

Spetec Clean room technology

- Clean room cell
- Clean room workbench
- Laminar flow box
- CleanBoy®
- Service, certification



SPETEC®

Product overview

PBS, FMS, and FBS series device families feature a modular design, meaning that the individual components are compatible with one another. Thus the laminar flow box FBS is made up of the protection box PBS plus the filter module FMS.

For the user of a protection box PBS, this means that he can retrofit it to be a full laminar flow box by purchasing a filter module FMS. The FMS series laminar flow modules can be found on both the clean room cell and the clean room workbench.

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Portable clean room technology

Increasing requirements for product quality and process reliability require a clean environment during manufacturing, treating and processing, and for storage. Clean room technology plays an increasingly important role in nearly all high-tech sectors.

Examples:

- Laser technology
- Optics and optoelectronics
- Microelectronics
- Manufacturing, processing and packaging of food
- Manufacture of pharmaceutical products
- Chemical analysis
- Assembly technology

Laminar flow

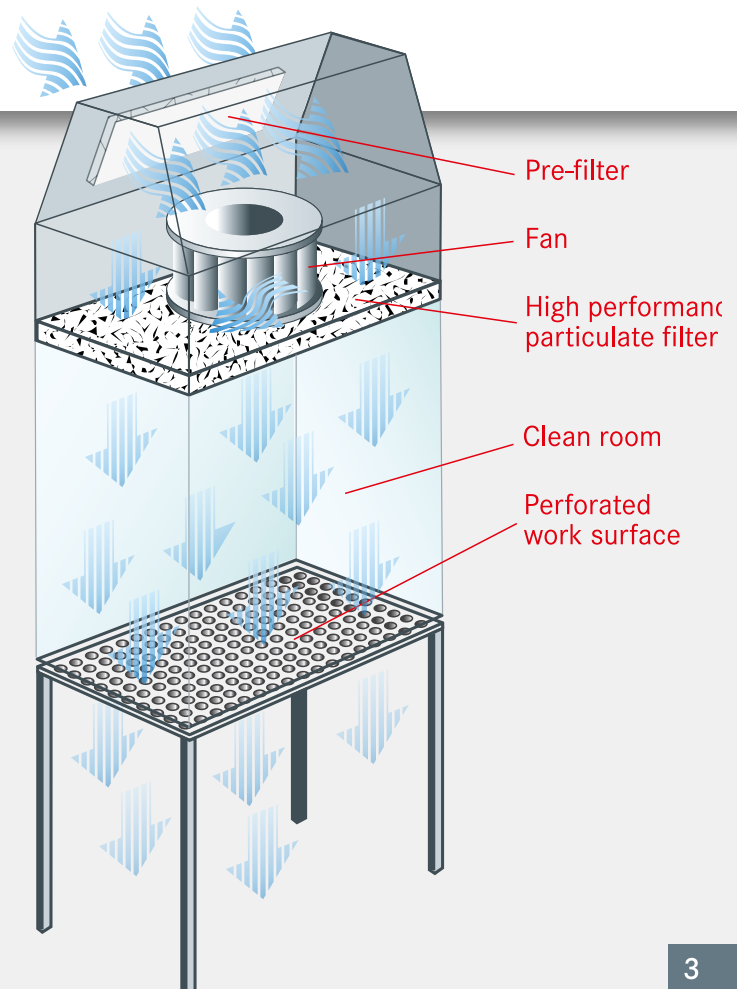
The basic principle for the development of clean room technology was established in the USA in the Sixties, when the principle of laminar flow was introduced.

The ambient air is drawn in using radial fans and pushed through the filter and flow straightener.

This generates a laminar flow, i.e. the air streams down in parallel flow lines. Particles are picked up by the parallel streams of air and transported out of the box. The air can escape through the perforated floor of the box.

Application examples

Through the use of a SPETEC® laminar flow box, the particle concentration is reduced e.g. from approx. 15 Mio/m³ (size of 0.12 µm, MPPS) to approx. 1500 particles within the box. This corresponds to a clean room category of DIN ISO 5.



Laminar flow module

FMS series “SuSi”

At the heart of Spetec’s clean room technology lies the Laminar Flow Module „SuSi“. With a ceiling suspension the module can be used for example as a clean air shower or be integrated directed in a machine enclosure. Through the master/slave function, one control unit is able to control up 100 slave-modules (optional).



Options: see page 25

Serie *SuSi*[®]
Super Silent



Dimensions:

Name		Filter dim. in mm	Kg
*Laminar flow module FMS	24	610 x 400	20
Laminar flow module FMS	37	610 x 610	31
Laminar flow module FMS	56	915 x 610	37
Laminar flow module FMS	75	1220 x 610	52
Laminar flow module FMS	93	1525 x 610	58
Laminar flow module FMS	112	1830 x 610	64

*Special version –
See page 30 for device dimensions.

Control via PLC interface.

ON/OFF and increase/decrease flow velocity functions,
filter replacement indicator and error indicator.

Control options

- (control voltage 12V to 24V)
- Power on/off
 - Light on/off
 - Increase/decrease flow rate by one step
 - PLC interface

Interface feedback

- Power has been turned on/off
- Light has been turned on/off
- Filter replacement required
- An error occurred (Fan is not turning)

Control panel functions:

- 8 level adjustment of the flow velocity with night reduction and flushing function
- LCD display with selected flow velocity in m/second
- LED fault indicator
- Service and interval indicator, dependent on the usage period
- Automatic flow adjustment with filter replacement indicator (optional)
- Connection options for building control systems (remote monitoring) (optional)
- Interior light switch on the control panel (optional)

Application examples

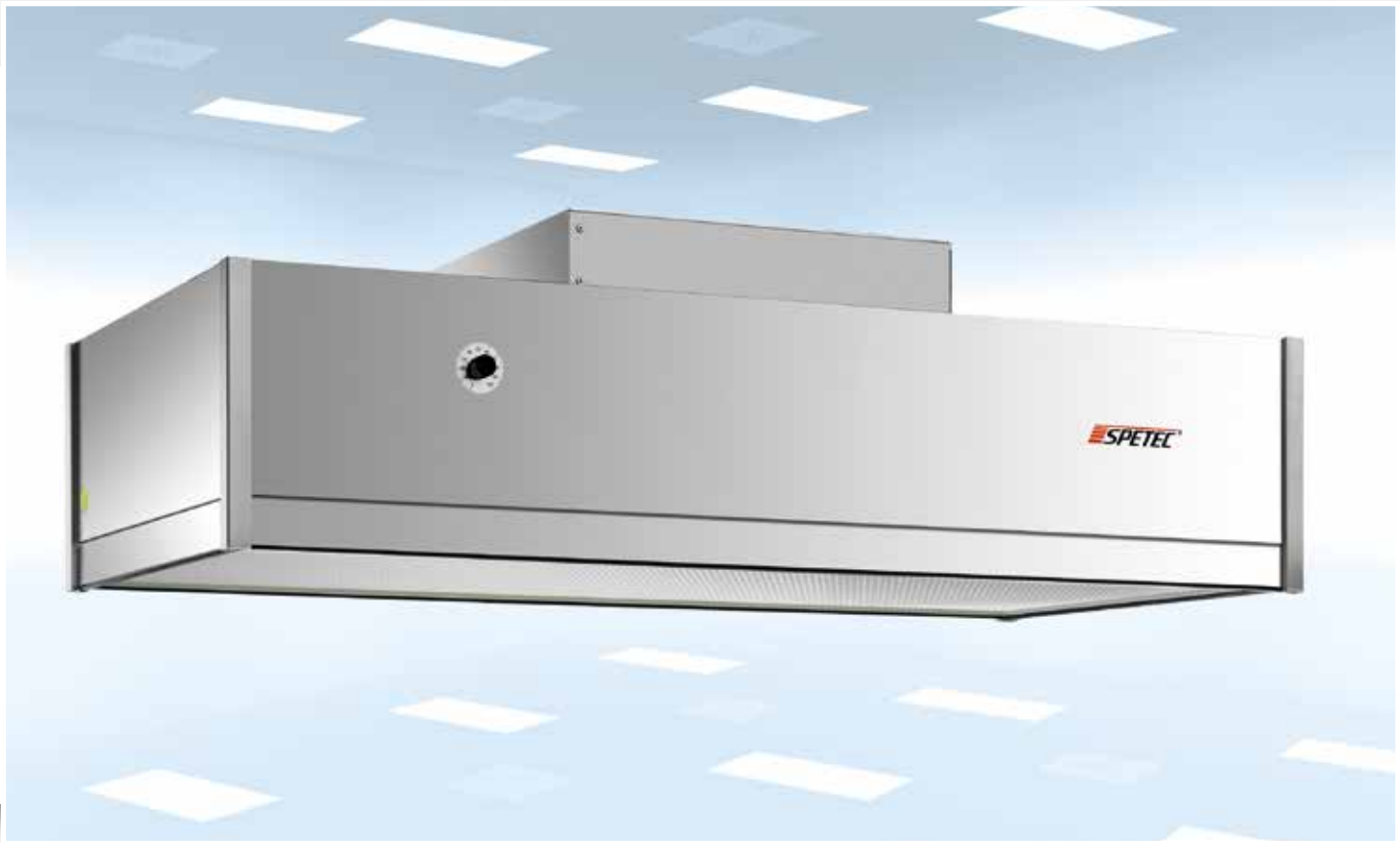
The laminar flow modules are also used on top of clean room cells. Please refer to the “Clean Room Cells” section for further information.

