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Wall Systems

At Angstrom, we understand that no two projects are exactly the same, and we draw on our years of experience to design a custom solution to fit the specific needs of our customers. Representing over 30 manufacturers - including 10 wall systems - we provide optionality for cleanrooms, cold rooms, and dry rooms.



Seamless Wall System

ISO 3-8, non-classified

Aluminum honeycomb core,
uPVC finish, walkable ceiling,
full glass walls available



Seamless Wall System

ISO 3-8, non-classified

Aluminum honeycomb core,
uPVC finish, walkable ceiling,
full glass walls available



Seamless Wall System

ISO 4-8, non-classified

Aluminum honeycomb core,
uPVC finish, walkable ceiling,
full glass walls available



Seamless Wall System

ISO 3-8, non-classified

Aluminum honeycomb core,
uPVC finish, walkable ceiling,
full glass walls available, fire
rated walls available.



Seamless; Insulated

ISO 3-8, non-classified,
dry rooms, cold rooms

Insulated metal panel
Flush and Semi-flush options
Walkable ceiling available



Free-standing modular post & panel

ISO 5-8, non-classified

Structural support to 125 PSF,
Ideal for cleanroom heights of
up to 20'

Wall Systems



PORTAFAB
Modular Building Systems

Free-standing modular post & panel

ISO 5-8, non-classified

Structural support to 125 PSF,
Ideal for cleanroom heights of up to 20'



A-WALL BUILDING SYSTEMS

Free-standing modular post & panel

ISO 5-8, non-classified

Structural support to 125 PSF,
Ideal for cleanroom heights of up to 12'



Technical Air Products, Inc.

Modular softwall & rigidwall

ISO 5-8, non-classified

Lower cost
Extreme flexibility
Full visibility floor to ceiling

System Recommendations

	Market Sectors						
	Cell & Gene	Pharmaceutical	Compounding	Medical Device	Advanced Tech	Aerospace	Food & Bev
Puracore	✓	✓	✓		✓	✓	
Plascore	✓	✓	✓		✓	✓	
Dagard	✓	✓	✓		✓	✓	
GCS	✓	✓	✓		✓	✓	
Kingspan	✓	✓	✓		✓	✓	✓
Starrco			✓	✓	✓	✓	
Portafab			✓	✓	✓	✓	
A-Wall			✓	✓	✓	✓	
TAP			✓	✓	✓	✓	
Simplex			✓	✓	✓	✓	
Falk					✓	✓	✓



Simplex

Modular softwall & rigidwall

ISO 5-8, non-classified

Lower cost
Extreme flexibility
Full visibility floor to ceiling

Ceiling Systems

When you're deciding how to build your cleanroom, it's important to remember that your ceiling is often the most important "wall" in the room. At Angstrom Technology we offer multiple different options for your ceiling tiles and your ceiling construction, so that you can choose the option that best fits your cleanroom needs.

Grid Ceiling Options



GORDON[®]
ARCHITECTURAL+ENGINEERED SOLUTIONS

Walkable Ceiling Grids
Multiple Options for
2" Cleanroom Gasketed Grids



NORTEK[™]
AIR SOLUTIONS
CLEANSPACE

Ceiling grids, unidirectional
plenums, FFUs, and custom air
handling equipment



STARRCO

1.5" and 2"
Grid Ceilings



USG

1.5" Grid Ceilings for controlled
environments
Vinyl laminated panels for use
up to ISO 5

Panelized Ceilings

Available options with our architectural wall systems from Puracore, Plascore, Dagard, GCS and Starrco, the panelized ceilings provide consistent appearance between the walls and ceiling and can provide full walkability for easy maintenance.

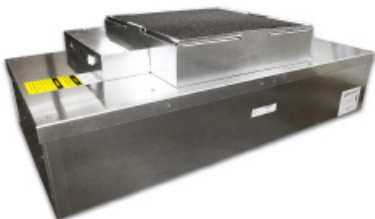


Cleanroom Accessories

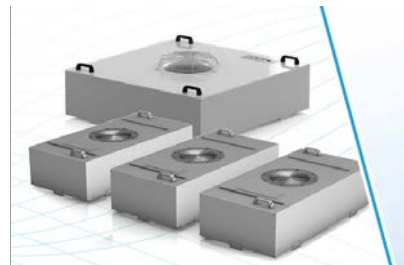
HEPA Filtration



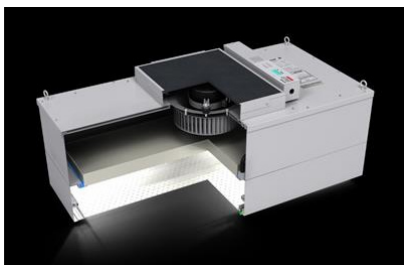
camfil



ENVIRCO
Innovators in clean air technology



NICOTRA | Gebhardt



PRICE | **CRITICAL ENVIRONMENTS**



Ai MFG.

Controls



AirCare
Automation



PRICE | **CRITICAL ENVIRONMENTS**

Cleanroom Accessories

Doors



ASSA ABLOY

Roll-Up and Sliding Doors



HÖRMANN

Roll-Up Doors



RYTEC

Roll-Up Doors



STANLEY
Access Technologies

Sliding Doors



DORTEK
Opening Innovation

Swing and Sliding Doors



Gottlieb

Roll-Up Doors



RITEHITE
ALWAYS LOOKING AHEAD

Roll-Up and Sliding Doors



GCS

Flush & Semi-Flush Swing Doors



Cleanroom Accessories

Lighting



Astra
LIGHTING

Panelized ceiling application



KEVALL

Panelized or grid ceiling applications



Ångström Technology
Cleanroom Experts

Grid ceiling application

Pass Throughs



Atmos-Tech Industries



Clean Air
PRODUCTS



Technical Air Products, Inc.

Air Showers



AS/PT Air Showers
Manufacturer and Designers Pass Thrus



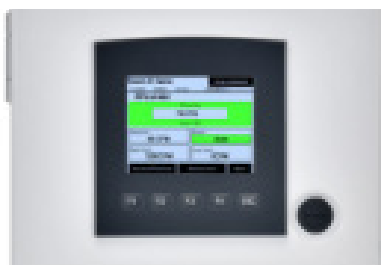
Clean Air
PRODUCTS

Cleanroom Accessories

Laminar Flow Hoods



Environmental Monitoring & Particle Counters



Cleanroom Accessories

Additional Options



Flooring



Cleanroom Furniture

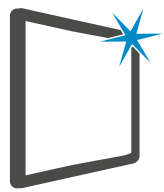


Static Control





Wall Systems



Puracore[®]

High Specification Cleanroom Systems



Global specialists in the manufacture and delivery of FM approved, high specification cleanroom systems which meet all ISO 14644 Classifications.

www.puracore.com



Leading manufacturers of complete cleanroom systems

- Fully flush cleanroom solutions
- Easy to install, modular components
- Panels to match your colour requirements
- Suitable for all ISO 14644 classes
- Cleanrooms available in a range of finishes:
 - PVC white foodsafe laminate
 - PET
 - Stainless steel
 - Painted aluminium
- Panels available with a range of cores:
 - Aluminium honeycomb - high specification, non shedding, lightweight and high strength
 - PIR - lightweight
 - Mineral fibre - fire safe



Puracore® is the leading specialist cleanroom product range from Gilcrest Manufacturing UK. Puracore® has over 20 years 'hands-on' experience in manufacturing and supplying flush cleanroom systems with a number of approved installation partners.

We offer a full range of FM approved cleanroom components including walls, ceilings, vision panels, doors and ancillaries.



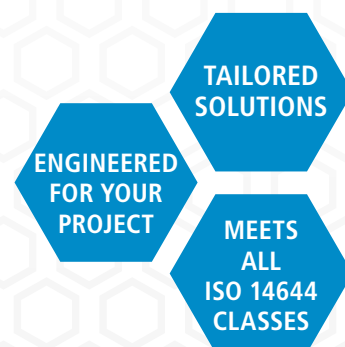
Engineered for you to customise your perfect individual solution for a wide range of projects

- Range of wall panel systems:
 - 50mm modular cleanroom panel
 - 17.5mm cleanroom lining system
 - 10mm cleanroom liner panels
- Ceiling systems:
 - 50mm walk on ceiling
 - 65mm high load ceiling
 - Grid ceiling, available as standard or walk-on
 - Hidden ceiling hanger system
- Custom made to order



State of the art cleanroom components

- Accessories include:
 - A range of doors including flush doors and rapid rise
 - Flush and clamp frame windows
 - Coving
 - Conduit panels
 - Raceway panels
 - Preformed corners
 - Air returns
- Constant research and development into new cleanroom components and technologies
- All components and apertures are pre-cut and delivered to site ready for installation



Unique Puracore® components provide the highest specification of cleanroom.

Puracore® is led by the 50mm FM approved, aluminium honeycomb core cleanroom panel. Its core delivers a strong but lightweight panel, which offers mechanical stability, excellent flatness and most importantly for cleanroom environments, non-shedding properties.

This is why Puracore® has been selected by industry leaders all over the world including GSK, Pfizer, Rolls-Royce, Astra Zeneca and Merck.

We can offer exclusive components and panels to provide completely flush, high end and aesthetically pleasing cleanroom builds.

