross section	Around 25 %

Type Variovent

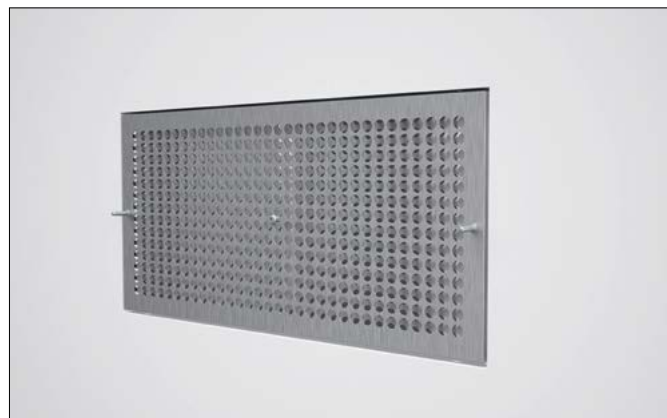
Ventilation grille/overflow grille

This ventilation grille can be used in supply air and exhaust air systems as well as in overflows between two rooms and in doors. The shape is specially designed for standard-compliant clean room systems. The ventilation grille has an adjustment plate to regulate the air flow volume. There are three fixed sizes held in stock for air volumes between 30 and 1,200 m³/h. The installation depth of the ventilation grille is adjusted and flush with the surface according to the required installation depth. The air passage area

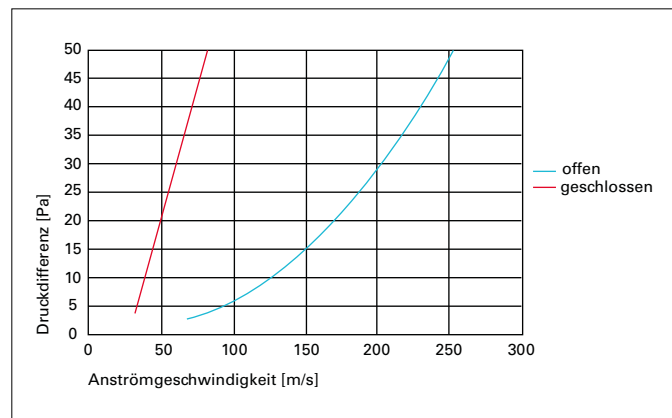
is formed by a fixed perforation with a 35% free cross-section. This means the ventilation grille's air output is increased compared to grilles with air control plates. The compact design also gives the grille a very high degree of stability and torsional rigidity. The frame shape makes the overflow grille self-supporting and independent of the wall construction.



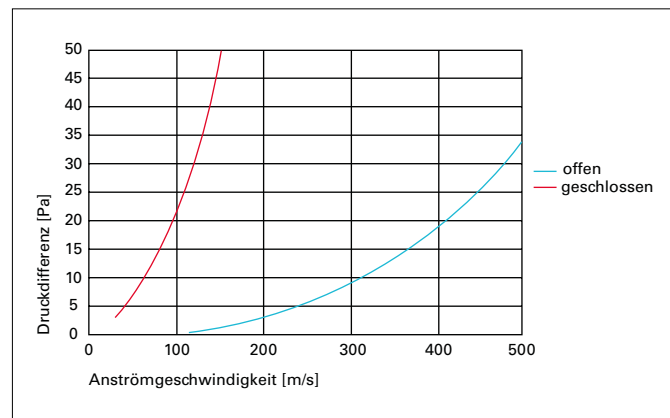
Installation of "variovent" ventilation grille



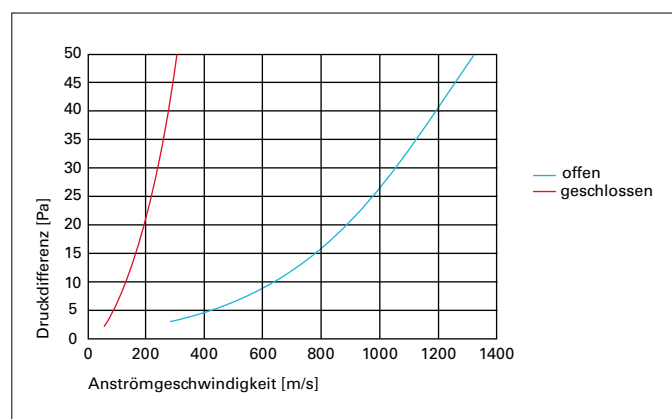
Installed "variovent" ventilation grille