Laminar flow module

FMS Basic

The Basic module is a simpler, more affordable alternative to the laminar flow module of the “SuSi” series. The laminar flow module is offered in a simple, robust version. With an EC-motor with step-less speed regulation the air flow

speed can be adjusted to the requirements. Through the Master/Slave function one control unit is able to control up to 100 Slave-modules (optional).



The laminar flow module can be used as a separate filter unit or in combination with a clean room cell. Retrofitting into a laminar flow box is not possible.

Dimensions:

Name	Filter dim. in mm	Kg
Laminar flow module FMS 75 Basic	1220 x 610	30

See page 30 for device dimensions.

FMS-Basic

Clean room cell

„Hard wall“ clean room system

Spetec's clean room cell can be equipped with two different kinds of walls. This will be determined primarily by the precise requirements and the field of application.

Hard wall

Clean room cells with hard wall panels are mainly used in areas that demand an extremely high level of process reliability. Overpressure prevents particles from entering the clean room. The flexible wall system makes it possible to extend the clean room cell at any time.

Laminar flow module FMS series



Optional features for hard wall systems:

- Aluminum or steel section support frame (dimensions to order)
- Airlock for materials and personnel
- Double doors with mutual locking system
- Electric sliding door with airlock functionality
- Side panels made from acrylic or laminated glass or aluminium sandwich panels (free choice of color)
- Transparent or tinted window elements

High-performance filter

A type H 14 filter is used for the Spetec Laminar Flow Module FMS. This has a filtration efficiency of 99.995 %. This means that the filter captures at least 99.995 % of all particles of a size of 0.12 μm (as per MPPS). The filtration efficiency is approx. 99.9995 % for particles with a size of 0.3 μm .

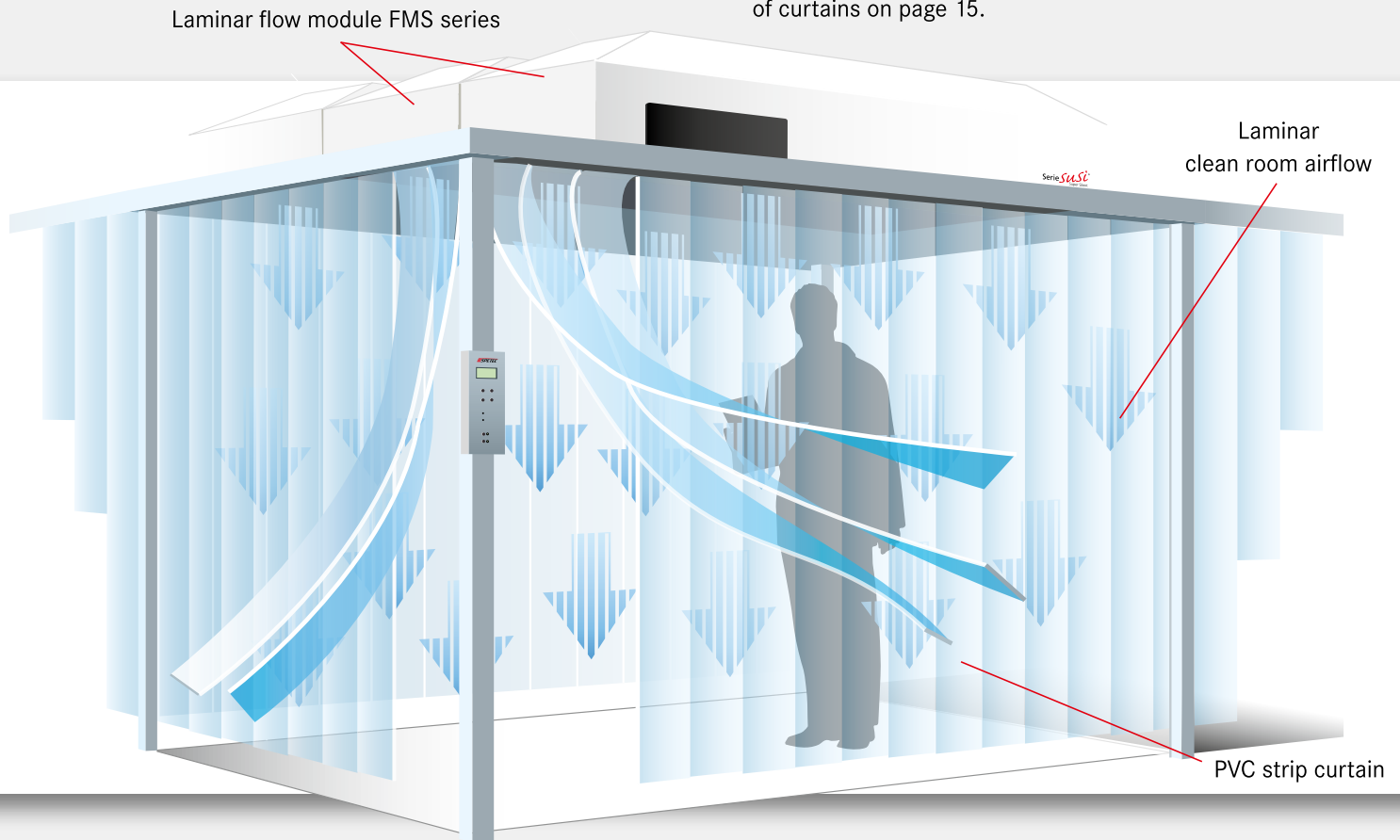
Thanks to the use of the H 14 filter, the Spetec Laminar Flow Module has an isolation factor of 104. This means that the air quality in the laminar flow is improved by a factor of at least 10,000 compared with the ambient air. The filter can be changed from the clean-room side.

Clean room cell

„Soft wall“ clean room system

Soft wall

The strip curtain in the „soft wall“ version makes it possible to implement a simple, flexible clean room. Recesses and walls which follow the contours of machines can be achieved without difficulty. You can find details on the different designs of curtains on page 15.



Optional features for soft wall systems:

- Aluminum or steel section support frame (dimensions to order)
- Airlock for materials and personnel
- Completely odor-free or antistatic strip curtain
- Strip width from 200 to 1500 mm
- Roller-mounted design

Control technology

The settings for the clean room cell and other environmental parameters (e.g. lighting) are made by remote control. A programmable controller interface is also optionally available.

Application examples:

Using a SPETEC® clean room cell reduces the particle concentration from, for example, approx. 15 million/m³ (at a size of 0.12 µm, MPPS) to approx. 1,500 particles within the cell. This corresponds to the clean room class DIN 14644-1.