All Puracore® components are tailored to each project, manufactured to order, with pre-cut apertures and delivered to site ready for install. No on-site cutting is required saving time, money and which allows for clean and efficient installation.



Cleanrooms for small laboratories to large scale manufacturing

- In-house cleanroom experts and technical support team
- Installation and design partners worldwide
- Personalised service for every project, from start to finish

Experienced team
dedicated to
providing cleanroom
solutions for any
application
and industry

The Puracore® technical team have over 20 years' experience in cleanroom supply and technical support. With the skills to work with large scale drawings that contain every detail of the cleanroom, whilst illustrating exactly where joints, special panels and apertures are required.

Puracore® supply products to every unique project. We also offer a personalised service to overcome any problems met in design and construction and to provide a solution for this. As a result there is constant development to our cleanroom products.



Find out more information or request a sample

Puracore® head office, based in Bristol, operates UK manufacturing facilities with a global presence.

Get in touch with our dedicated team who can bring a wealth of technical knowledge and experience to your cleanroom project.



Scan QR
for our
contacts

Getting in touch
is easy. Either fill out
an enquiry form online,
email your enquiry
or call to speak
to a member
of our team.



Puracore, 3 Portview Road, Avonmouth, Bristol, Avon, BS11 9LQ, United Kingdom



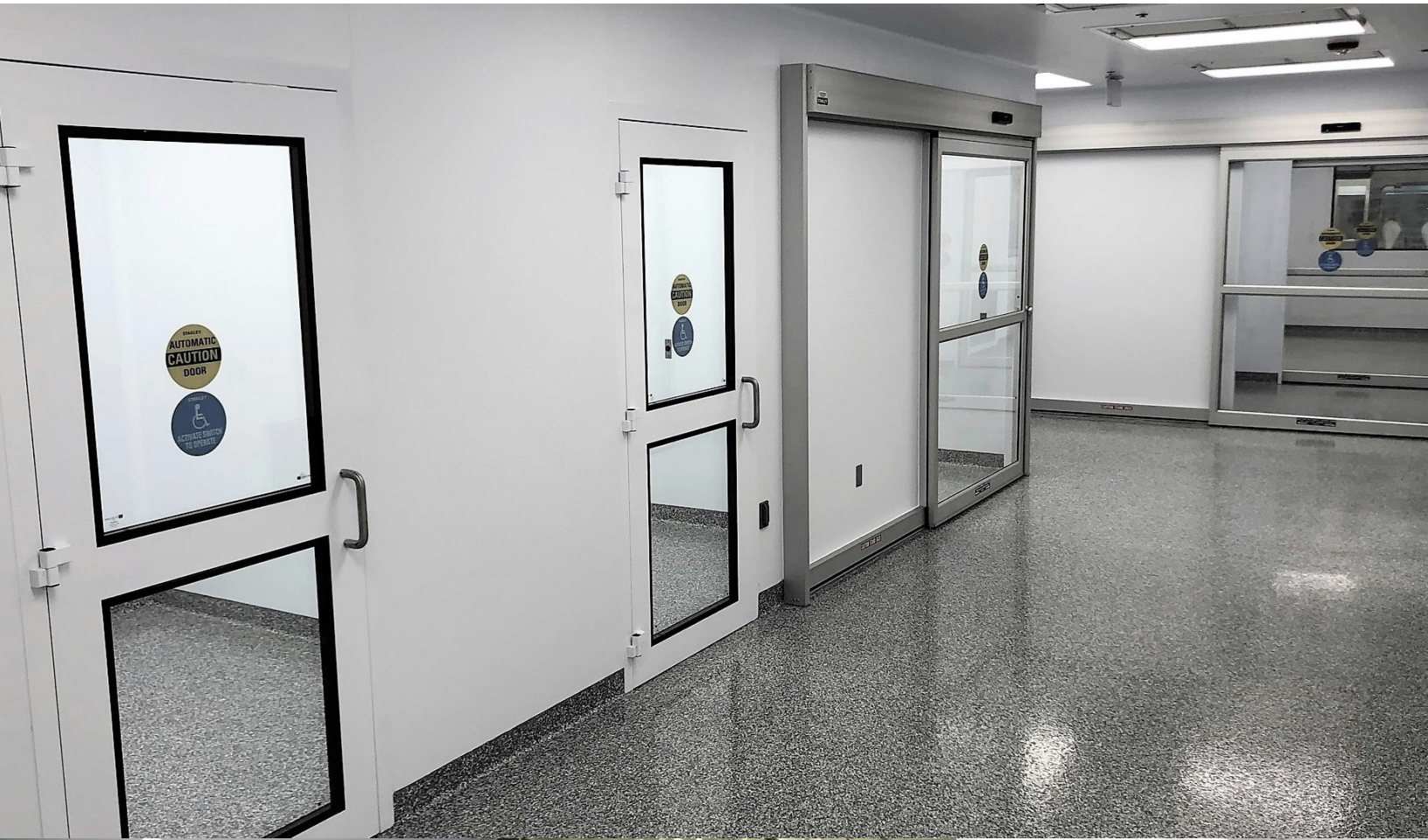
www.puracore.com



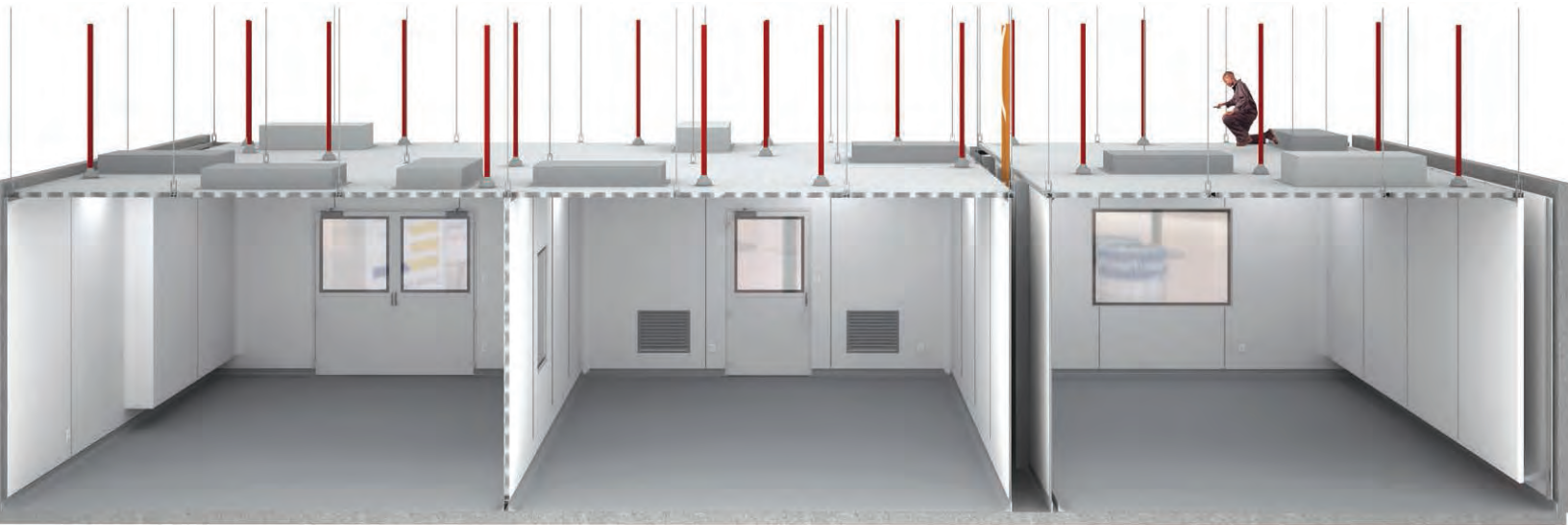


PLASCORE PHARMA

Your cGMP architectural envelope provider



PLASCORE[®]
MODULAR CLEANROOMS



PLASCORE MODULAR CLEANROOMS

Located in Zeeland, Michigan, Plascore is a leading manufacturer of modular cleanroom architectural envelopes specifically designed for the pharmaceutical and life sciences industries. Our ceiling, wall, door, window, and utility chase options are designed to be flexible, smooth, flush, and easily cleanable to meet the demands of the most stringent ISO standards.

● MODULAR CEILING SYSTEMS

- The walkable ceiling option is a 2" thick panel with a maximum nominal size of 5'x10'. The walking surface is flush, with a galvanized steel finish. The finished (room) side has a uPVC coated galvanized steel skin. Multiple loading options are available.
- The non-walkable liner ceiling option is a ½" thick panel with a standard size of 4' x 8' utilizing concealed fasteners and clips. This is a cost-effective alternative to a gasketed ceiling grid.

● MODULAR WALL SYSTEMS

- The studless wall option is a 2" thick panel with a maximum nominal size of 4'x16'. Both sides of the panel have a uPVC coated galvanized steel skin, and an integral UL approved electrical raceway on each edge.
- The liner panel wall option is a ½" thick panel with a maximum nominal size of 4' x 16'. The finished (room) side has a uPVC coated galvanized steel skin. The panel is attached to the wall substrate with Z-clips.