Setting ranges for "variovent 4" ventilation grille



Setting ranges for "variovent 3" ventilation grille



Setting ranges for "variovent 2" ventilation grille



Technical Data

	„variovent 2“	„variovent 3“	„variovent 4“
Width of cut-out	600 mm	450 mm	300 mm
Height of cut-out	450 mm	300 mm	200 mm
Air flow rate	150 - 1,200 m ³ /h	50 - 500 m ³ /h	30 - 200 m ³ /h
Free cross section	Around 35 %	Around 35 %	Around 35 %



Raumedic, Helmbrechts, Germany

Clean Room Flooring

Rigorously clean

Load-bearing capacity, airflow and electrostatics are decisive for a floor used in clean rooms. Our raised floors meet all the requirements for a technically high quality clean room solution. We manufacture your floor system to the highest precision and accuracy of fit.

You can obtain our solutions as full panels and as ventilation panels with up to 54% free cross-section, which we can also gladly produce from existing full panels.

- top precision
- abrasion resistant with respect to air
- corrosion resistant
- anti-magnetic
- outstanding electrostatic discharge
- high load bearing capacity



Clean Room Flooring

	Technical data
PRODATA Raised floor for heavy duty areas Die-cast aluminium panels in an orthotropic design; system-tested, height-adjustable, galvanised raised floor pedestals, grid bars and control room profiles; covering suitability: resilient floor coverings	Panel thickness: 52 - 60 mm System weight: 27 - 42 kg/m ²
ALUVENT Raised floor for heavy duty areas with ventilation function Perforated die-cast aluminium panels in an orthotropic design; system-tested, height-adjustable, galvanised raised floor pedestals, grid bars and control room profiles; covering suitability: elastic floor coverings	Panel thickness: 52 - 60 mm System weight: 27 - 42 kg/m ²
OCTOGRATE Raised floor for heavy duty areas with ventilation function Perforated die-cast aluminium panels in an orthotropic design; system-tested, height-adjustable, galvanised raised floor pedestals, grid bars and control room profiles; with powder-coating, optionally conductive	Panel thickness: 62 mm System weight: 31 kg/m ²

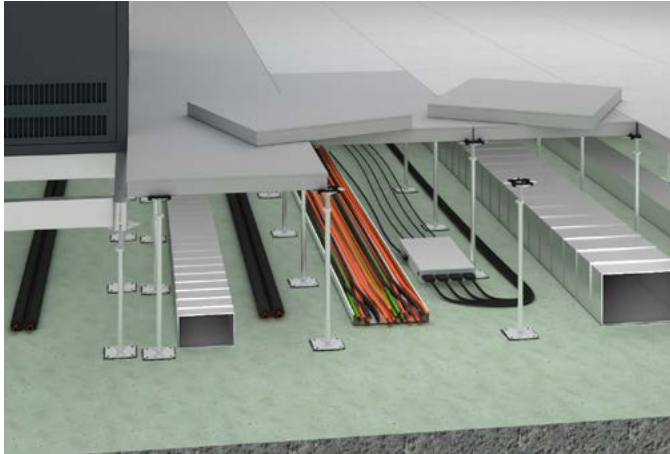


Fire Protection	Climate Technology (optional)		Statics	Page
Building material class	Heating and cooling	Ventilation	Load and deflection class	
non-combustible according to DIN 4102 and EN 13501	–	–	6B (7 - 10 kN) according to EN 12825	146
non-combustible according to DIN 4102 and EN 13501	–	Free cross section: 8.4 - 44.2 %	5B (5 kN) - 6B (10 kN) according to EN 12825	148
non-combustible according to DIN 4102 and EN 13501	–	Free cross section: > 53 %	6B (7 kN) according to EN 12825	150