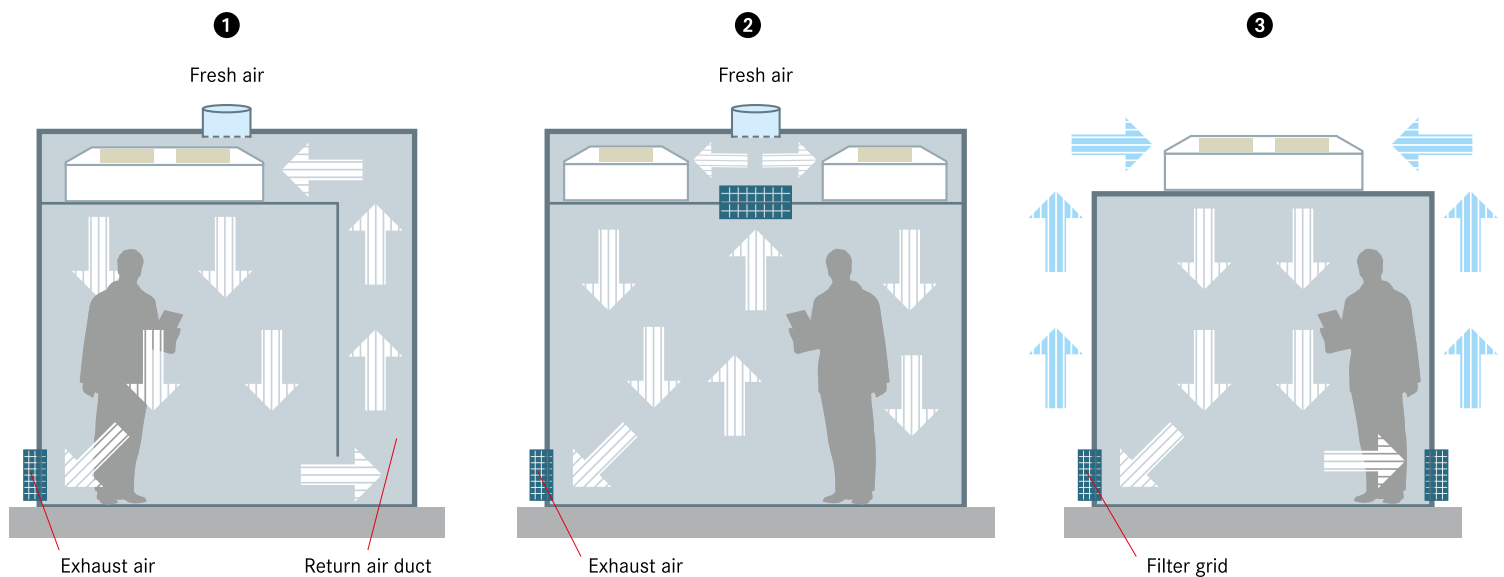
Clean room cell

Airflow principles

The Spetec clean room cell is a clean room system which can be designed in a flexible manner as a cost effective alternative to a complete clean room. One or more laminar flow modules are placed on a mounting stand and can be assembled according to specific requirements and with freely selectable measurements up to about 400 m².

The laminar flow modules as a result serve as a clean air shower under which the workplace is located or where products, instruments and other items are stored.

The clean room cells can also be custom-designed to reflect the following airflow principles:



1 Clean room cell with return air duct

Characteristics:

- Optimal air flow
- Climate control of the cell is possible
- Directional air flow even with a high ceiling height
- Clean room cell may be operated with low air flow speeds.

2 Clean room cell with return air duct via plenum

Characteristics:

- Small footprint
- Climate control of the cell is possible

3 Clean room cell with return air duct via filter grid or clean room curtain

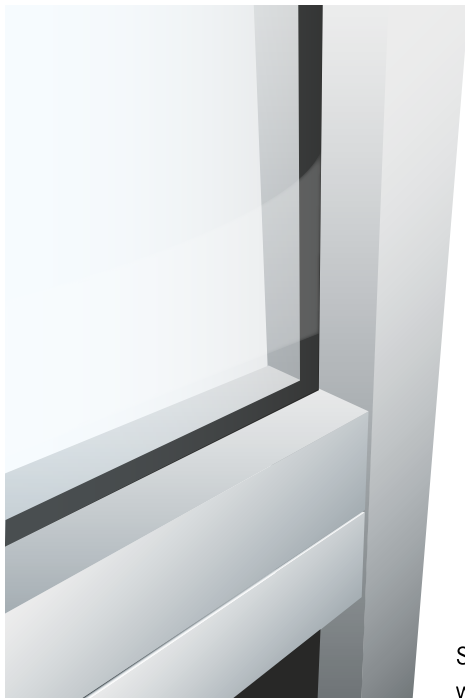
Characteristics:

- Cleaning effect for the environment
- Cost effective solution
- Clean room cell can also be realized with strip curtain

Clean room cell

Wall elements standard, flush-mounted

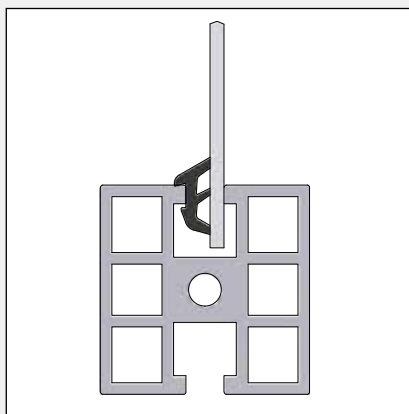
The hard-wall clean room cells are offered in two different variants. The **standard wall element** is intended for clean rooms of ISO classes 7 and 8, and the **flush-mounted system** is intended for applications corresponding to ISO classes 5 and 6 and GMP A through D.



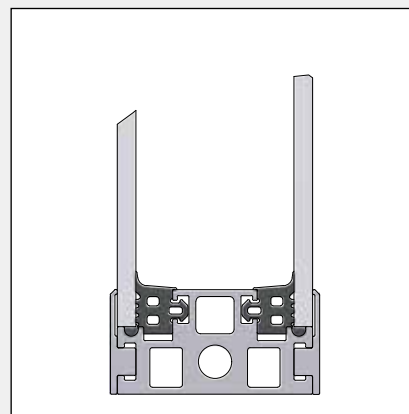
Standard
wall system



Flush-mounted
wall system



Standard wall system with fixed glazing. The panes of glass or the wall filling elements are installed centrally in the groove of the metal section.



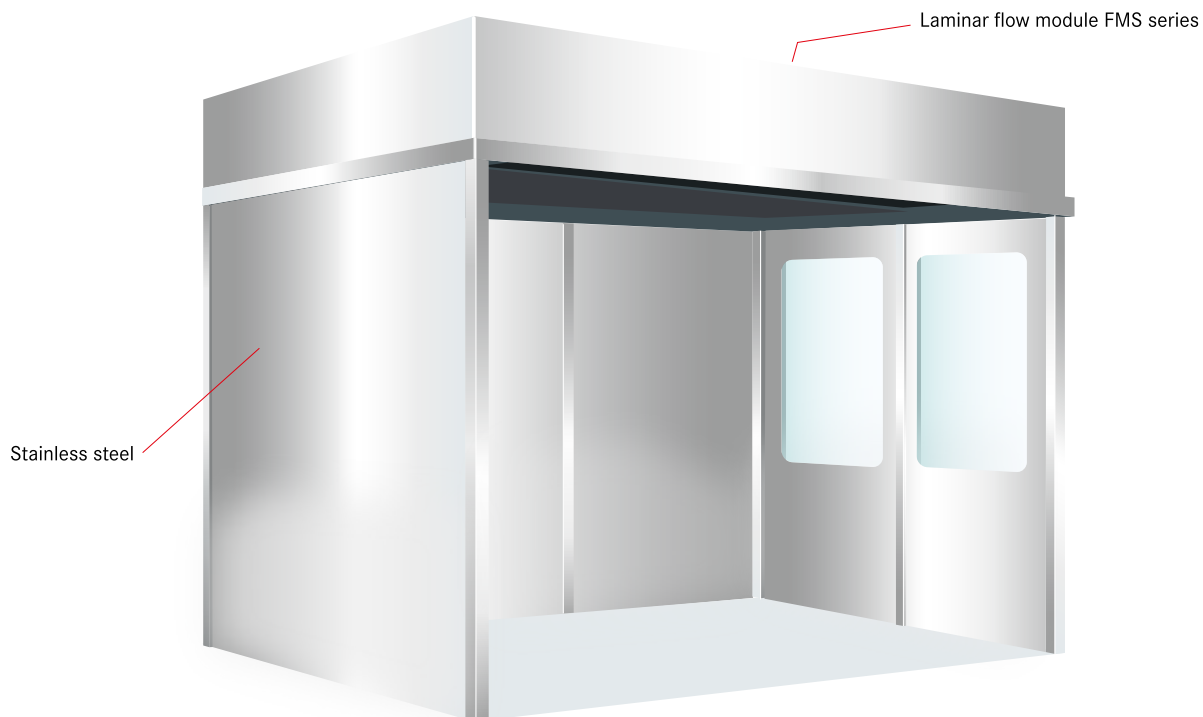
Flush-mounted wall system with fixed glazing. Double-glazing or wall filling elements are flush-mounted. This ensures that deposits of dust do not build up and facilitates cleaning and disinfection.

Clean room cell

Stainless steel

Increasing requirements in the pharmaceuticals industry and in food engineering demand a clean environment during manufacturing, processing and storage.

Clean room cells are used in pharmacies, hospitals, in the foodstuffs and cosmetics industries and wherever a particle-free working environment is needed.