● MODULAR WINDOW SYSTEMS

- The progressive window option is 2" thick assembly, with ¼" tempered glass on each side. The windows are flush with the adjacent wall system.
- The glass wall option allows for ⅜" or ½" glass to be set into epoxy painted aluminum hardware. The entire assembly is cleanable and integrates seamlessly with the other Plascore components.

● MODULAR DOOR SYSTEMS

- The door option includes a 2" thick frame and 1¾" door leaf. Both are welded (seamless), epoxy coated aluminum. The 2" frame allows for a flush condition at the wall panel and has concealed attachment points within the frame.
- FRP, stainless steel, and glass door options are available. Contact the Plascore Modular Cleanroom sales representative for more information.

● ADDITIONAL BENEFITS

- All ceiling and wall systems have rolled edges and are bonded to an aluminum honeycomb core.
- All panel joints are filled with a cold-weld adhesive that meets the same performance requirements as the uPVC finish.
- Raised return air wall options can be provided up to 24" in depth.
- All coving is 2" radius PVC with preformed inside and outside corners to provide for continuous cleaning.
- Epoxy coated ceiling frames can be provided for filter installation based on sizes required.





DAGARD
USA



**MODULAR
CONSTRUCTION
SYSTEM**
FOR LIFE-SCIENCE
ENVIRONMENTS

**CLEAN
ROOMS**

*Tailormade Controlled
Environments*

DAGARD USA

Our commitment: customer satisfaction

Dagard USA, founded in 2006, is a subsidiary to Dagard France to provide professional local support to the US market.

The company works in close collaboration with a network of experienced cleanroom contractors providing the pharmaceutical, biotech, medical, research and lab sectors with Dagard's worldwide expertise and manufactured products.

At Dagard USA, we are prepared to support each project from the early design stages, providing consulting support on the best materials to be chosen and in the value engineered design of the layout and floor plans.

Our US-based technical team will develop shop drawings, technical data sheets, bills of materials and all other supporting documentations throughout the project – providing a seamless process from concept to completion.

Relying on state-of-the-art industrial tools, Dagard's factories have very large production capacities which offer great flexibility and produce high quality products recognized worldwide for their high-end fit and finish.

For Dagard USA, customer satisfaction is our top priority. Through active listening and support, a perpetual quest for innovation and advanced expertise, we will make your project a success.

Built on trust, and with the core values of enthusiasm, teamwork, flexibility, innovation, and commitment, we seek to establish a long-term relationship with each and every one of our clients and partners.

Coming 2021, we will be able to give an even better service to our clients, as we will be opening our own manufacturing facility on US grounds.



DAGARD

World Leader in Premium Insulation

Dagard, one of oldest European manufacturers, was founded in 1951 and is today a worldwide provider of high-tech insulation solutions and modular cleanrooms. At that time, Dagard pioneered European modular insulation solutions and now continues to invest in R&D and in the control and certification of its products.

Since 2017 Dagard is part of Purever Industries; a growing industrial manufacturing group, with more than 25 companies and offices around the world. Headquartered in France, Dagard has two factories, with a total of 400+ employees and over half a million square feet of manufacturing space.

Dagard's expertise is combined with a strong sense of commitment and innovation which we strive to incorporate into all of our projects.

From concept to completion, Dagard provides products and solutions for all types of applications from cosmetics and medical device to agro-food warehousing and biotech research. With almost 70 years providing high-quality innovative products to the market, the best confirmation of our success is the continuously growing list of globally recognized brands that trust Dagard for all their modular insulation and cleanroom needs.



PUREVER
INDUSTRIES

Protecting Life

At the heart of innovation

Purever Industries is a constantly growing global industrial group, creating value for its customers in the agro-food, high-tech electronics and life science industries by way of their innovative modular solutions.

Purever is a leading European manufacturer of insulation products for the food chain (production, storage and distribution), hotels and restaurants. The Purever group has companies located in France, Portugal, Spain, the United Kingdom, Ireland, Morocco, the United States and Colombia with a commercial presence in more than 80 countries on all continents.

The company employs more than 850 people of 15 different nationalities, working in 10 factories and 25 offices around the world, with a long history of sustained growth.

Purever Industries in numbers

850 EMPLOYEES

10 FACTORIES

11 EXPERTISE AREAS

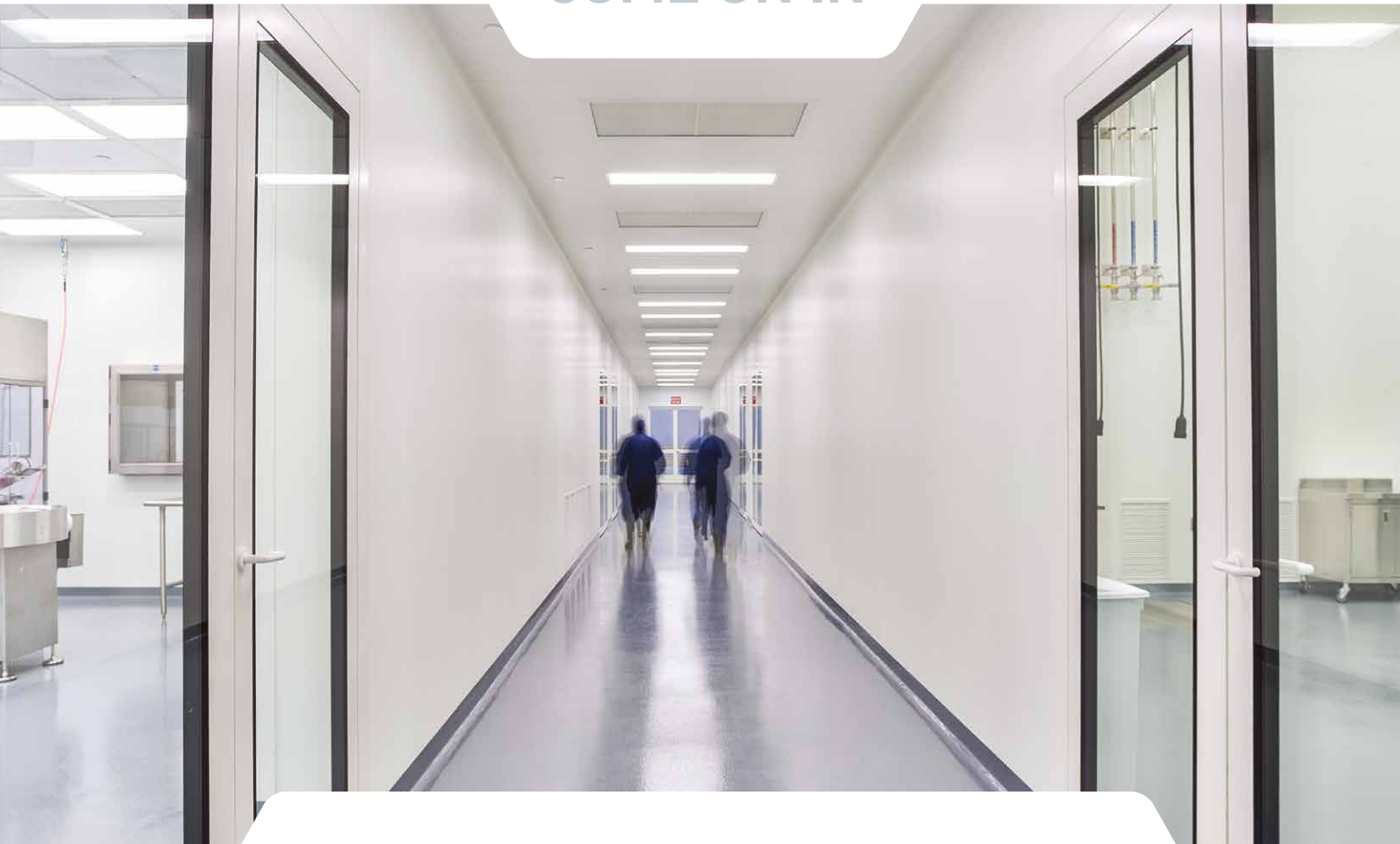
REVENUES OF \$250 M



Purever Industries Brands



COME ON IN



GET TO KNOW OUR STATE-OF-THE-ART CLEANROOMS

DAGARD'S MODULAR CLEANROOM BUILDING SYSTEM

Products that stand out.

At Dagard, we are committed to catering to your every need when it comes to cleanroom projects. We have got the teams, technology and extensive experience in providing the top performance cleanroom equipment your facilities require.

Each new project is different and must meet increasingly specific needs. This is why, in addition to quality products, Dagard has an engineering department staffed by experts who study your project upstream to offer you the most efficient design. They use innovative materials and tools such as BIM (Building Information Modeling) to allow all the actors of the

project to visualize it entirely and at the same time. This allows for analyses, simulations or controls from the design stage up to the construction of the building site.

Dagard is also equipped with state-of-the-art technology to offer you the best possible response: innovative methods, new materials, electronics, automation, services, etc. Its engineering department accounts for 80,000 hours of design work per year with the sole aim of finding the Ideal, tailor-made solution to all your needs.

CERTIFIED EXPERTISE

Research and development is a key part of our manufacturing heritage. We go beyond industry standards with our innovative R&D; integrating new materials and manufacturing products that comply with the most demanding international regulations.

All our products and sites are monitored under a quality management system, audited internally and externally, according to ISO standards. Our products carry a UL and CE label - certifying our products in top international labs.



