

**CLEANROOM-WALLS**

**CLEANROOM-DOORS**

**CLEANROOM-CEILINGS**

**ECOS**

[WWW.ECOS-AT.COM](http://WWW.ECOS-AT.COM)

ein Unternehmen der BINDER Gruppe





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## ABOUT US

### Portrait



office building Kirchberg am Wagram

### History & Philosophy

ECOS GmbH - an Enterprise which has its origin at the VOEST ALPINE group, plans, produces and mounts high quality cleanroom systems for pharmaceutical industry, biotechnology, laboratories, microelectronics, the chemical industry and the food industry aso..

Office walls and ceilings also belong to our delivery spectrum.

Company headquarters are conveniently located in a little town Kirchberg am Wagram, Niederösterreich, next to the road S5 Vienna-Krems motorway.

Our attractive and future-oriented product range, solid technology and innovative solutions, sophisticated design, high-quality quality as well as creative solutions for the problems of our customers require high special knowledge of our technicians.

The highest quality in our performance and efficiency in the implementation of projects is our purpose and will continue to guide us in the future. Our business demands 100% professionalism, our employees are committed to this.

### Shareholders

100% Binder Verwaltung GmbH

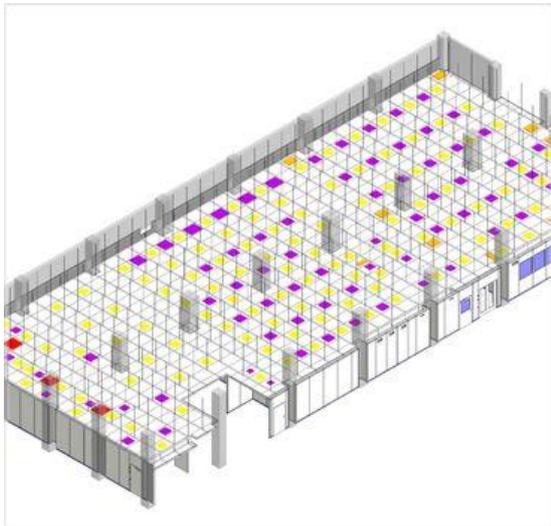
Managing Director: Ing. Franz Fischer



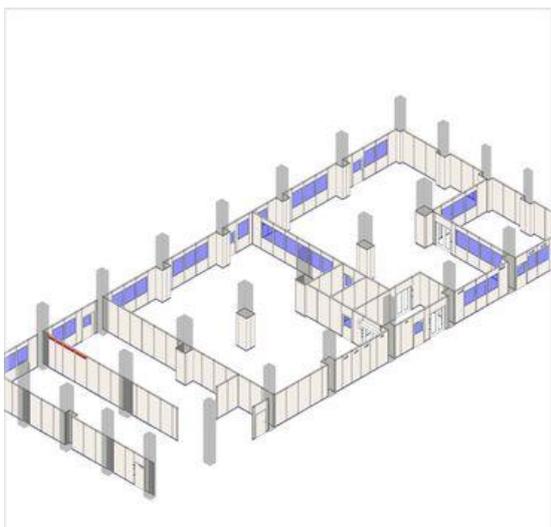
## Engineering in 2D / 3D

Our engineers use 3D design to create a three-dimensional design. ECOS does not use the predefined families but works with our wall / ceiling system. The planning can be exported in various file formats (dwg / dxf / dgn / ifc / rvt) as 2D or 3D model and is available as a basis for a total model (coordination with other trades).