The stainless steel clean room cell is based on a similar concept to the aluminum profile clean room cell, but the supporting frame and any side walls are entirely manufactured from stainless steel. A flush-fitting ceiling and side walls ensure easy cleaning and disinfection of the cell.

The modular construction of the cell makes it a simple matter to extend the area of the clean room. So the cell can simply grow to meet future requirements.

Depending on the precise requirements, Spetec clean room cells are custom-built and adapted to the customer's exact needs. The cells can be built to meet the requirements of ISO classes 5 through 9 (DIN ISO 14644-1) and classes A through D of the GMP standard.

Generally, clean room conditions as laid down in the GMP (Good Manufacturing Practice) standard are required for such areas. The stainless steel clean room cell covers precisely these requirements.

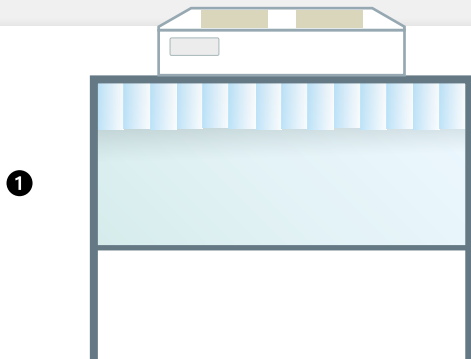
Optional features:

- Flush-surface internal and/or external wall system (modular)
- Access via double hinged door, sliding door or PVC strip-curtain with stainless steel mounting
- Windows glazed with acrylic or safety glass
- Integrated lighting (yellow or white light)
- Operating hours meter
- Filter change indicator and error LED
- Programmable controller interface
- IP 65 construction
- Airlock for materials and personnel

Clean room workbench

Optional features

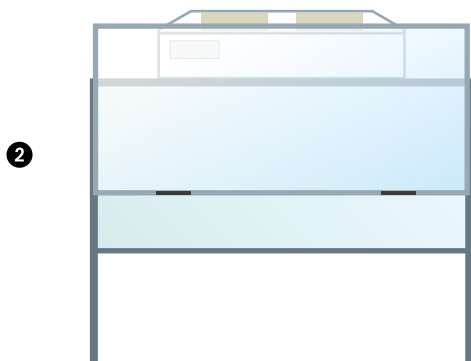
The clean room workbenches are always made to customer specifications. The measurements can be adjusted to the local requirements.



1 Clean room workbench with curtain-scoop

Characteristics

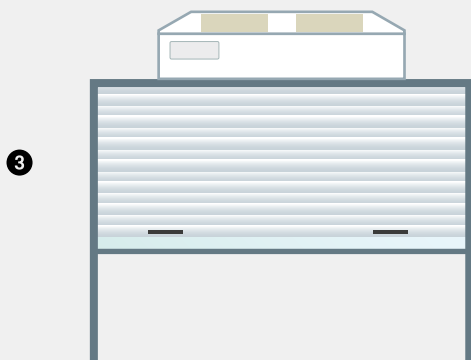
- Easy access to the workspace
- Inexpensive



2 Clean room workbench with sliding door

Characteristics

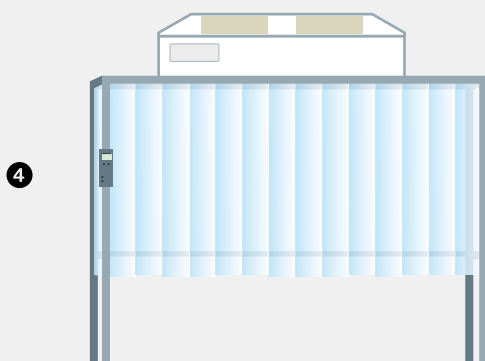
- Continuous sliding mechanism, the opening height can be adjusted individually
- Workbench can be locked during breaks or for storage of materials. The clean room class remain intact as part of this.
- Transparent front-side



3 Cleanroom workbench with roller blind

Characteristics

- Simple locking of the workbench
- Opaque



4 Clean room workbench with canopy

Characteristics

- No airflow from outside which disturbs the clean room environment
- User is in the clean room
- Very high degree of process security

Clean room workbench

Mini environment

The Spetec clean room workbench or mini environment is primarily used in the optics, electronics, and mechanical industries, e.g. for display manufacturing or finishing of touch panels and for cleaning optical components. The key difference in comparison to the laminar flow box (FBS series, tabletop unit) is the **integrated work surface** which can be

Class
100



fabricated from perforated stainless steel, “solid” stainless steel, or hard laminate.

The clean room workbench (Mini Environment) can also be **equipped with a “canopy”** to reduce the influence of dust or drafts from the environment. This housing provides additional protection of the work area and the employee from the ambient atmosphere.

The clean room workbench can be fabricated according to the individual customer requirements and the required clean room category. This means that the size, equipment, and de-

sign are **adapted to the respective requirements**. The clean room workbench is generally made with clean room compatible aluminium profiles. The side walls are made from glass, acrylic glass, or a PVC strip curtain. A laminar flow module is installed on top, so that an ISO 5 or category 100 (according to US FED. 209E) clean room is created inside of the mini environment. That equates to only approx. 100 particles with a size of 0.5µm. Compared to a particle count of approx. 1 million per cubic foot in a typical office or laboratory, this corresponds to improving the air quality by a factor of 10 000.

ISO 5



**Clean room workbench
with sliding door**

**Clean room work bench
with PVC strip curtain
incl. "canopy"**

0,5 μ m

Clean room workbench with ionizer

Clean room workbench with extraction system and ionizer to neutralize static charges.

This special version of the clean room workbench is equipped with an ionizer and extraction system. The partial vacuum created by the extraction system cleans the part in one step. Then the static charge on the part is neutralized by the ionizer so that dust does not adhere. This method ensures that the parts are clean for further processing.

The cleaning time is reduced by more than 50% in comparison to conventional cleaning methods. The canopy with PVC strip curtain prevents dirt from entering the workbench from the outside, making it easier to achieve the clean room category and allowing for even cleaner working.



Clean room cell

Special solutions

We are happy to advise you in the selection of a concept and the materials used.

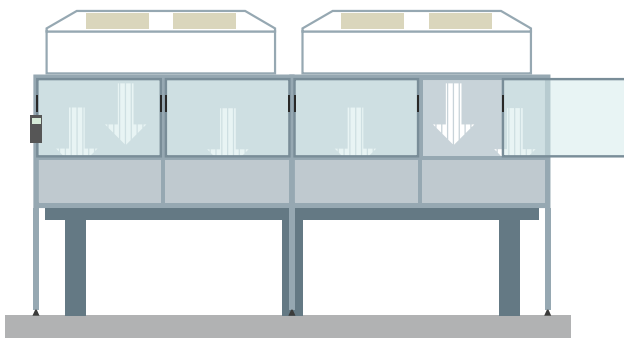
Application examples:

Industry

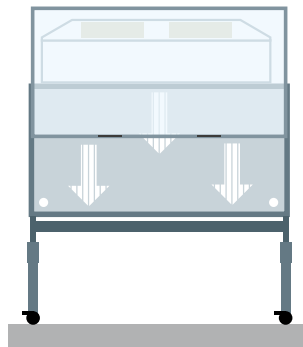
- Plastics processing fabrication machines
- Packaging systems for pharmaceutical products
- Packaging systems in the food industry
- Assembly in the automotive industry - instruments, displays

Research and development

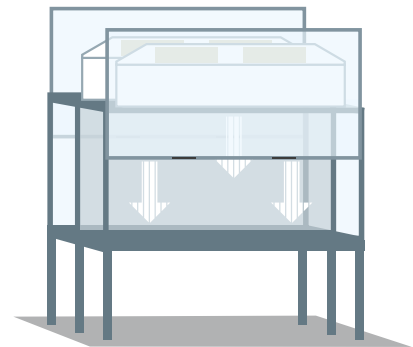
- Complete laser tables
- Laser systems
- Preparing samples in trace element analysis
- Optics and optoelectronics