Most of our products have been awarded the FM mark: a certification attesting to their level of excellence and recognized worldwide.



APPROVED

The UL symbol establishes that a manufacturer has demonstrated the ability to produce a product in compliance with UL's requirements for safety, performance and regulatory codes.



21 CFR PART 11 COMPLIANCE

Products are produced according to current good manufacturing practice (cGMP) regulations.



14644

All panels and components allow cleanroom certifications according to ISO 14644 Standards.

cGMP CLEANROOMS

PHARMACEUTICALS



DAGARD's engineering and construction experience in the life sciences and pharmaceutical industry is long proven. Over the past 40 years, Dagard has been entrusted with the most critical technical projects for such highly regarded companies as Bristol Myers Squibb, Merck, Eli Lilly, Glaxo Smith Kline, Boehringer Ingelheim, Novartis, and Pfizer.

BIOTECHNOLOGY



DAGARD has mastered the construction of modular environments for the biotechnology industry. This industry requires the construction of cleanrooms and related controlled environments in which the concentration of airborne particles, temperature, humidity and pressure are controlled. DAGARD has brought its expertise in cleanrooms to the biotechnology sector for companies such as Sanofi, MiMedx, Grifols, Legend Bio and Novo Nordisk.

MEDICAL DEVICES



The manufacturing of medical devices requires stringent cleanroom production environments (ISO class 5 to 8 for devices and ISO 7 to 8 for packaging). Classifications are dependent on the intended use of the object. Implantable objects, such as prosthesis or surgical instruments, are considered most critical and require sterile environments. DAGARD has supplied modular cleanroom systems to manufacturers such as Baxter, Johnson & Johnson, and Fresenius Kabi.

USP 797/800 CLEANROOMS

HIGH-TECH INDUSTRIES



Dagard offers technical solutions to respond to the high-tech industry's needs of particulate and molecular contamination control as well as the dissipation of electrostatic charges. We offer specific solutions for the following industries: Aerospace and Automotive, Nanotechnology, Semiconductors and Electronics, Nuclear, Data Centers, Optics, Lithium Batteries (Dry Rooms), etc.

COSMETICS



Since 2006, the cosmetics industry has relied on standards relating to the microbiological evaluation of its products. The environment and operator's safety is directly linked to the design of the cleanroom. DAGARD offers materials to make cleanroom envelopes that meet the requirements of tightness, cleaning, resistance to disinfecting agents, non-retention of particles and non-proliferation of contaminating agents. We have had the opportunity to bring our know-how to customers such as Christian Dior, Chanel, L'Oréal, Nivea, Schwarzkopf, and Yves Rocher.

503 COMPOUNDING PHARMACIES



Compounding pharmacies prepare drugs prescribed by doctors for patients with specific needs that aren't met by commonly available drugs, some of which even being sterile drugs for injection. Dagard offers custom-made modular construction solutions to provide pharmacies with a safe environment for formulation, repacking, parenteral mixtures, as well as cell therapy and preparation of cytotoxic treatments. A 503B pharmacy is a term created by the FDA that demands the same level of compliance to cGMPs to which pharmaceutical companies are held.



DAGARD OFFERS YOU ADVANCED PERFORMANCE FOR EVERY CONTROLLED ENVIRONMENT

INDEX



OUR PRODUCTS

PANELS

All panels have smooth surfaces for high quality envelopes with a finish that meets the constraints of the most demanding environments and the most sensitive applications. Depending on which panel you choose, we offer a wide range of flush and semi-flush elements, such as doors, windows and accessories.

DOORS

Presenting 4 standard doors: a full flush and a semi-flush hinged door, and two types of tight sliding doors, one with honeycomb or rockwool core, the other one with glazing. Easily cleanable, our doors are suitable for cleanrooms whatever their class or application. On request we can offer other models of hinged and sliding doors, including doors made of stainless steel and high speed roll-up doors.

ACCESSORIES

In this catalogue we present our accessories for interlocking doors, as well as glazed partitions, access hatches and other finishing components. Finishing accessories fulfill three functions: protection, hygiene and attractive design in terms of shape and materials.

Product		Core	Page
PANELS			08
ST60	Flush Panel	Honeycomb core	10
SM60		Rockwool core	11
SI60		Polyiso core	12
ET15		Lining partition	13
LM60	Semi Flush Panel	Rockwool core	14
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Modular panels that fit any category of working environment

Dagard’s monobloc sandwich panel systems are particularly appreciated for their robustness and their adaptability to the desired architecture. Manufactured in a controlled factory environment, they combine ease of installation and easy integration of different elements within the envelope they form.

Partitions and ceilings meet the requirements of the pharmaceutical and health industries, cosmetics manufactures, scientific research and high tech. With their non-outgassing, non-shedding, chemical-resistant surfaces, these modular partitions display an unparalleled level of quality.

Dagard panels specifics

Dagard’s single piece panels consist of an injected or glued core between two facings. Depending on the use, the core can be made of different materials, each with specific characteristics:

- Polyisocyanurate foam is used for its insulating function.
- High-density rock wool is used for its non-combustibility and fire resistance properties.
- Aluminium honeycomb is used for its strength and ability to dissipate electrostatic charges that can cause damage in the semiconductor industry and other sensitive sectors.

Different coatings are available for the facings of Dagard’s sandwich panel: lacquered galvanized or stainless steel, lacquered aluminum, HPL compact laminate, PET, uPVC, stainless steel + PVC + PET... The possibilities are numerous to meet your needs and expectations.

The tailor-made composition of the cGMP partition

The modular design of each element in the system allows the layouts to be modified to adapt to the process, without any alteration in the quality of the partitioning.

Each partition includes two cable management slots. The adjustable floor track allows the finish flooring to be covered for a total flush fit. All connections are flush or rounded.

Single-piece sandwich panel ceilings

Dagard’s walkable panel ceilings are the ideal answer for construction of high-end cleanrooms with a high level of quality required for contamination-sensitive environments. These ceiling systems offer the same quality features as the partition panels, with completely tight and flush joints.

Another positive point concerns the flexibility in installation of the drop rods. Thanks to Dagard’s specific panel connection - hangars may connect to the ceiling at any location along a panel seam - providing increased flexibility during installation in the event of an interference.

Large choice of doors available

Dagard’s cleanroom system offers many possibilities in terms of doors. Whether it is a single or double leaf service door, or a sliding door, it is available with many options.



Code	Type	Core	Page
ST60	Flush	Honeycomb core	10
SM60		Rockwool core	11
SI60		Polyiso core	12
ET15	Semi Flush	Lining partition	13
LM60		Rockwool core	14
LG60		Polyiso foam core	15





cGMPs ARE IN OUR DNA

Dagard offers 40+ years of experience in the design and construction of cleanrooms for the life-science industry. We manufacture a wide range of premium solutions to help our clients protect their most critical spaces, including certified cleanrooms and customized modular building systems.

We supply fully adaptable and highly flexible controlled environment solutions for pharmaceutical, medical device, biotech, research, and laboratory applications, as well as for all spaces requiring controlled environments to prevent microbiological, particle and molecular contamination.

Dagard products are adapted to your working environment, to ensure your pharmaceutical products are manufactured in the best possible conditions. Our building solutions are designed

to maintain the highest level of cleanliness, airtightness and cleanability required to control microbiological, chemical and particle contamination.

Designed to meet and exceed the most demanding cleanroom requirements, the Dagard system features airtight envelopes to prevent contamination and facilitate the maintenance and cleaning of spaces. All materials are cGMP compliant, and meet the standards required to obtain ISO 14644 certifications.

CUSTOM-MADE SOLUTIONS

Our modular solutions are designed to meet the rigorous requirements of the pharmaceutical industry. Each component integrates perfectly with the other, providing a flush environment that is highly resistant to microbial, particle and molecular build-up.

The Dagard building system includes partitions, ceilings, doors, glazings and accessories - all available in your choice of finish, including uPVC 150, PET, HPL, and Stainless Steel finish options. With our totally flush or semi flush surfaces, cleaning your environment is simple and fast.

OUR CONCERN: YOUR SAFETY

To meet the requirements of fire proofing regulations, nearly all of our products are FM 4880 certified. Non-combustible panels come with an aluminum honeycomb or mineral wool core and provide an FSI (Flame Spread Index) of 0 and SDI (Smoke Developed Index) less than 5. Polyurethane core panels are rated as non-flammable (Class A). Once assembled, the various components of your cleanroom create a safe environment for almost any application.