### Advantages



3D – ceiling plan



3D - floor plan

- Each wall and ceiling element is individually recognizable in the models. This also shows a realistic image of all joints.
- Special solutions can be pictured correctly and uncomplicated by specially created families.
- The colors are displayed correctly (glass, stainless steel, wall color & ceiling color).
- Internal stiffeners (for example for wardrobe) are color-coded in the model.
- Door components (door closers, door drive, fittings, etc.) can also be integrated.
- By sub-categories which can be displayed in different ways, the detail level can be changed (obscured edges visible, lateral profiles visible, etc.).
- Wall views, floor plans & ceiling plans are automatically updated when the model is changed.
- 3D collision test
- Interfering edges of lateral profiles, frames, stiffeners etc. can be separately displayed and hidden for the collision test.
- Export as dwg, dxf, dgn & ifc files possible.
- Through various export possibilities, coordination with other trades is easy.
- Compatible with Naviswork
- The generated data from the 3d model is used for production / manufacturing. The attributes (dimensions, colors, ...) of the wall and ceiling elements exported from the 3d model are used to create the production papers. This minimizes the potential errors at the interface to production.




cleanroom - surface stainless steel

### Powder coating

High quality corrosion-resistant sheet metal. All visible surfaces powder-coated in a baking process based on polyester and epoxy resins. Layer thickness on average 80µm at least 64µm. The surface is completely smooth with a low degree of gloss, other coating techniques (fine structure, etc.) are possible. The surface is abrasion-resistant, easy to maintain and resistant to repeated cleaning with commercially available disinfecting and cleaning agents and withstands gassing with hydrogen peroxide.

Components made of pre-coated material are not used! All visible parts are coated after the mechanical processing, such as punching and edging!

Color: RAL to choice

### Stainless steel

On request, surfaces can also be made of stainless steel.  
 standard quality: 1.4301  
 special quality: 1.4404, 1.4571  
 standard surface: brushed 2J  
 other qualities/surfaces on request

### Jointing

Diffusion-tight sealing of all joints with pharmaceutical-grade silicone in the appropriate wall- or ceiling-color.

### Moisture behavior

The surface is water repellent and not hygroscopic. This ensures a constant, accurate, consistent quality.

### Fire behavior

All materials in non-flammable design, seals flame-retardant



cleanroom – special color

# CLEANROOM WALLS (VST) E100/E190

## General system description wall system VST

### Description of wall construction

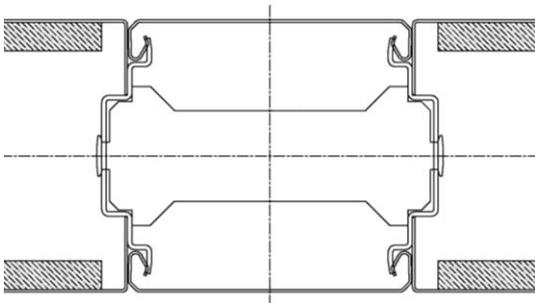


cleanroom

Prefabricated steel monoblock partition system with defined silicone joint in the element joints, with tolerance compensation +/- 20mm in the ground connection. The ground connection can be made in a rebounding manner in order to allow the connection of a Pharmaterrazzo flush with the wall or flush-mounted pedestal blinds flush with the wall. Alternatively, flush ground connections can also be used. In the case of the floor construction of the Pharmaterrazzo, the upper socket-end is made by a stainless steel profile, in order to form a separation between the wall element and the Pharmaterrazzo, for dismantling the wall element. The ceiling connection can be used to connect the wall to the ceiling of the cleanroom, or to be free-standing (if necessary with stiffening profiles).

The monoblock element consists of two steel plate shells, 0.9 mm thick.

Interiors standard as continuous decked glued plasterboards (other interiors, eg: insulation-wool, angles, aluminum-comb, etc. possible).

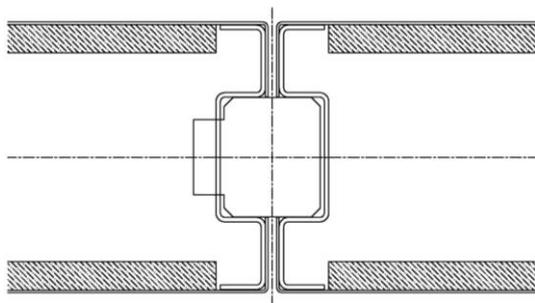


Band raster

The connection of the front and back shells form two lateral profiles, which maintains an installation cavity of approx. 68mm in the horizontal and vertical direction, over the entire wall surface.