Optical tables, straight and removable sliding door

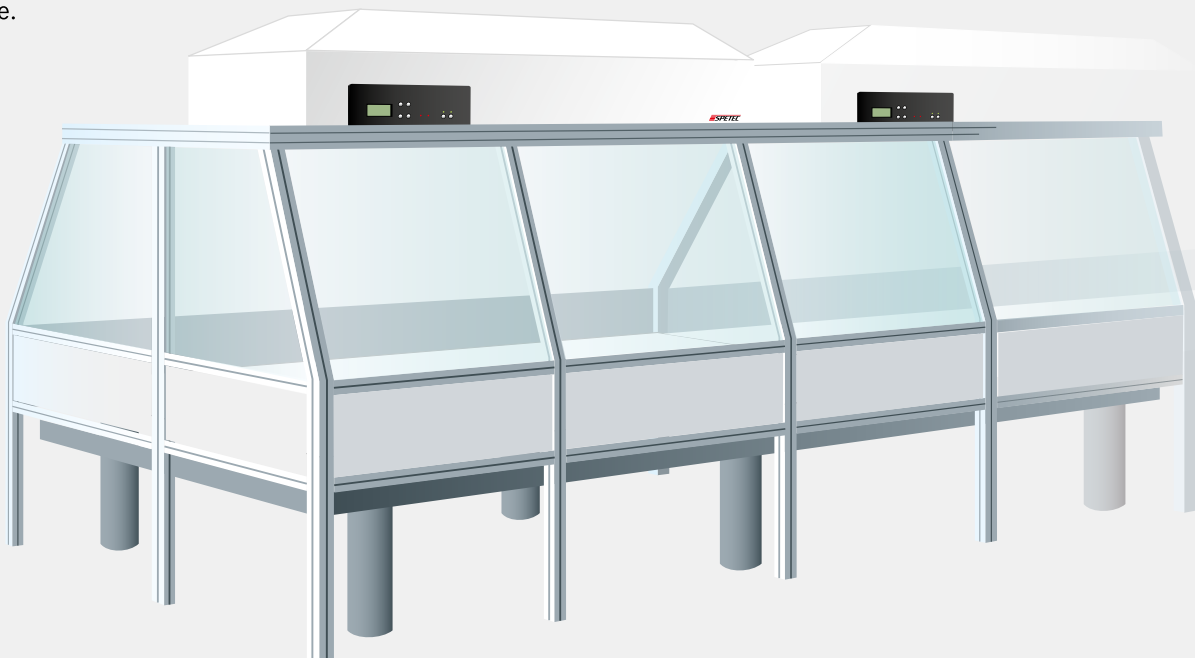


Height adjustable



Double sliding door

Housing of an optical table or a machine.



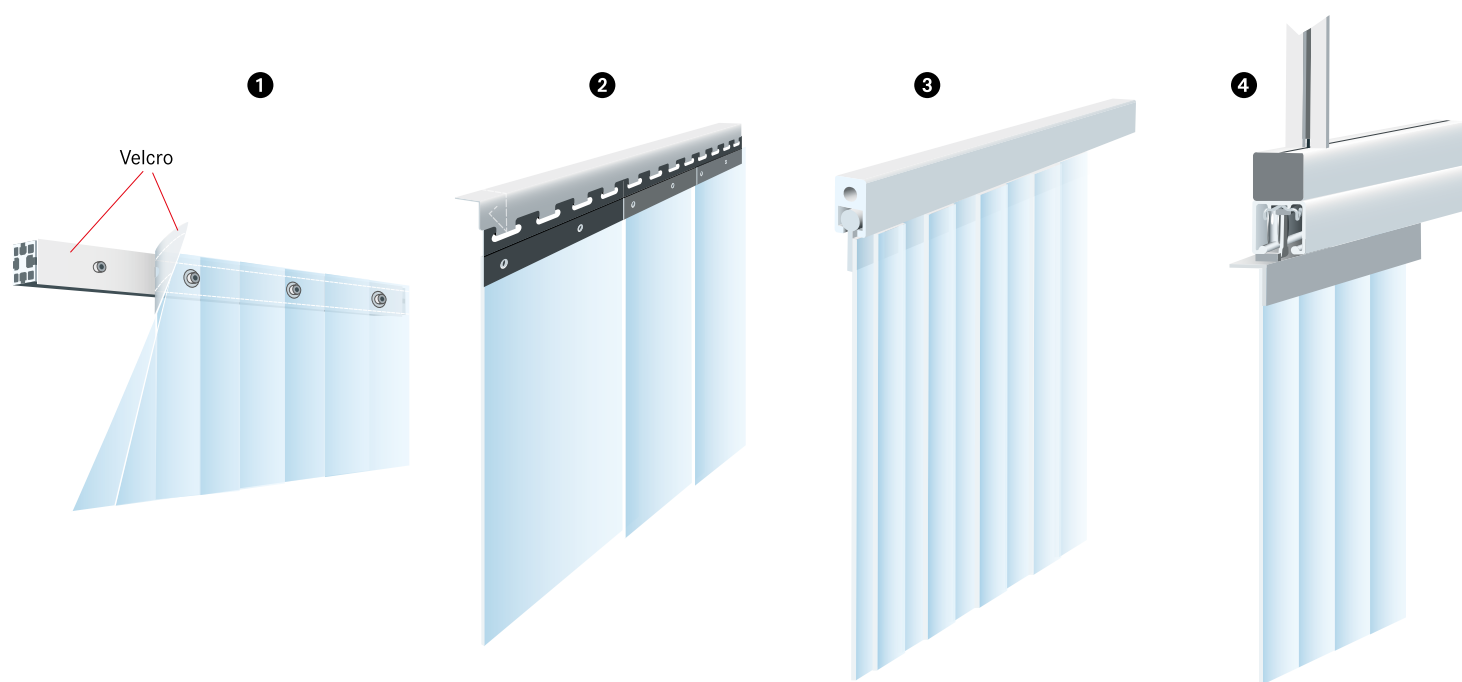
Clean room technology

Clean room curtains

The Spetec clean room curtains are made from strips of various thicknesses and heavy-duty materials. They are always produced according to customer requirements. This allows us to offer you a customized product tailored precisely to your requirements. The strip curtain is fitted to the respective given conditions using special hardware.

Examples:

- Clean rooms
- Locks
- Room separation
- Thermal barriers



Hanger systems

1 Velcro system

The individual strips are sewn in on the top side and attached to the aluminium profile via Velcro and screws.

Characteristics:

- Easy to dismantle
- Cost effective

2 Hook system

(Stainless steel)

Each strip is attached to a separate retaining plate. As a result each strip can be replaced individually.

Characteristics:

- Stainless steel
- Overlap can be manually adjusted

3 Bead system

This system allows a simple and quick installation and can be variably produced for all sizes. By integrating the curtain into the tent-rail a tight connection, is created which offers a high degree of process security.

Characteristics:

- Particle dense assembly
- Cannot be moved

4 Sliding system

In the sliding system the curtain is guided using a holding system in the running rail. Sliding is possible in both directions. The opening times can be limited via a stopper or be set only on one side.

Characteristics:

- Flexible solution

Request our
“Laser safety”
brochure!

Clean room cell

Options



Option 1



Option 2



Option 3



Option 4



Option 5

Options	
1	Material lock
2	Access systems
	- Curtain
	- Sliding door
	- Hinged door
3	Sliding door electrical/mechanical
4	Flush ceiling
5	Interlocking personnel lock
6	Flush wall system
	Side panels
	- VSG – Laminated safety glass
	- Acrylic glass
7	- Aluminium sandwich panels
	- Stainless steel
	- MDF
	- Clean room curtain
8	Fluorescent light
9	LED light



Option 2

Clean room cell

Applications



Clean room cell "Soft wall" for injection moulding



Clean room cell „Hard wall“



Clean room enclosure of a machine in the pharmacy



Laminar Flow Boxes in the field: Optics and laser production



Clean room environment for packaging of pharmaceutical products

Laminar flow box

FBS series

With the laminar flow box of the FBS series a portable clean room workspace is created which, depending on the model, can measure between 0.37 to 1.12 m². It is used for the manufacture of products and for the storage of objects in clean room conditions.



Options: see page 25

FBS



Sliding door

Serie *susi*[®]
Super Silent

Ambient air is drawn in using EC fans and pushed through the filter. This generates an ISO class 5 laminar flow, i.e. the air streams down in parallel flow lines. Particles are picked up the flow of air and transported out of the box through the perforated floor.

Technical Data

The technical data have been tested and certified by the Fraunhofer Institute for Manufacturing Engineering and Automation! The measurement systems used for the qualification are calibrated regularly and can be traced back to national and international standards. If no national standards exist, then the measurement process meets the current technical regulations and standards. The documentation prepared for this process can be reviewed upon request.