TOP-QUALITY FINISH

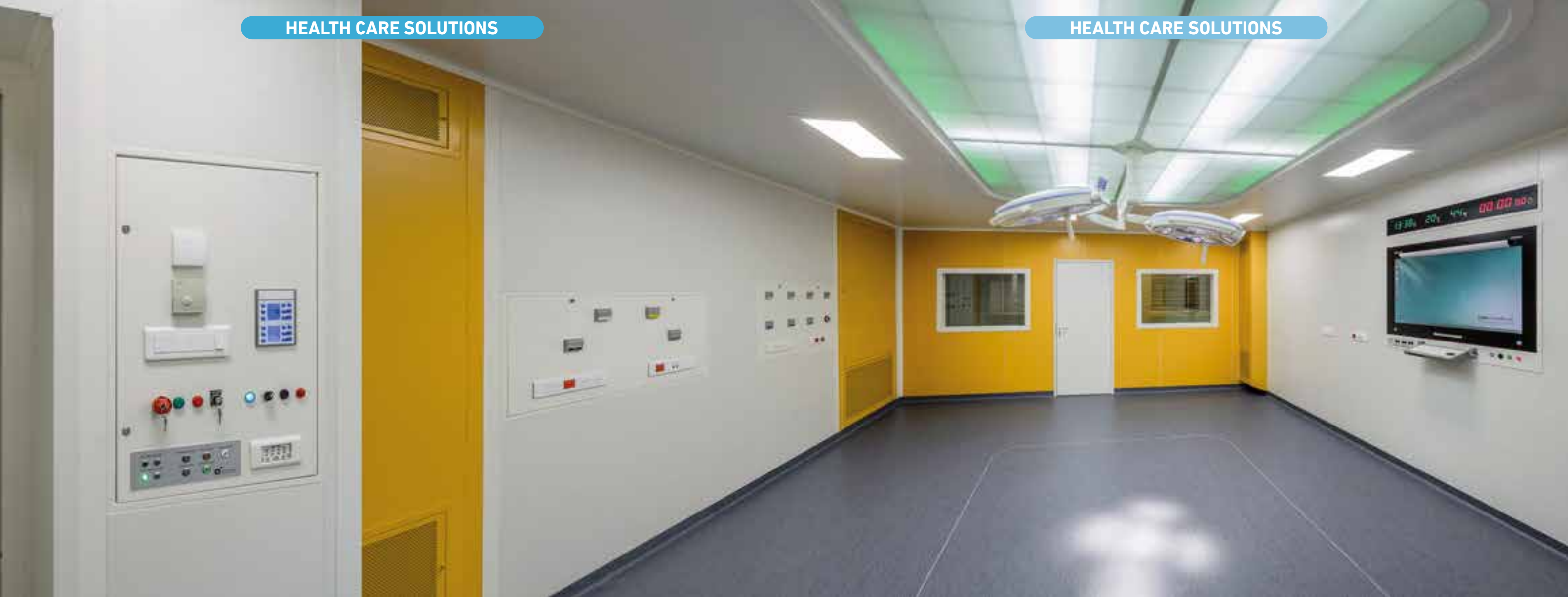
The design experience and manufacturing know-how of Dagard is showcased in our top-quality highly developed building products. Once assembled, our flush panels make smooth partitions, free of any dust-trapping surface. The large size of our panels reduces the number of joints inside your premises, and our coving sections, skirtings, handrails and adjustable floor track contribute to a top-quality finish that is trusted around the world by leading life-science companies.

SPECIALIZED LABORATORY SOLUTIONS

Dagard also offers design, manufacturing and installation of technical laboratory furniture. Combining modern design with leading industrial capacity, we provide flexible high-quality solutions made of steel for any type of laboratory.

Each Research Center, Pharmaceutical or University Laboratory, require special attention so that the result is always a high-quality, practical and safe facility, but flexible enough to adapt to the continuous change in which we live.

Contact us for more information!



DAGARD, A HEALTH SPECIALIST

As a specialist in all market segments related to controlled environments, Dagard offers solutions adapted to players in the pharmaceutical industry and hospital sector, whatever their specialty. The Bi-bloc line offers modular elements on a steel framework (removable partition, removable door and removable ceiling) as well as flush glazing adapted to the activities of pharmaceutical manufacturers and the hospital sector.

DAGARD's bi-bloc systems, partitions and ceilings.

Dagard bi-bloc cleanrooms are made up of a framework with removable and interchangeable facings, making them

particularly suitable for the hospital sector - especially operating theaters. They are designed to meet all the sector's requirements for hygiene as well as provide the added flexibility of a modular design.

The sealed envelope does not create any pollution that could denature the products and is easily maintained in a state of cleanliness adapted to the required classification. Walls are available with a thicker profile (up to 6"), allowing the integration of larger ducting, process piping, negatoscopes, and other typical equipment required by hospitals.

Applications

MODULAR PARTITIONS WITH REMOVABLE FACINGS

Consisting of a metal frame and individually removable facings (non-progressive assembly), the modular partitions of the Bi-bloc line allow the incorporation of fluids, cables or various components in complete freedom. The basic wall thickness of 90 mm can be increased on request.

CEILINGS ALLOWING SIMPLIFIED INCORPORATION OF TECHNICAL BATCHES

The accessible modular ceilings of the Bi-bloc line, with a total thickness of 100 mm, are made up of structural metal profiles and removable facings allowing the initial or subsequent incorporation of cables or various equipment, luminaires or air treatment end devices.

FLUSH DOORS AND GLAZING

The Bi-bloc range offers a variety of doors (hinged door or sliding door, depending on your needs) and glazing to meet your expectations and uses.



DAGARD, A KEY PLAYER FOR THE TECHNOLOGY SECTOR AND SPECIFIC CLEANROOM SOLUTIONS

Thirty years of experience in the field of controlled atmosphere environments has made Dagard a key player in the construction and renovation of premises for technological use. We provide an effective, tailor-made solution for your facility where particulate contaminants must be controlled to ensure the performance and reliability of your products.

The solutions of the High-Tech line are aimed at the applications of new technologies: data centers, nanotechnologies, micro-electronics, semi-conductors, etc. With its modular single piece panels and non-progressive installation, the High-Tech line offers great flexibility in the future evolution of the enclosures it constitutes. In addition, it is made of specific materials adapted to the requirements of cutting-edge technologies with integrated grounding system for static discharge.

SCALABILITY

The panels are removable and interchangeable one by one, even in the middle of the wall, offering great flexibility to the solutions of the High-Tech line.

WATERPROOFING

Sealing is ensured by compressible PVC seals.

QUICK ASSEMBLY/DISASSEMBLY

With its modular and lightweight panels, assembly and disassembly is quick and easy.

SOUND PROOF YOUR CLEANROOM

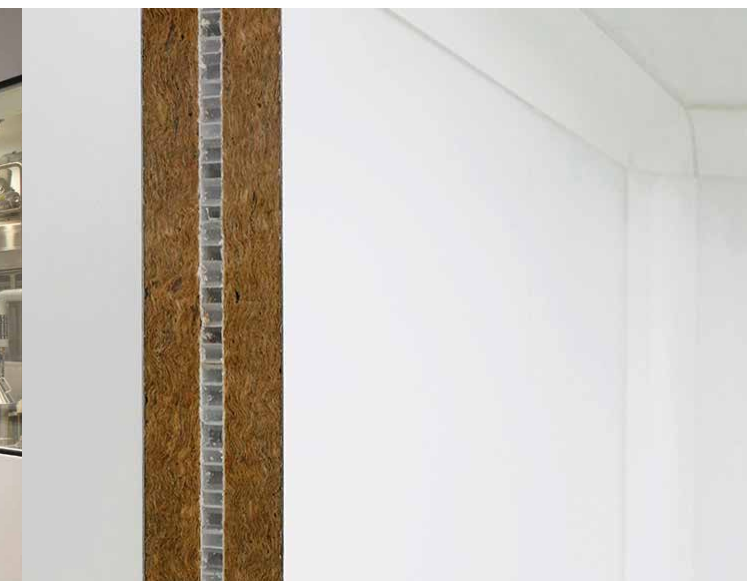
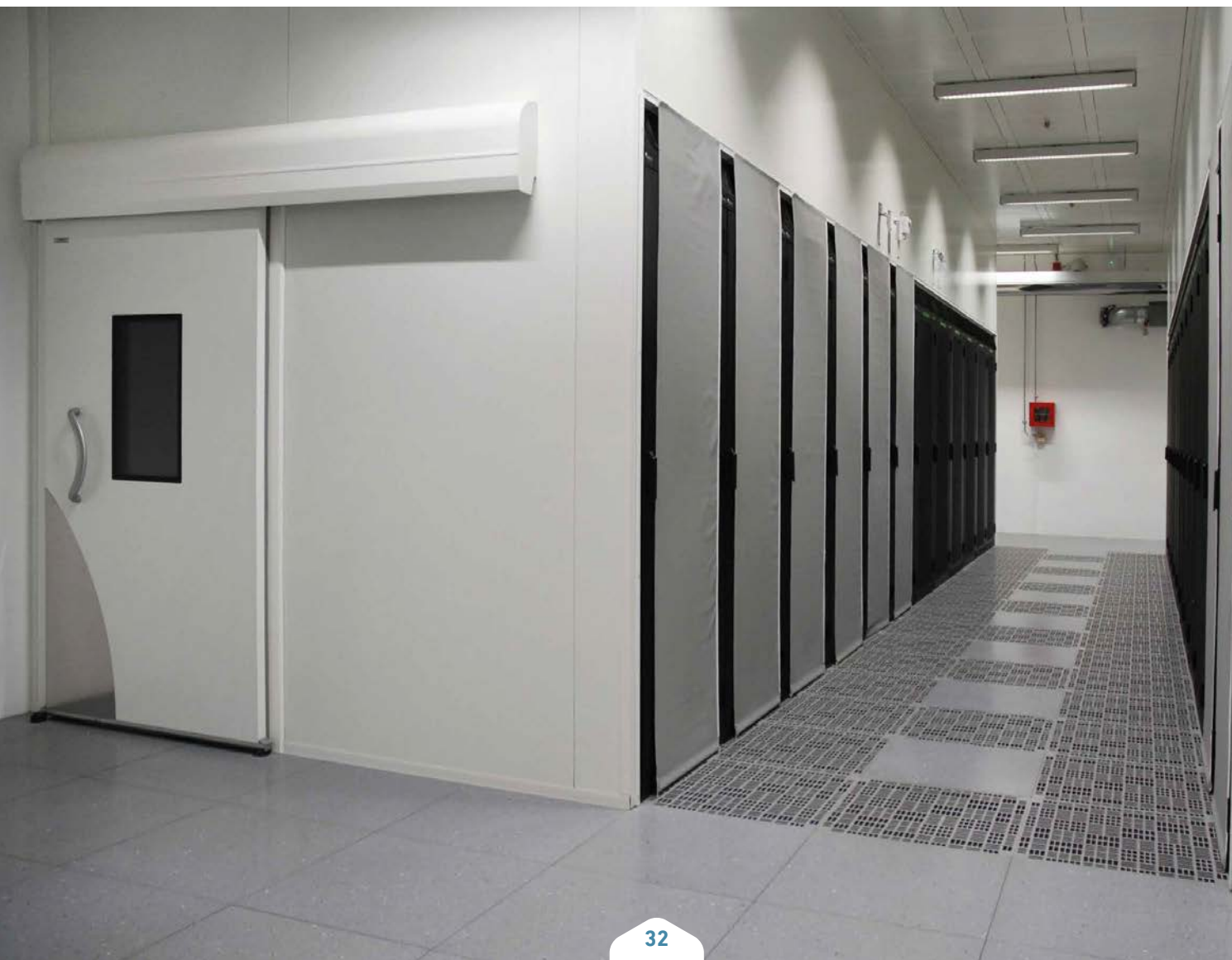
For certain activities in a cleanroom environment a good sound proofing of the premises is essential. This is the case in research laboratories or in the hospital sector, for example. Our acoustic line makes it possible to offer a cleanroom with high acoustic attenuation or limited sound reverberation.