### Band raster system (band-element between wall elements)

Thanks to the band-raster system, installation is ensured even after completion of the rooms. The band-shells used here can also be opened on one side, without the clean room status of the opposite room being canceled. Also, the band-shells allow access to the cavity in the lateral wall elements for installations without having to dismantle the relevant elements.



Linear raster

### Linear raster system (defined 3mm joint between elements)

The number of joints in comparison to the band-raster system is reduced by the linear raster system. Here, the elements with a defined joint (3mm) are arranged side by side in order to make a permanently elastic jointing easy. The disadvantage is that subsequent installations (eg: pipes in the walls) can be made more difficult because in the installed state the element shells can not be dismantled on one side.



cleanroom – personal lock

**Surface**

see point surface page 5

**Data / Properties**

Positive and negative room pressure resistance  
up to +/-300Pa

Tolerances

Ground connection +/- 20mm

Ceiling connection +/- 20mm

Wall connection +/- 15mm

Connections generally telescopic sliding

Radiation protection

Depending on the required degree of protection



### Advantages



cleanroom - glazing



cleanroom - doors

- All wall elements are planned and manufactured according to the project. There are no standard wall elements. Element widths and heights can be varied.
- The monoblock system saves space when installed in comparison to shell construction.
- The wall thickness of all system elements (full wall, glazing, doors, ...) is 90mm as standard. Therefore, elements can be easily combined or interchanged.
- In the case of the band-raster system each element shell can be dismantled individually without having to remove a wall element. The clean room status of the opposite room is maintained.
- In the case of the band-raster system, the removal of the band-shells gives access to the cavity in the lateral wall elements for installations.
- Compensation in floor profile of +/- 20mm possible.
- Compensation in the ceiling rail profile of +/- 20mm is possible.
- The monoblock elements are delivered prefabricated and assembled to the construction site, the assembly time is kept as short as possible compared to shell construction.
- Powder coating is performed after mechanical processing (punching, edging), i.e. Reduced risk of surface damage - at least 64µm on average 80µm.
- Wall stiffeners for heavy wall mounting (hanger cabinets, wash basins, ...) can be manufactured at the factory, soap dispensers etc. can be mounted without stiffening (up to approx. 20 kg).
- defined joint between the wall elements for uniform jointing
- It is possible to produce the two shells in different colors for a wall element. A full wall element may be arranged in a room, e.g. in color RAL 9010 and on the other side with a stainless steel surface.

## Specific system description wall system – EI00

### Standard dimensions



#### Wall thickness

- fill wall: 90mm
- half wall: 50 bzw. 90mm (version 1-shell)
- special wall thickness possible

#### Wall width

- Standard grid 1200mm
- grid dimension of 200 - 1500mm (1450mm with linear raster system) possible

#### Wall height

- up to 3800mm without horizontal joint
- over 3800mm with attached elements (horizontal joint)

### glazing

#### full wall

Double glazing with 2 x ESG 6 mm (toughened safety glass)

cleanroom – whole glass wall

The glasses are glued on both sides flush and jointed by silicone, the replacement of the glazing is possible without removal of the wall element.

Glass interior permanently dust and fog free, with surrounding passepartout in RAL color as desired.

#### half wall

Single glazing 1 x ESG 6mm (toughened safety glass)

The glass is glued on one side flush and jointed by silicone, the replacement of the glazing is possible without removal of the wall element.

with surrounding passepartout in RAL color as desired.

#### Whole glass wall

Single glazing 1 x ESG 12mm (toughened safety glass)

The glass is positioned in the middle of the wall element and is jointed by silicone, the replacement of the glazing is possible without removal of the wall element.



cleanroom - glazing



### Laying of cables and pipes

Electrical cables and pipelines up to 60mm in the covers of the band-raster elements, as well as in the cavity of the wall elements.