PRODATA

Aluminium raised floor system for the highest requirements

Our PRODATA raised floor system is based on a high quality aluminium die-cast panel in orthotropic design. This is produced with the utmost precision and fitting accuracy. Its extremely high load bearing capacity and air-related abrasion resistance makes PRODATA ideal for use in all clean rooms and other application areas with high technical requirements. The panels can optionally be ordered with a floor covering or coating. The coating can be conductive if required. The supporting construction, which creates the necessary cavity for installations, consists of height-adjustable, galvanised steel supports from our own production and support plates for sound decoupling.



Product Benefits

Top precision
Abrasion resistant with respect to air
Corrosion resistant
Anti-magnetic
Outstanding electrostatic discharge
High load bearing capacity



Application Areas

Electronics and semiconductor technology

Microsystems, precision mechanics and optical

Computer rooms and control centres

Pharmaceutical and medical facilities

Technical Data

Panel thickness	52 - 60 mm
System weight	Circa 27 - 42 kg/m ²
Pedestal height	50 - 2,000 mm
Pedestal distance	600 x 600 mm
Earth resistance	$\geq 1 \times 10^4 \Omega$

Statics

Safety factor	2
Point load (failure load)	7 kN (14 kN) - 10 kN (20 kN)
Load and deflection class	6B according to EN 12825

Surfaces

Coverings: PVC, conductive or non-conductive powder coating

Resilient coverings

Textile coverings (only outside clean rooms)

Loosely laid carpet tiles

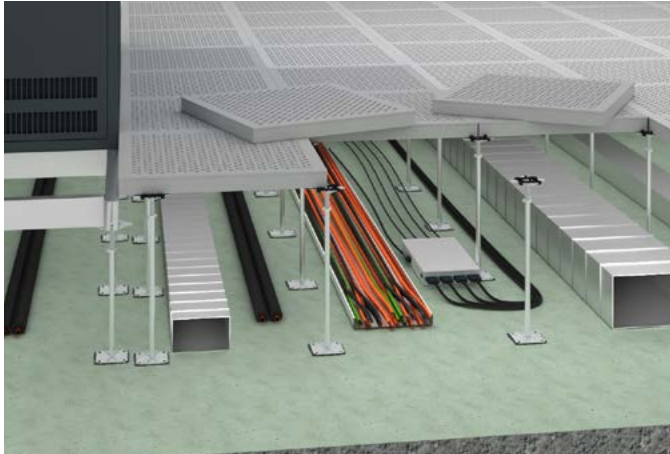
Fire Protection

Support plate (DIN 4102-1)	A1 (non-combustible)
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ALUVENT

Aluminium raised floor system with ventilation function

The ALUVENT raised floor system is based on a high quality perforated aluminium die-cast panel in orthotropic construction. This is produced with the utmost precision and fitting accuracy. Its extremely high load bearing capacity and air-related abrasion resistance makes ALUVENT ideal for use in all clean rooms and other application areas with high technical requirements. The panels can optionally be ordered with a floor covering or coating. The coating can be conductive if required. The supporting construction, which creates the necessary cavity for installations, consists of height-adjustable, galvanised steel supports from our own production and support plates for sound decoupling.



Product Benefits

Top precision
Abrasion resistant with respect to air
Corrosion resistant
Anti-magnetic
Outstanding electrostatic discharge
High load bearing capacity



Application Areas

Electronics and semiconductor technology

Microsystems, precision mechanics and optical

Computer rooms and control centres

Pharmaceutical and medical facilities

Technical Data

Panel thickness	52 - 60 mm
System weight	Circa 27 - 42 kg/m ²
Pedestal height	50 - 2,000 mm
Pedestal distance	600 x 600 mm
Earth resistance	$\geq 1 \times 10^4 \Omega$

Statics

Safety factor	2
Point load (failure load)	5 kN (10 kN) - 10 kN (20 kN)
Load and deflection class	5B - 6B according to EN 12825

Surfaces

Coverings: PVC, conductive or non-conductive powder coating

Resilient coverings

Textile coverings (only outside clean rooms)