Dimensions:

Name		Filter dim. in mm	Kg
Laminar flow box FBS	37	610 x 610	78
Laminar flow box FBS	56	915 x 610	89
Laminar flow box FBS	75	1220 x 610	93
Laminar flow box FBS	93	1525 x 610	130
Laminar flow box FBS	112	1830 x 610	145

See page 30 – 31 for special version device dimensions.
Max. door clearance 480 mm

High performance filter

The SPETEC® laminar flow box FBS uses a type H 14 filter. It features a retention rate of 99.995%. This means that at a particle size of 0.12 µm (according to MPPS), the filter removes at least 99.995% of all particles. At a particle size of 0.3 µm, the retention rate is approx. 99.9995%. By using the H 14 filter, the SPETEC® laminar flow box FBS has an isolation factor of 10. This means that the air quality inside the laminar flow box is improved by a factor of at least 10 000 relative to the ambient air.

Design

The box is primarily made from anodized aluminium profiles and acrylic glass. The air inlet is located on the angled section of the filter module, so that the laminar flow box can be set directly against a wall.

A sophisticated mechanism allows for simple and functional opening and closing of the sliding door. This mechanism is found in all PBS and FBS series boxes. The useable door opening height is 480 mm.



Control panel

The flow velocity can be controlled in 8 steps. The controls include the “night reduction” (eco) mode to save energy costs, and the “MAX” function to clean the workstation, parts, or equipment if applicable.

Through the use of latest generation EC fans with a very high efficiency, the power draw is reduced to a minimum. The noise generation in the workspace is approx. 43 to 55 dB (depending on the size), and the models are correspondingly quieter at lower flow velocities.

Control panel functions:

- 8 level adjustment of the flow velocity with night reduction and flushing function
- LCD display with selected flow velocity in m/second
- LED fault indicator
- Service and interval indicator, dependent on the usage period
- Automatic flow adjustment with filter replacement indicator (optional)
- Connection options for building control systems (remote monitoring) (optional)
- Interior light switch on the control panel (optional)

Laminar flow box

FBS series standard

As an alternative to the laminar flow box of the FBS series “SuSi”, this version is offered without a sliding door and perforated metal floor. As a result, work can be performed directly on the existing table.



FBS

Serie *SuSi*[®]
Super Silent

A well thought out air circulation ensures that the air flow happens from the inside to the outside and no contamination through outside air occurs on the inside of the box.

Dimensions:

Name	Filter dim. in mm	Kg
Laminar flow box FBS 37 standard	610 x 610	57
Laminar flow box FBS 56 standard	915 x 610	67
Laminar flow box FBS 75 standard	1220 x 610	85
Laminar flow box FBS 93 standard	1525 x 610	97
Laminar flow box FBS 112 standard	1830 x 610	108

See page 31 for device dimensions.

FBS-Standard

Laminar flow box

FBS-V series

PVC clean room strip curtain

FBS-V series models consist of a laminar flow module FMS and a PVC clean room strip curtain.

The PVC strip curtain which hangs down from the laminar flow module is adjusted so that its ends are flush with the device housing. Thanks to the laminar flow of air, there is no mixing of dirty ambient air.



Options: see page 25

FBS-V

Serie *susi*[®]
Super Silent

The laminar flow module is attached to the building's ceiling with ceiling hangers. The curtain prevents the entry of dirty air when people walk by or transport vehicles drive by. In general, this system is used to create localized clean room conditions at machines or instruments which are too big to place them inside a box. In addition, assembly workstations can also be enclosed.

Dimensions:

Name	Filter dim. in mm	Kg
Laminar flow box FBS-V 37	610 x 610	42
Laminar flow box FBS-V 56	915 x 610	47
Laminar flow box FBS-V 75	1220 x 610	65
Laminar flow box FBS-V 93	1525 x 610	73
Laminar flow box FBS-V 112	1830 x 610	81

The curtain has a length of 2000 mm, but can also be produced according to customer requirements. See page 30 – 31 for device dimensions.

Laminar flow box

EFBS series

The EFBS series laminar flow box also features an additional acid-resistant extraction system. The telescoping extraction arm, which can be positioned in three dimensions, can be adjusted precisely so that gases and vapours are extracted exactly where they are generated.

There is practically no mixing of the vapours being extracted with the clean air flowing down from above, since the flow velocity at the tip of the extraction tube is higher than that of the clean air flow. The exhaust system has a maximum capacity of 1 cubic meter per minute and is continuously adjustable.



Options: see page 25

EFBS

Serie *susi*[®]
Super Silent

Dimensions:

Name		Filter dim. in mm	Kg
Laminar flow box EFBS	37	610 x 610	85
Laminar flow box EFBS	56	915 x 610	96
Laminar flow box EFBS	75	1220 x 610	100
Laminar flow box EFBS	93	1525 x 610	137
Laminar flow box EFBS	112	1830 x 610	152

See page 31 for device dimensions.

The EFBS series devices are used where clean room conditions are required, but where these conditions are at the same time impaired by vapours, combustion gases, etc., e.g. AAS graphite tubes, ICP/MS, and laboratory benches used for chemical analysis.

Option

Telescoping arm for the extraction system.
Arm with three-dimensional position adjustment for connection to the acid-resistant extraction system. Only available in combination with the EFBS, EFBS-V and EBS series.

Laminar flow box

EFBS-V series

The EFBS-V Series combines the benefits of an FBS-V and an acid-resistant extractor in situations where clean room conditions are required, but where such conditions would be impacted by vapor, gas, etc.

The strip curtain of the clean room is adjusted so that it is flush with the equipment or workspace that is to be enclosed.



Options: see page 25

EFBS-V

Serie *susi*[®]
Super Silent

Dimensions:

Name	Filter dim. in mm	Kg
Laminar flow box EFBS-V 37	610 x 610	49
Laminar flow box EFBS-V 56	915 x 610	54
Laminar flow box EFBS-V 75	1220 x 610	72
Laminar flow box EFBS-V 93	1525 x 610	80
Laminar flow box EFBS-V 112	1830 x 610	88

Option
Telescoping arm for extraction. Arm with three-dimensional position adjustment for connection to the acid-resistant extraction system. Only in combination with the EFBS, EFBS-V and EBS series.

The curtain has a length of 2000 mm, but can also be produced according to customer requirements.
See page 30 – 31 for device dimensions.

Protection box

PBS series

The protection box PBS is used in the optics, analysis, and electronics industries to protect items against dust. However, it is not equipped with a filter module, but can be retrofit with one at any time to produce a laminar flow box.



PBS

Portable tabletop exhaust hood

EBS series

The portable tabletop exhaust hood EBS is universally usable. It is corrosion and acid resistant. The maximum extraction capacity is 1 cubic meter per minute.



EBS

Dimensions:

Name	Device dimensions
Protection box PBS 37	see page 31
Protection box PBS 56	
Protection box PBS 75	
Protection box PBS 93	
Protection box PBS 112	

The interior height is 805 mm
The total height is 940 mm
Height with the door open is 1441 mm

Dimensions:

Name	Device dimensions
Exhaust hood EBS 37	see page 31
Exhaust hood EBS 56	
Exhaust hood EBS 75	
Exhaust hood EBS 93	
Exhaust hood EBS 112	

The interior height is 805 mm
The total height is 940 mm
Height with the door open is 1441 mm

Laminar flow box

Options



Option 1



Option 2



Option 3

Options	
1	Base frame on casters. As a table replacement for the FBS series, results in a mobile clean room workstation.
2	Laboratory cabinet with drawers. Provides storage space to keep laboratory materials and other tools, only available in combination with option 1.
3	Extraction well below the perforated floor, for connection of an extraction system or a central building extraction system. To divert the “contaminated” air flowing through the box.
4	Interior light, FBS series fluorescent lamp.
5	230 V connection inside box. Installation of a clean room compatible triple outlet inside the box.
6	Control via PLC interface.
7	Automatic flow adjustment for FBS series and clean room workbench
8	Automatic flow adjustment for FMS series and clean room cell
9	Automatic flow adjustment for FBS-V series and EFBS-V series
10	Ceiling mount
11	Stainless steel pre-filter cartridge (size 37–56 per 2 units, size 75–112 per 4 units)

Options	
12	Replacement H 14 filter
13	H 14 PTFE main filter
14	Pre-filter (size 24–56 per 2 units, size 75–112 per 4 units)
15	Worktop made of solid stainless steel, not perforated
16	Worktop made of sealed hard laminate, not perforated
17	ESD-compatible version for FBS series
18	ESD-gerechte Ausführung für FBS-Serie „Standard“
19	Plastic coating, acid-resistant for FBS series
20	Plastic coating, acid-resistant for base frame on casters
21	FMS series with master function and wired remote control
22	Telescoping arm for exhaust hood