Acoustics is a parameter that becomes essential when noise is generated on a regular basis. This multitude of sounds results in discomfort for the people working in the cleanroom. In response to this situation, Dagard offers solutions recognized for their sound absorption and attenuation performance.

The quality of Dagard's solutions is attested by the certifications of its products (CE marking, UL or FM approval, etc.). On the strength of this recognized know-how, Dagard offers soundproofing solutions in cleanrooms that meet the most demanding standards.

With acoustic solutions adapted to a variety of uses: room separation, cleanrooms with stringent requirements in terms of microbiological or bacteriological contamination control, and high sound absorption requirements, Dagard is able to meet the various expectations in terms of sound proofing, whatever the sector of activity and the use of the cleanroom.

Whether your application requires sound attenuation or sound absorption, Dagard can provide all components needed to meet the requirements.



COLD, FREEZER, ULTRAFREEZER & HOT ROOMS

Controlled Temperature Rooms have multiple applications in a number of different industries. In the life-science segment for storage of temperature-sensitive drugs or human plasma, but also as positive temperature rooms for testing durability of sensitive electronics and refrigerated distribution warehouses for the food supply industry.

BUILDING SYSTEMS FOR THE FOOD INDUSTRY AND SUPERMARKETS

Cold Storage & Food Processing Plants

Robust premium thermal insulation solutions, ready for intensive usage and large-scale areas with intense traffic of goods. Helping reduce electrical consumption and optimizing work conditions for positive and negative temperatures.

Large-Scale Distribution Centers

Extremely large storage buildings and distribution centers must be designed to optimize flows, control energy losses and ensure perfect preservation of products.

We offer solutions adapted to your activity.



Dagard's modular COLD, HOT & FREEZER ROOMS are made of insulated panels with a tight finish that allow the precise control of temperature, humidity and pressure.

Installed in just a few hours, a Dagard cold room (positive or negative temperature) is compliant with the strictest hygiene and safety rules.

With a robust, flexible and energy efficient design, it is assembled by either tongue and groove edge connection, or a hooking (cam-lock) technique performed from the inside. Numerous configurations are available to meet your requirements while adapting to your dimensional needs.

STRONG POINTS:

MODULAR

Available in any size, offering a quick and easy installation.

PARTITIONABLE

Thanks to its boxed panels, your cold room can be partitioned into several subspaces, offering a better structuring of the space.

ATTACHABLE

The room can be combined with other models of the range, allowing easy expansion in the future.

ECONOMICAL

The system is compatible with many options (pressure relief valve, insulated floor, ventilation rafters, 3 or 4 level racks), which will allow you to optimize the space and reduce energy consumption.

DOORS

Insulated sliding and hinged doors available with the flexibility to change the swing direction in the field.

ROBUST

The cold room panels are typically finished with anti-corrosion and scratch-resistant polyethylene terephthalate (PET), unplasticized polyvinyl chloride (uPVC), or Stainless Steel.





**PARTITIONS, CEILINGS, JOINERIES,
ACCESSORIES**

G-CON
CLEAN SOLUTIONS™

The SB Line of G-CON Clean Components offers ultra-clean partition systems. Our Ultra-clean rooms with a controlled environment consist of:

- A leak tight SB partitioning system (walls and ceilings sandwich panels / doors / glazed frames).
- SB systems specially designed to fit all types of ultra-clean flooring.
- SB partitions and SB or SBM ceilings developed to adapt to all air handling units.



The materials and facing finish choices are determined using 3 criteria:

1. Project phases specific to each business:

- Fine dust removal: soil and waste cleaning, neutralization of larger particles
- Decontamination: elimination and contamination control
- Disinfection: neutralization of unwanted micro-organisms

2. Clean room classifications are regulated by two international standards:

- ISO 14644: general aspects.
- ISO 14698: specific bio-decontamination aspects.

FS 209 E		ISO	SB05	SB PRIMA
CLASSIC	SI			
	M1	ISO 1 / ISO 2		
1	M1,5 / M2	ISO 3		
10	M2,5 / M3	ISO 4		
100	M3,5 / M4	ISO 5		
1000	M4,5 / M5	ISO 6		
10000	M5,5 / M6	ISO 7		
100000	M6,5 / M7	ISO 8		
		ISO 9		

GMP/BPF	BSL
A	BSL4
B	BSL3
C	BSL2
D	BSL1

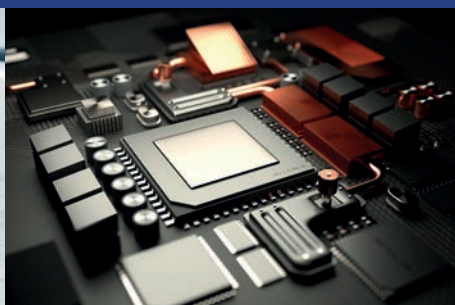
Life sciences: pharmaceutical, biotech industries, fine chemicals industry, medical systems, hospitals, etc.



Cosmetics: laboratories, production units



Nano and micro electronics: laboratories, production units



Other industries: space, aviation, clock-making, micro-mechanics, automotive, glass works, packaging, agri-food, etc.



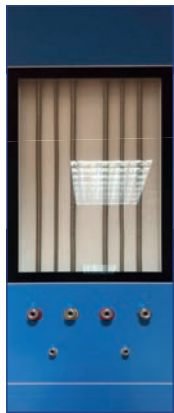
SB SYSTEM

SB05 Double-flush system
SB Prima semi-flush system

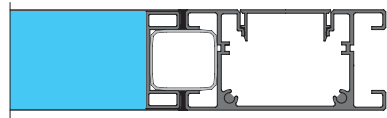
SB PRIMA SYSTEM

For stick-built partitions

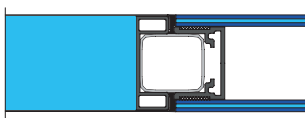
Hollow utility technical panel
Various inclusions