Also, the installation of switches, plug-sockets and function switches is preferably carried out in the covers of the band-raster elements.

### Advantages

- Flexible design (interiors can be realized in different ways)
- For interiors plasterboards, a cavity for installations of approx. 68mm remains in the wall
- Cut-outs including frames for flush-mounted installations can be manufactured at the factory
- Special solutions are easier to implement by internal planning and production



Integrated stiffener



washbasin - wall mounting

## Specific system description wall system – EI90

### Standard dimensions

#### Wall thickness

- full wall: 90mm

#### Wall width

- Standard grid 1200mm  
- grid dimension of 200 - 1500mm

#### Wall height

- up to 3800mm

### glazing

#### full wall

Fire protection glazing 43mm (fire protection glass Contraflam)

Double glazing with 2 x ESG 4 mm (toughened safety glass)

The fire protection glass is positioned in the middle of the wall element. Two toughened safety glasses are glued outside on both sides flush and jointed by silicone, the replacement of the outside glasses is possible without removal of the wall element.

Glass interior permanently dust and fog free, with surrounding passepartout in RAL color as desired.

### Laying of cables and pipes

It is not possible to install electrical cables and pipes in the wall element.

### Advantages

- Design of the EI90 clean room fire wall system same as EI00 clean room wall, optically no difference
- Flush mounting of the EI90 glass wall



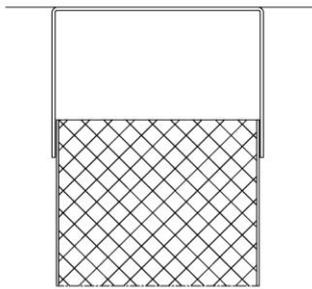
cleanroom - material boxes



cleanroom - whole glass wall

# CLEANROOM WALLS (TWS-80) E100

## General system description wall system TWS-80



ceiling connection TWS-80

### Description of wall construction

Prefabricated steel monoblock partition system with defined silicon joint in the element joints, encompass ground connection with tolerance compensation 20mm. The ground connection can be made in a rebounding manner in order to allow the connection of a Pharmaterrazzo flush with the wall. The separation of the top of the Pharmaterrazzo head to the wall element forms the upper socket-profile, as a result of which the wall element can be dismantled. The ceiling connection can be used to connect the wall to the ceiling of the cleanroom, or to be free-standing (if necessary with stiffening profiles).

The monoblock element consists of two steel plate shells which are connected to one another over their entire area by means of an EPS core or a polyurethane hard foam core.

### glazing

#### full wall

Double glazing with 2 x ESG 6 mm (toughened safety glass)

Cut-outs for glazing are made on site. The cutting edges are covered with the glass frames.

The glass is glued on both sides flush with the inserted glass frames on both sides and jointed by silicone, the replacement of the glazing is possible without removal of the wall element.

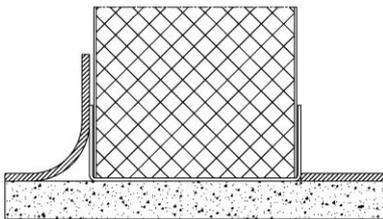
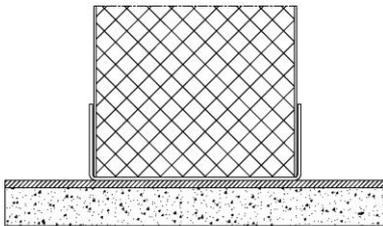
Glass interior permanently dust and fog free, with surrounding passepartout in RAL color as desired.

#### Whole glass wall

Single glazing 1 x ESG 12mm (toughened safety glass)

Mounting as an entire wall element.