Clean room work place

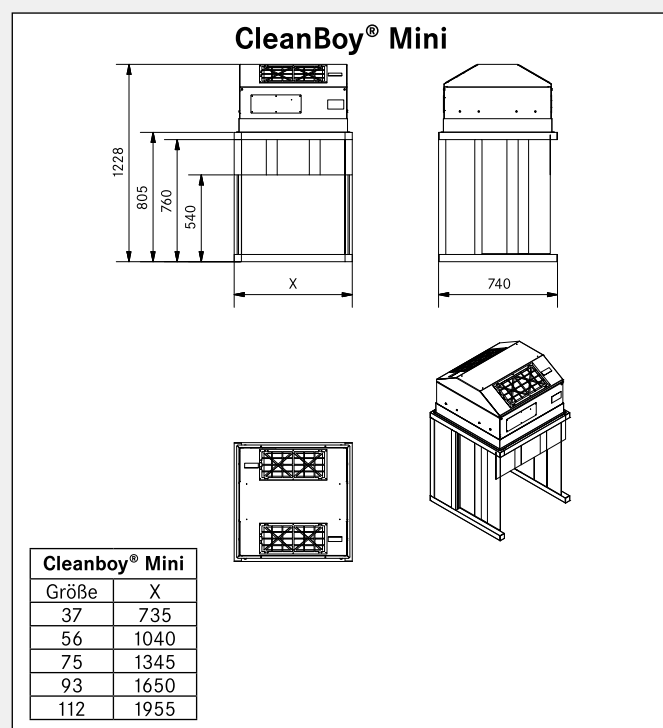
CleanBoy® Mini

The Spetec clean room work place “CleanBoy” brings cleanliness to the exact work place where you need it. Cleanliness in technical terms means classified clean room conditions. The “CleanBoy” clean room work place is available as a full height or tabletop device. It is simply set up and is operational immediately without any further installation.



CleanBoy® Mini
Table-top device

CleanBoy®



Application example CleanBoy® work place

Clean room work place

CleanBoy® Maxi

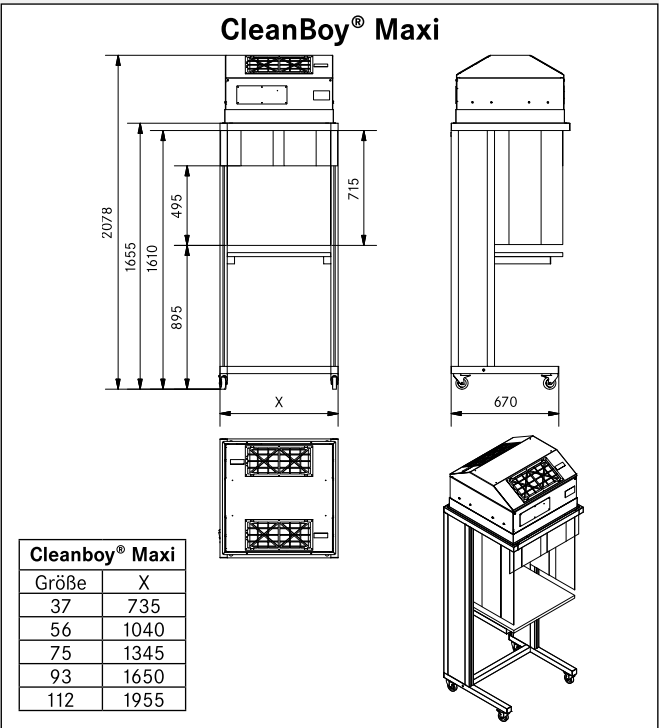


The CleanBoy® Mini or Maxi consists of a laminar flow module series SuSi and a supporting frame made from anodized aluminium. Work can be performed on the table top under category 5 clean room conditions.

CleanBoy® Maxi,
Floor-standing device with work surface



Application example
CleanBoy application example in analysis: Storage of analysis samples under clean room conditions



One of the most noteworthy features of the modules is the extremely low level of noise produced by the fans. The modules include an operating hours meter, a filter change and error indicator and a display for setting reproducible flow rates.

Clean room work place

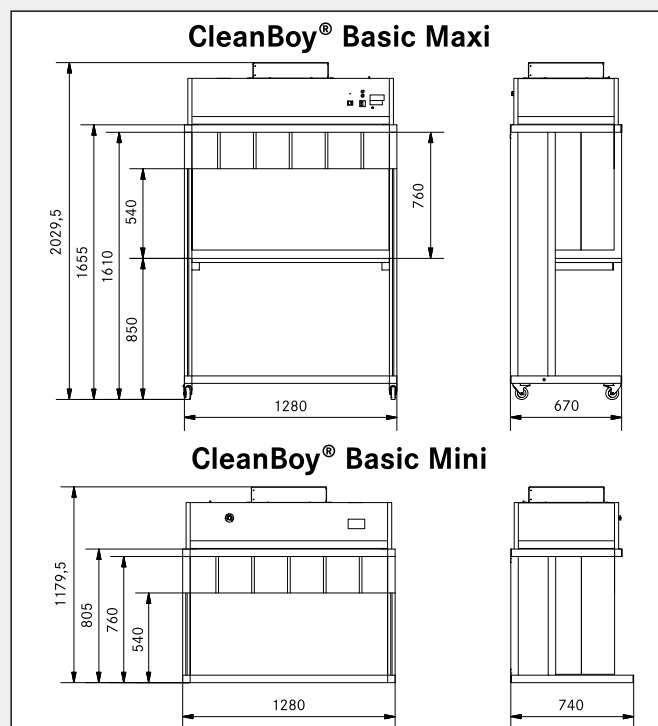
CleanBoy® Basic



CleanBoy® Basic,
Floor-standing device with work surface

CleanBoy®

The CleanBoy® Basic consists of a simpler, more affordable laminar flow module “Basic”. This laminar flow module is offered in a plastic coated, robust version. With an EC-motor with stepless speed regulation the air flow speed can be adjusted to the requirements.



Clean room technology

Service

We – as a manufacturer and service provider for clean room technology – provide a range of device variants on the one hand, and fast and universal service assistance on the other hand. Now we have used our many years of experience as a manufacturer to develop a services offering, which allows us to test, service, and maintain your clean room system using state of the art measuring equipment.

We offer the following services:

- Particle counts
- Replacing filters in various brands of laminar flow boxes (LF units)
- Finding and fixing leaks
- Determining volume flow rates or flow velocities
- Temperature and relative humidity measurements
- HEPA filter / filter system installation monitoring
- DEHS leak test
- Clean room validation and certification in accordance with EN ISO 14644 and GMP guidelines

We also perform certification within the framework of EN ISO 14644, that is, we record the measurement parameters defined in DIN EN ISO 14644 such as particle counts, flow velocities, etc. All of these parameters are confirmed with a corresponding certificate. All of the particle measurement devices, air speed, temperature, and humidity sensors we use are tested and calibrated every 12 months. You receive comprehensive documentation about the measurements and a risk assessment.



Filter replacement

The main filter can be changed from the top or bottom of the unit. This allows contamination of the clean room to be kept to a minimum whatever the constraints of the location.

