Spetec Clean-Room-Cell



CLEAN-ROOM-CELL

A clean environment is extremely important in certain branches of research and industry.

The Spetec Clean-Room-Cell is part of a highly flexible cleanroom system which provides an economic alternative to a full size clean-room facility.

One or more Laminar Flow Modules may be placed on a base frame. The Laminar Flow Modules function as clean air showers above the enclosed cleanroom work bench on which to assemble, store, or protect machined materials and instruments. A segmented curtain consisting of stripes of different synthetic, rubber, or similar materials encloses the work area of the Clean-Room-Cell without infringing on the access.

The base frame may be selected freely for it's applicable dimensions up to a maximum of approx. 20 square meters or approx. 180 square feet according to individual requirements and the number of cells to be positioned. The material of the base frame is manufactured of either anodised aluminium profile or powder coated steel. The design allows the integration into any laboratory, production facility, or office without constructional changes of the room or the building.

By combining several Laminar Flow Modules the effective cleanroom surface may vary between 0.24 to approx. 20 square meters (from 2.16 to approx. 180 square feet). The Spetec Clean-Room-Cell system may also be integrated into an entire production or assembly line.

The operation of the Spetec Clean-Room-Cell plus several other parameters of the installation site such als lighting may be controlled from a infra-red signal panel.

The Spetec Clean-Room-Cell is applied where a dust free environment is mandatory. For instance in laser technology, for optical and optoelectronic devices, in the semiconductor industry, in production and assembly processes, for instance in displays.



Laminar Flow

The foundation for the development of the cleanroom technology was established first in the USA in the mid sixties. It was based on the principle of turbulance free displacement flow (laminar flow).

The surrounding air is being sucked by a radial ventilator and pressed through an air filter which will produce a laminar air stream. It means that the air flowing from top to bottom is moving in a parallel stream. Particles are being pulled along the stream and transported outside of the clean-room-cell. The speed of the air stream in the Spetec Clean-Room-Cell may be adjusted continuously by a remote control infra-red device. An air stream velocity of approx. 0.5 m/s or approx. 2 feet per second can be obtained.

Clean-Room-Cell



Spetec Laminar Flow Module FMS - Series

dimensions:

description	measurements	weight
FMS 24	610 x 400	22
FMS 37	610 x 610	24
FMS 56	915 x 610	35
FMS 75	1220 x 610	50
FMS 93	1525 x 610	58
FMS 112	1830 x 610	65

The height of a module is 420 mm (approx. 165 inches) The inside measurements are in mm: width x depth

High Performance Filter

The Spetec Laminar Flow Module FMS applies the filter type H 14. It obtains a particle rejection of 99.995%. This means that the filter will eliminate particles of the size 0,12 micro meter (according to MPPS) by at least 99.995%. Particles of the size 0.3 micro meters will be rejected by approx. 99.9995%.

By applying the high performance filter H 14 the Spetec Laminar Flow Module achieves an isolation factor of 10⁴. This means that the air quality within the laminar flow module will improve by a multiple of 10,000 versus the air outside of the laminar flow module.

Example of application:

When operating the Spetec Clean-Room-Cell in a facility having a concentration of 1,000,000 particles at a size of 0.12 micro meter then only 100 particles/cft. will remain present in the laminar air stream. The air outside of the immediate laminar air stream will mix with the clean air to produce a clean but unclassified area within the cell.

Enclosures



Glazing

The Spetec clean room system can also be used to build complete enclosures. A selection of various components makes it possible to meet specific customer requirements. Available choices are for example

- supporting frames made either from aluminum or stainless steel profiles
- square or angled doors
- partitions made either from plexiglass (acrylic glass, PMMA) or alternatively, from laminated glass or medium-density fiberboard (MDF board), respectively.
- transparent or tinted window elements
- ceiling panels may be made either from blank aluminum or stainless steel sheets or upon customer request also from acrylic glass (plexiglass).

The system is suitable as complete housing for machines or equipment. Every individual component is specifically build and fitted according to customer specifications.

Example applications: industry

- Manufacturing machinery in the polymer processing industry
- Filling/bottling equipment for pharmaceutical products

PVC strip curtain

- Packaging facilities in the food industry
- Automotive assembly and installation armatures, instrument panels, displays

Research & development

- Complete laser tables
- Laser systems

- Sample preparation for the trace element analysis
- Optics and optoelectronics

Optical table or machine

Example application:

Housing for an optical table or a machine housing, respectively.

Slat Curtains



Slat Curtains

Spetec slat curtains are usually manufactured from crystal clear PVC. This material is temperature resistant for temperatures between about -40 °C to 60 °C (-40 to 140 °F). The slat curtains are often used as partitions in front of clean room systems.

We always deliver customized slat curtains. The customer can therefore order the width and length of the slats. In most cases, we use Velcro tape when sewing the slats together at the top end. The curtain hangs from a guide rail or profile. Various alternative mounting systems using metal guide bars, rails or profiles are available upon request.

Technical specifications:

- Slat width: 200 to 1,500 mm [7.87 to 59.1"]
- Material: soft standard or antistatic PVC
- Color: various colors according to color chart

Other applications

Partitions for industrial buildings, gate partitions, room dividers



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