The glass is positioned in the middle of the wall element and is jointed by silicone, the replacement of the glazing is possible without removal of the wall element.



ground connection TWS-80



### Data / Properties

Positive and negative room pressure resistance  
up to +/-500 Pa.

### Tolerances

Ground connection 20mm

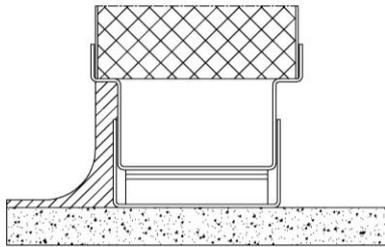
Ceiling connection 20mm

Wall connection +/- 15mm

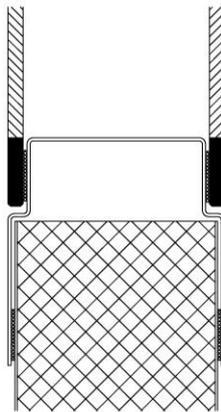
Connections generally telescopic sliding

### Advantages

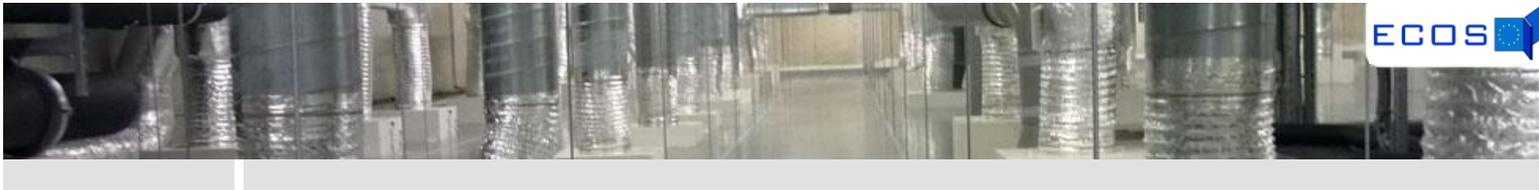
- The monoblock system saves space when installed in comparison to shell construction.
- Compensation in floor profile of 20mm possible.
- Compensation in the ceiling rail profile of 20mm is possible.
- defined joint between the wall elements for uniform jointing
- It is possible to produce the two shells in different colors for a wall element. A full wall element may be arranged in a room, e.g. in color RAL 9010 and on the other side with a stainless steel surface.
- Cut-outs including frames for fixtures are manufactured or assembled on site and can be located on site.
- The wall thickness of all system elements (full wall, whole glass wall, doors, ...) is 80mm as standard. Therefore, elements can be easily combined or interchanged.



ground connection Pharmaterrazzo TWS-80



glazing full wall TWS-80



## Specific system description wall system TWS-80-EPS

### Description of wall construction

The monoblock element consists of two steel plate shells, which are connected to each other by an EPS core. The elements are placed face to face with each other.

### Surface

see point surface page 5

### Standard dimensions

#### Shell thickness

- Sheet thickness: 0,9mm

#### Wall thickness

- 80mm  
- special wall thickness possible

#### Wall width

- Standard grid 1200mm  
- grid dimension of 200 - 1450mm possible

#### Wall height

- up to 3800mm without horizontal joint  
- over 3800mm with attached elements (horizontal joint)

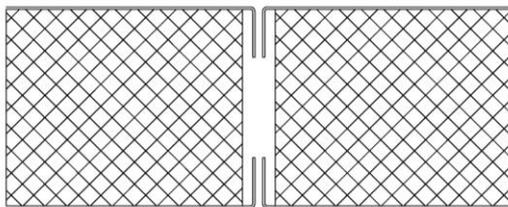
### Laying of cables and pipes

By using installation elements - standard width 200mm - installation of electrical cables and pipes up to 70mm diameter on a width of 150mm possible.