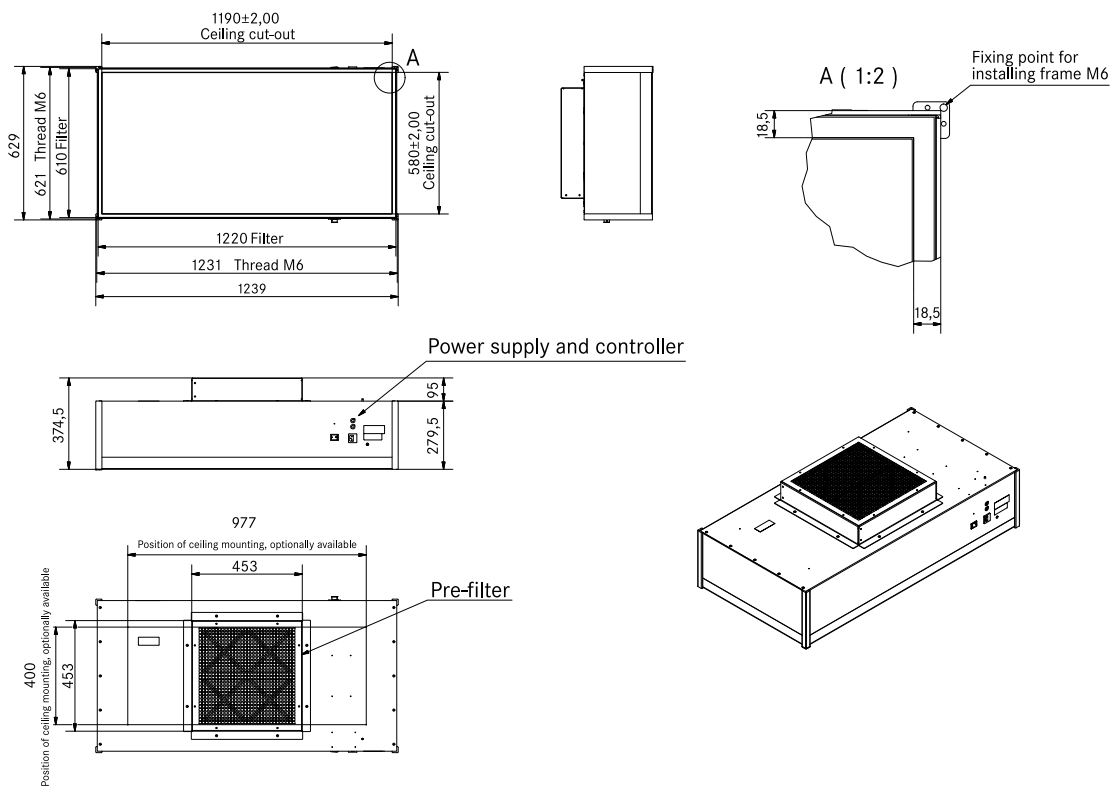


It is easy to remove the main filter by simply releasing the filter replacement cassette.

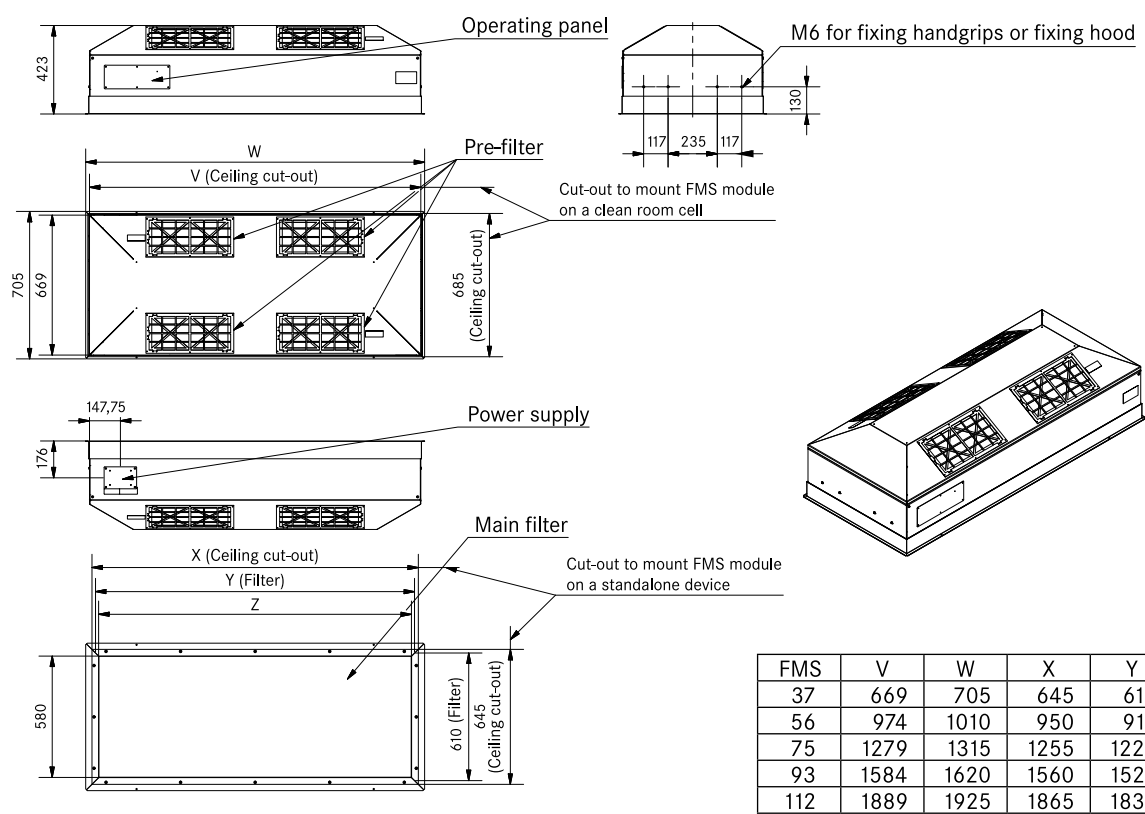
Clean room technology

Technical drawings

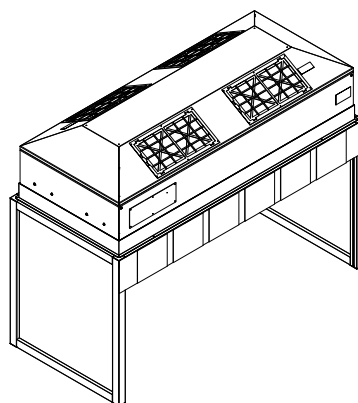
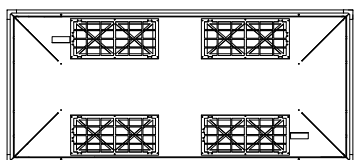
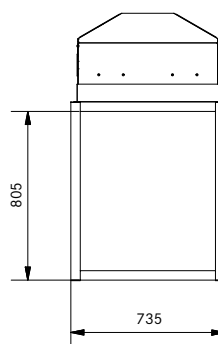
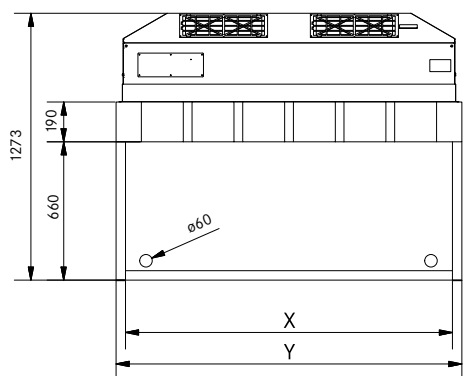
FMS series – Basic



FMS series „SuSi“

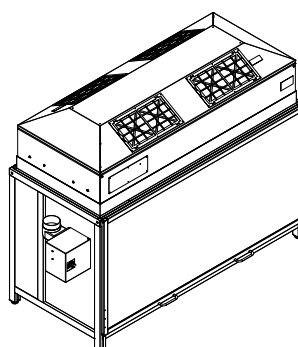
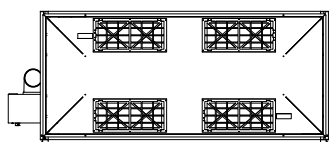
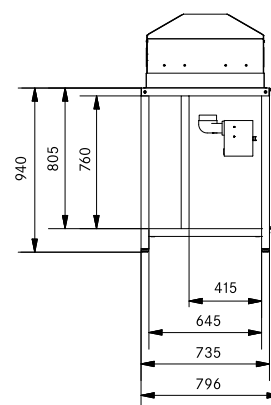
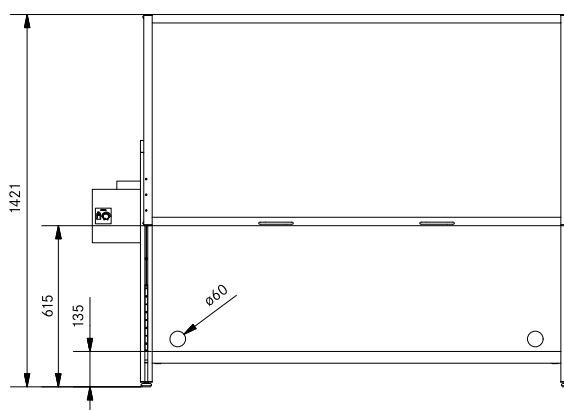
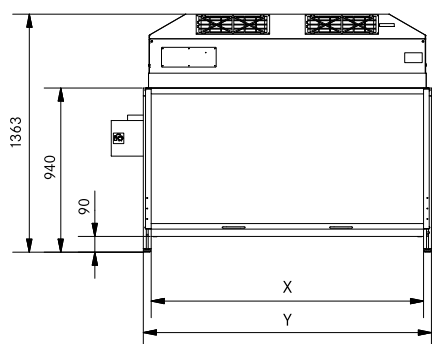


FBS series – standard



FBS	X	Y
37	645	735
56	950	1040
75	1255	1345
93	1560	1650
112	1865	1955

FBS-, EFBS-, PBS-, EBS series



FBS	X	Y
37	645	735
56	950	1040
75	1255	1345
93	1560	1650
112	1865	1955

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