Loosely laid carpet tiles

Fire Protection

Support plate (DIN 4102-1)	A1 (non-combustible)
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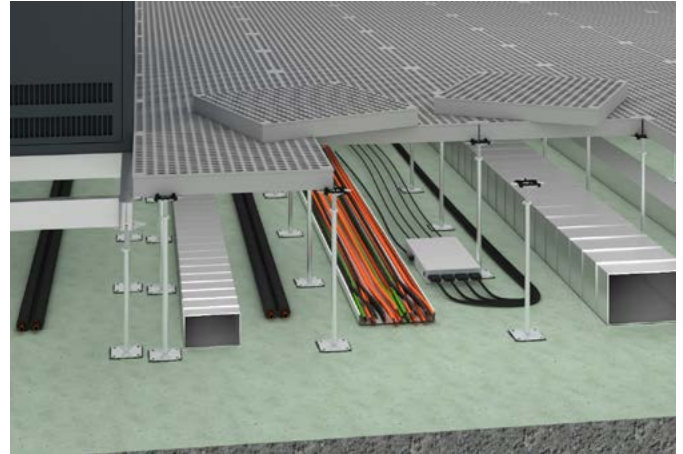
Climatics

Free cross-section	8,4 - 44,2 %
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OCTOGRATE

Aluminium raised floor system with ventilation function

Our OCTOGRATE raised floor system is based on a high quality aluminium die-cast panel in orthotropic construction. This is manufactured with the greatest precision and fitting accuracy and is usually conductively coated. With a free cross-section of over 53 %, OCTOGRATE was developed for clean room concepts in which extremely high air volumes are used with low pressure loss. These characteristics make the OCTOGRATE ideal for use in clean rooms up to and including class ISO 3 (DIN EN ISO 14644-1). The supporting construction, which creates the necessary cavity for installations, consists of height-adjustable, galvanised steel supports from our own production and support plates for sound decoupling.



Product Benefits

Top precision

Abrasion resistant with respect to air

Corrosion resistant

Anti-magnetic

Outstanding electrostatic discharge



Application Areas

Electronics and semiconductor technology

Microsystems, precision mechanics and optical

Computer rooms and control centres

Pharmaceutical and medical facilities

Technical Data

Panel thickness	62 mm
System weight	around 31 kg/m ²
Pedestal height	50 - 2,000 mm
Pedestal distance	600 x 600 mm
Earth resistance	$\geq 1 \times 10^4 \Omega$

Statics

Safety factor	2
Point load (failure load)	7 kN (14 kN)
Load and deflection class	6B according to EN 12825

Surfaces

Coverings: no coating possible, conductive or non-conductive powder coating

Resilient coverings

Textile coverings (only outside clean rooms)

Loosely laid carpet tiles

HPL

Fire Protection

Support plate (DIN 4102-1)	A1 (non-combustible)
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Climatics

Free cross-section	> 53 %
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Raumedic, Helmbrechts

Raumedic AG is a globally active development partner and manufacturer for the medical technology and pharmaceutical industries, with a product range that encompasses tubing, precision moulded parts and catheters as well as assemblies and systems. From its headquarters in Helmbrechts in Upper Franconia, the company coordinates its fortunes all over the world. Its headquarters is also one of three production sites, all of which are located in Germany. Raumedic now employs over 600 people after constant growth in recent years.

This constant growth prompted the company to expand the existing capacities at its headquarters. The demand-oriented expansion was achieved by means of a new building with 9,000 m² of floor space, which provides space for 200 employees. The building has modern space for production under clean room conditions, laboratories, logistics and administration – a pillar for future growth, both for the Helmbrechts site and for the entire company. Lindner SE | Clean Rooms is a specialist in creating clean room environments so it was awarded the contract for numerous upgrades in the ISO 7 classified production areas.



Lindner SE | Reinraumtechnik

Bahnhofstrasse 29 | 94424 Arnstorf | Germany

Phone +49 8723 20-3671 | Reinraumtechnik@Lindner-Group.com

www.Lindner-Group.com

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