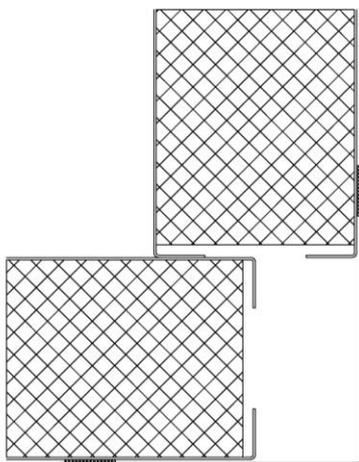
It is also possible to install switches, plug-sockets and function switches in the installation elements.

### Advantages

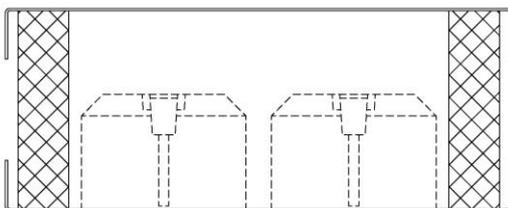
- All wall elements are planned and manufactured according to the project. There are no standard wall elements. Element widths and heights can be varied.
- For installation elements, a cavity for installations of approx. 70mm remains in the wall.
- Individual removal of each wall element is possible.
- Powder coating is performed after mechanical processing (punching, edging), i.e. Reduced risk of surface damage - at least 64µm on average 80µm.



wall-wall connection TWS-80-EPS



corner connection TWS-80-EPS



installation element TWS-80-EPS



## Specific system description wall system TWS-80-PU

### Description of wall construction

The monoblock element consists of two steel plate shells, which are connected to one another over the entire surface by means of polyurethane rigid foam core. The elements are placed together using a tongue and groove system.

### Surface

#### Powder coating

Coated steel sheet with polyester coating, layer thickness 25µm, delivery with PVC protective film, which is removed after completion of the construction works.

Color: various RAL to choice

#### jointing

Diffusion-tight sealing of all joints with pharmaceutical-grade silicone in the appropriate wall- or ceiling-color.

#### Moisture behavior

The surface is water repellent and not hygroscopic. This ensures a constant, accurate, consistent quality.

#### Fire behavior

All materials in non-flammable design

### Standard dimensions

#### Shell thickness

- Sheet thickness: 0,6mm

#### Wall thickness

- 80mm  
- special wall thickness possible

#### Wall width

- Standard grid 1150mm

#### Wall height

- Limited by transport and delivery possibilities

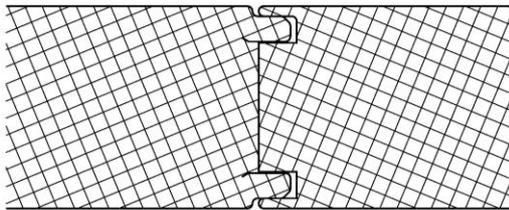
### Laying of cables and pipes

Conditional installation of electrical cables possible.

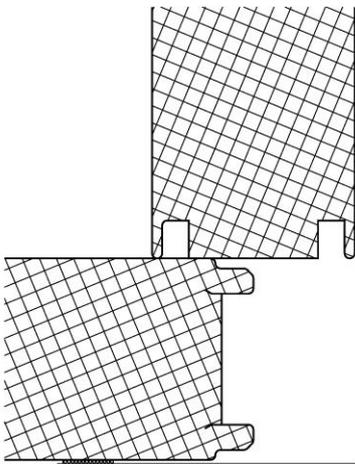
It is also possible to install switches, plug-sockets and function switches.

### Advantages

High wall height possible



wall-wall connection TWS-80-PU



corner connection TWS-80-PU



## CLEANROOM DOORS EI00/EI30

### General system description doors

#### Description of the door construction



cleanroom - doors

Single or double-leaf swing door with 3-sided seal, door leaf stumped, door leaf band-side flush with system frame, door leaf thickness 50mm, door frame flush with the wall, without protruding edges or corners, door leaf with or without glazing (glazing flush with the surface, analogous to clean room wall).

System door hinge in three parts, made of stainless steel, 3D-adjustable, maintenance free, door opening 180 ° possible (depending on handle, door closer, ...).

In the case of a double-leaf door lock of the standing vane, by means of a slide catch or folding lock catch, upwards or upwards and downwards.

When designed as a fire protection door EI30 optically the same design to non-firing doors.

#### Surface

see point surface page 5

#### Possible special solutions (some examples)

- surrounding frame (4-sided seal)
- Overflow grille in door leaf (ventilation grille)
- Spray protection grille in door leaf (lamellar grille)
- Flush mounting of mirrors (e.g. in sluices)
- Magnet in door leaf
- Internal door closer in door leaf
- Integration of various locks and openers hidden in the door leaf

#### Advantages

- Door leaf flush with door frame
- Glazing flush with the surface
- Door leaves 3D-adjustable
- Installation of various E-components possible



door leaf with overflow grille

## Specific system description doors EI00

### Dimensions



door glazing

In principle, all ECOS door systems are infinitely variable in height and width (graduation in mm increments), in the following section the maximum sizes of the doors are given.

These are obtained, on the one hand, by approvals, on the other hand by the maximum sizes of the plates available on the market. Special versions and special approvals can also be realized if necessary.

Max. Dimensions Swing door 1-leaf EI00  
Clear height x clear width = 2900 x 1400 mm

Max. Dimensions Swing door 2-leaf EI00  
Clear height x clear width = 2900 x 2550 mm

### Glazing

Double glazing with 2 x ESG 6 mm (toughened safety glass)

The glasses are glued on both sides flush with the surface and permanently elastic, the replacement of the glazing is possible without removal of the door leaf.

Glass interior permanently dust and fog free, with surrounding passe-partout in RAL color as desired.

Circumferential frieze width of min. 120mm required

### Advantages

- Integrated flush-mounted mirror possible
- controlled airflow by means of a bottom lowering seal



lock-accessories installed in band shell

## Specific system description doors EI30

### Dimensions



cleanroom doors

In principle, all ECOS door systems are infinitely variable in height and width (graduation in mm increments), in the following section the maximum sizes of the doors are given.

These are obtained, on the one hand, by approvals, on the other hand by the maximum sizes of the plates available on the market. Special versions and special approvals can also be realized if necessary.

Max. Dimensions Swing door 1-leaf EI30  
Clear height x clear width = 2250 x 1104 mm

Max. Dimensions Swing door 2-leaf EI30  
Clear height x clear width = 2587 x 2550 mm

### Glazing

Fire protection glazing 15mm (fire protection glass Pyrostop)

Double glazing with 2 x ESG 4 mm (toughened safety glass)



cleanroom doors

The fire protection glass is used in the middle. Two single-pane safety glazing units are externally glued on both sides flush with the surface and permanently elastic and replacement of the outer glazing is possible without dismantling the door leaf.

Glass interior permanently dust and fog free, with surrounding passe-partout in RAL color as desired.

Glazing from parapet 1150mm, side and top Fries width of min. 120mm required.

### Advantages

- EI30-cleanroom fire door systems, like EI00 clean room doors, optically no difference

# CLEANROOM CEILING (WALKABLE/NON WALKABLE)

## General system description

### Description of ceiling construction



cleanroom ceiling

Modular ceiling system in band grid construction (cross band grid construction possible), grid profiles with inserted filling cassettes and walkable sheets (for walkable version)

Grid profiles as longitudinal profiles with suspension elements, made of galvanized steel, suspension from the bare roof via galvanized threaded rods with suspension elements for the exact leveling of the heights (with counter-locking), dowelled to the bare roof or with steel bars / beams. The grid profiles enable the laying of electrical cables, installation of cable and media cable entry points; the cables can be laid longitudinally and transversely to the grid profile.

Filling cassettes (non walkable) made of galvanized steel, thickness 0,9mm, with upstand, attachments to the grid profile, filling cassettes with position fixation to the grid profile to prevent displacements, connection joints are clearly defined (3-5 mm)

Walkable sheets (upper level at walkable version) made of galvanized steel sheet, thickness 2.0mm, attachments to the grid profile

### Surface

see point surface page 5

### Data / Properties

#### Positive and negative room pressure resistance

up to +/- 300 Pa

#### Tolerances

Connection to adjacent walls +/- 20mm (balanced via edge angle)

Height can generally be adjusted at the thread rod via the suspension plate

#### Fire behavior

ECOS ceiling system is NOT available in fire protection design! In combination with fire protection gypsum ceilings, a clean room fire area is no problem. (Has already been carried out several times in practice)



cleanroom ceiling



### Advantages

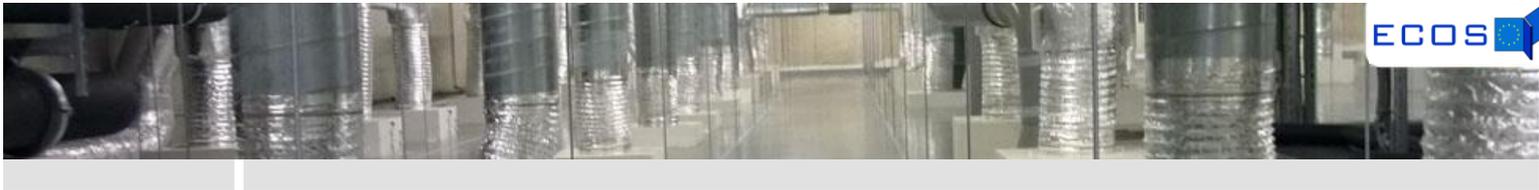


ceiling installations

- grid profiles can be arranged above the walls - as a result, all cassettes can be dismantled
- cassettes can be dismantled without tools (the jointing must be removed)
- Cut-outs including frames for flush-mounted fixtures can be manufactured at the factory
- various special cassettes possible (ventilation, luminaire, viewing window, inspection opening, ...)
- pressure peaks of 300Pa. can be absorbed without deformation
- different cassette sizes are possible
- Defined joint between the deck cassettes for a uniform joint pattern
- Laying of electrical cables in the grid profile possible, perforations in cassettes and grid profiles allow easy cable routing



ceiling installations - special solution



## Specific system description walkable ceiling

### Measurements

grid profile incl. walkable sheet:  
height 102mm, width 95mm, thickness 2,0mm

cassette incl. walkable sheet:  
height 102mm

modular dimension:  
freely selectable, standard 1200x900mm or 1200x1200mm

### Data / Properties

Load capacity:  
an be walked on with a load of 150kg / m<sup>2</sup> and a load of 200kg



ceiling - walkable

## Specific system description non walkable ceiling

### Measurements

grid profiles:  
height 50mm, width 95mm, thickness 1,5mm

cassette:  
height 50mm

modular dimension:  
freely selectable, standard 1200x900mm or 1200x1200mm



cleanroom



Special solutions which meet the specific requirements of a production facility are developed and implemented by our qualified team in close cooperation with the customer. The functions of the basic system can be expanded by various supplementary elements and constructions.



Material box



Door drive



Installation channel



Industrial cabins



Media column



Inspection door with surrounding frame



Glassed-element with integrated jalousie



Lamellar-element



Protection-bow



Sliding-door



Internal door closer



Revisions opening in ceiling



Sliding-door



Overflow grille in door leaf



Lock control + components



Air distribution equipment

## ECOS GMBH

Industriestrasse 1  
3470 Kirchberg am Wagram  
Austria

Tel.: +43 2279 5050 0  
Fax.: +43 2279 5050 50

E-Mail: [info@ecos-at.com](mailto:info@ecos-at.com)  
Web.: <http://www.ecos-at.com>