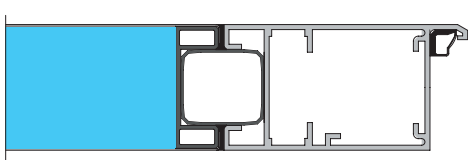
Duct and electric trunking panel



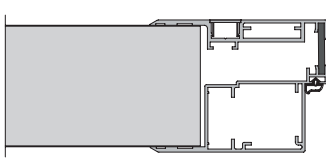
Vision panel



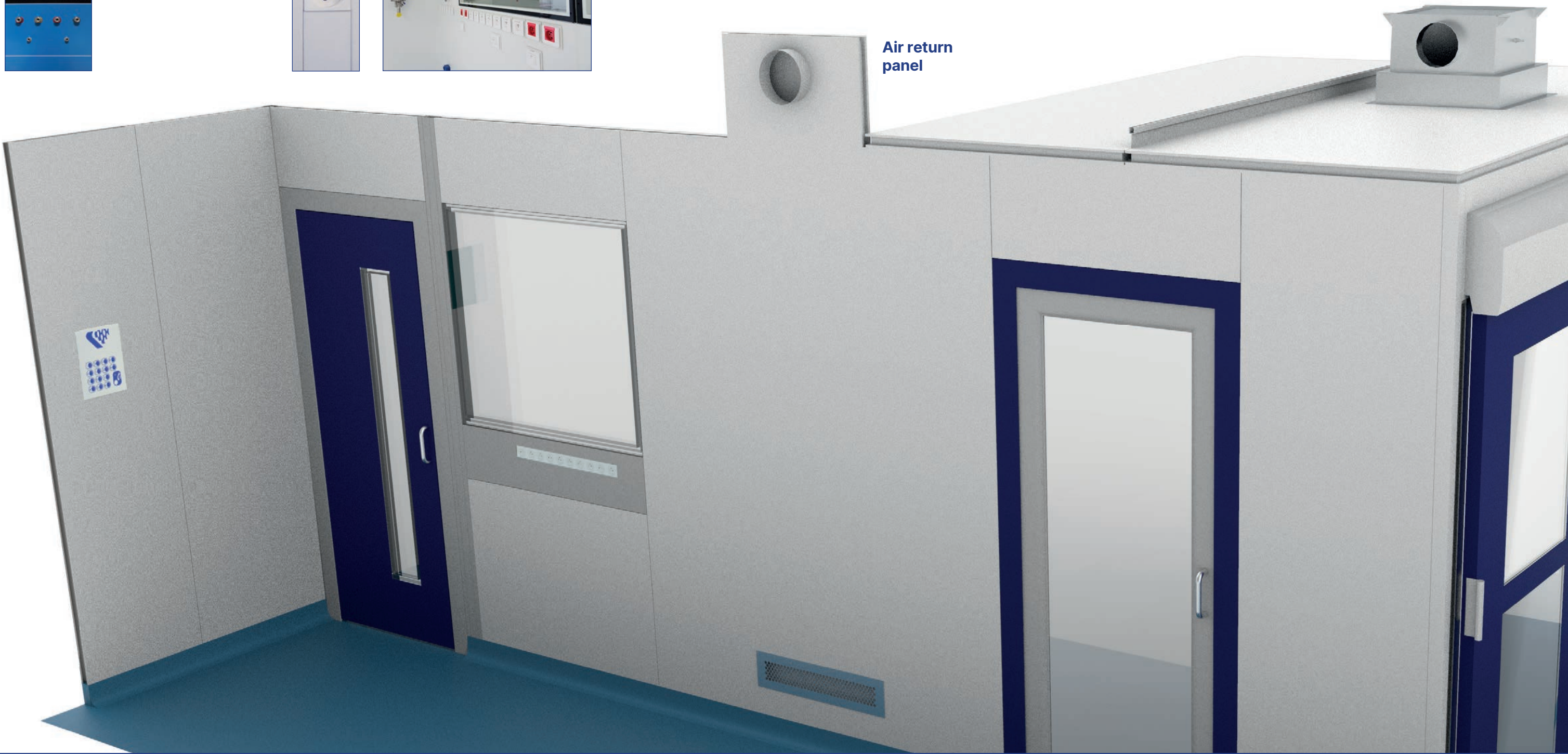
Door



Door

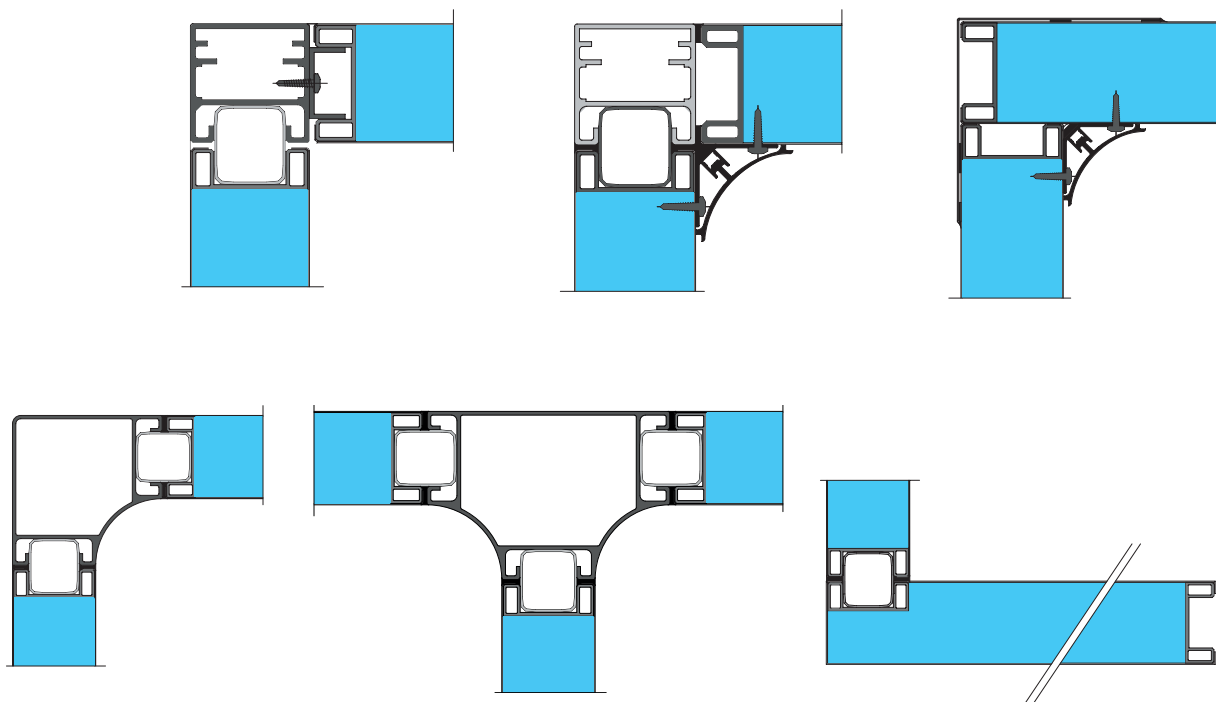


Air return panel

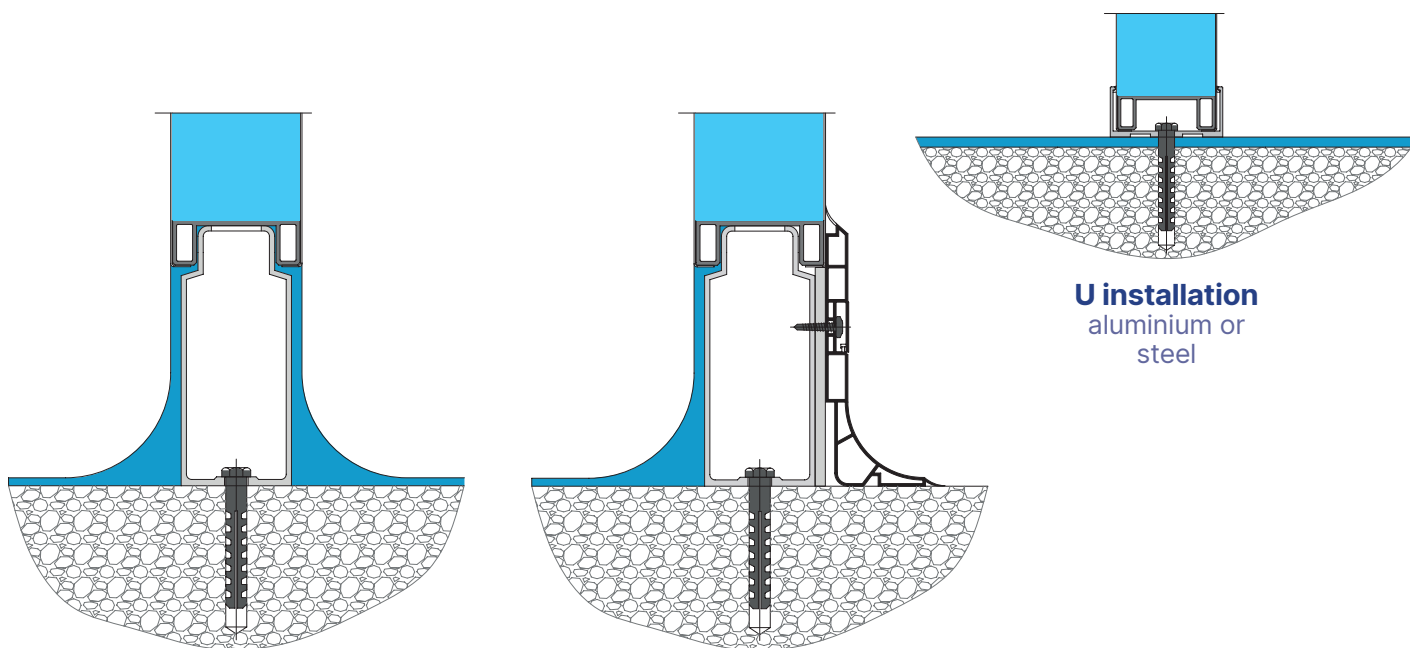


SB WALL ANGLES

SB05 Double-flush system
SB Prima semi-flush system



SB AND SB PRIMA WALL-FLOOR CONNECTIONS

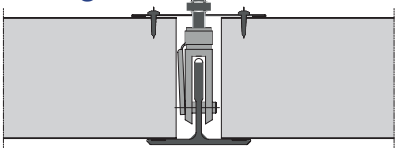


Floor tracks installation with
a resin or PVC raised floor edge

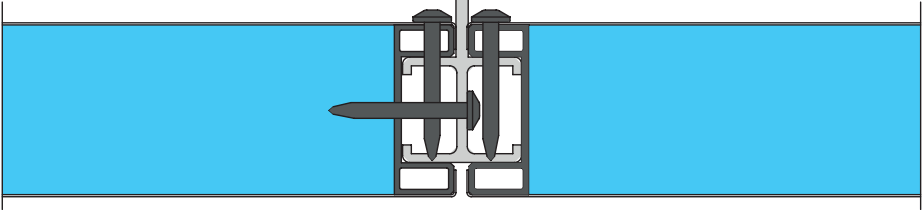
CEILINGS

SB05 Double-flush system
SB Prima semi-flush system

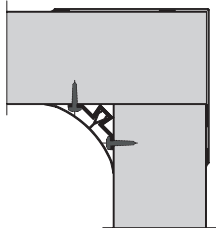
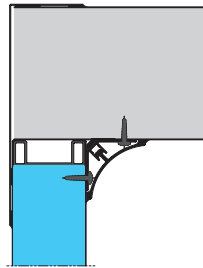
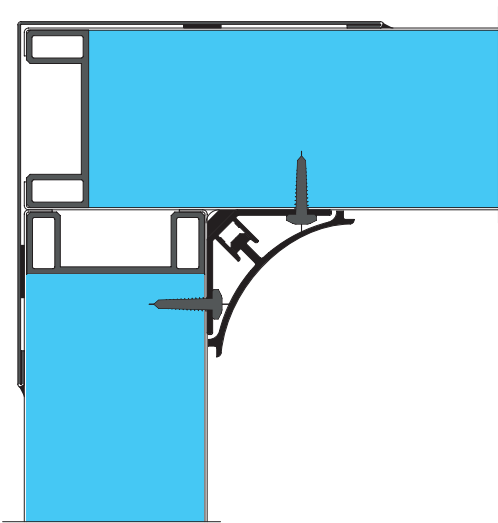
SB PRIMA ceiling



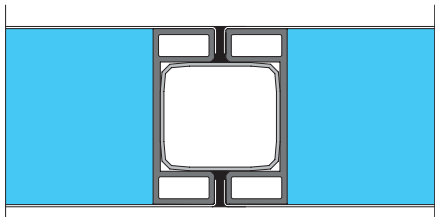
SB05 ceiling



WALL-CEILING CONNECTIONS



PANEL / PANEL CONNECTIONS



SB system
Female / Female +
Key

Insulated Panels
UK & Ireland

Protected by



QuadCore® UltraTech Versatile Panel Product Data Sheet

Kingspan Cleanroom Systems



POWERED BY
QuadCore®
TECHNOLOGY



Product Data

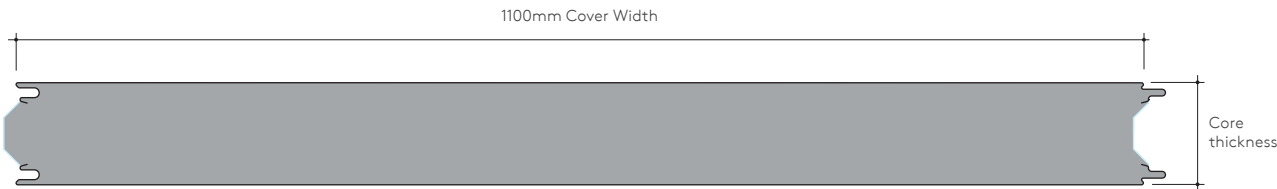
Applications

QuadCore® UltraTech Versatile Panels are designed for all internal cleanroom applications including new build and refurbishment projects.

Available Lengths

Standard Lengths (m)	1.8 - 14.5
Longer Lengths (non-standard) (m)	14.5 - 21.0
Shorter Lengths (non-standard) (m)	Below 1.8

Note: Additional costs and transport restrictions may apply for non-standard lengths. All lengths may change for export (outside of the UK & Ireland).



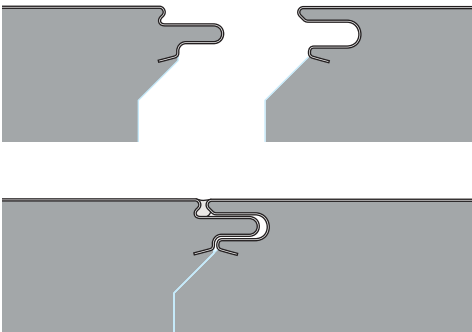
Dimensions, Weight & Thermal Performance

Core Thickness (mm)	50	60	80	100	125	150	175	200	220
U-Value (W/m²K)	0.38	0.31	0.23	0.18	0.15	0.12	0.10	0.09	0.08
R-Value (m²K/W)	2.63	3.23	4.35	5.560	6.67	8.33	10.00	11.11	12.50
Weight (kg/m²)	10.1	10.5	11.2	12.0	12.9	13.9	14.8	15.8	16.5

These values are in accordance with BS EN 14509, using Finite Element Analysis, and take into account any thermal bridging through the longitudinal joint. The U-Values have been calculated using an aged thermal conductivity value of 0.018W/mK.

Panel Joint

QuadCore® UltraTech Versatile Panels feature a unique castellated and symmetrical tongue and groove joint which achieves excellent thermal and structural performance.



Air Tightness

QuadCore® UltraTech Versatile Panel joints achieve an air tightness of 0.02m³/h.m at 50Pa in accordance with BS EN 14509 with joint sealed using gun grade sealant.

For further information on air tightness please contact Kingspan Tech-eXchange.

Insulation Core

QuadCore® UltraTech Versatile Panels are manufactured with a HCFC, CFC and HFC free QuadCore insulation core.



Certification and Testing

Reaction to Fire

QuadCore® UltraTech Versatile Panels are classified B-s1,d0, when tested on the internal face of the product, according to the European Reaction to Fire classification system (Euroclasses) BS EN 13501-1: 2007+A1: 2009 under the certified name KS1100UT-S/KS1200UT-S and BS EN 13501-1:2018 under the certified name KS1100UT-S/KS1200UT-S when using the following internal liners:

- CLEANsafe 15, CLEANsafe 25, CLEANsafe 55, and CLEANsafe 120.

Please contact Kingspan Tech-eXchange for information relating to the external face.

Fire Resistance

Fire resistance classifications are subject to panel thickness, orientation, method of assembly, and steel coating. Please contact Kingspan Tech-eXchange for project specific details.

Insurer Approvals

- FM 4880 approval standard for class 1 fire rating of building panels or interior finish materials under the certified name KS1100UT-S and KS1200UT-S for thicknesses 50 – 220mm.
- FM 4881 approval standard for class 1 exterior wall systems under the certified name KS1100UT-S and KS1200UT-S for thicknesses 50 – 220mm.
- FM 4882 approval standard for class 1 interior wall and ceiling materials or systems for smoke sensitive occupancies under the certified name KS1100UT-S and KS1200UT-S for thicknesses 50 – 220mm.

Insurer approvals are large scale testing regimes that provide objective third-party testing, which is underpinned by quarterly, bi-annual and annual factory surveillance audits (depending on the region) to verify compliance. Insurer approvals are subject to panel thickness, cover width, orientation, method of assembly, steel coating and manufacturing facility. Please contact Kingspan Tech-eXchange for further information.



Environmental

Kingspan Insulated Panels produced in the UK are certified to BES 6001 (Framework Standard for the Responsible Sourcing of Construction Products) 'Very Good'.

All Kingspan Insulated Panels manufacturing facilities across the UK and Ireland are 100% Net Zero Energy. In addition, facilities located in Kingscourt, Holywell and Sherburn generate renewable energy onsite which contributes to that sites energy mix.

Kingspan Insulated Panels procure steel that is made from 15 – 25% recycled content. Kingspan insulated panels directly contribute to BREEAM® / LEED® credits.

Acoustic

Sound Reduction Index (SRI)

Frequency (Hz)	63	125	250	500	1000	2000	4000	8000
SRI (dB)	20	15	17	23	18	25	40	46

QuadCore® UltraTech Versatile Panels have a predicted single figure weighted sound reduction of $R_w = 24$ dB. Results are based on panels of similar profile and core material.

Materials

Substrate

Metallic protected steel to BS EN 10346: 2015.

Please contact Kingspan Tech-eXchange for information on other substrates.

Coatings

Kingspan CLEANsafe 15

A chemically inert polyester (PE) coating, applied to pre-treated metal, suitable for nonaggressive internal environments.

Kingspan CLEANsafe 25

A chemically inert polyester (PE) coating, applied to pre-treated metal, suitable for moderately aggressive internal environments.

Kingspan CLEANsafe 55

A chemically inert co-laminated polyethylene terephthalate (PET) film and polyester (PE) paint, applied to pre-treated metal, suitable for humid and chemically aggressive internal environments.

Kingspan CLEANsafe 120

A chemically inert polyvinyl chloride (PVC) film, laminated to pre-treated metal, suitable for internal for controlled environments. Joints between panels can be either caulked or chemically cold-welded.

Kingspan CLEANsafe Anti-Static 25

A chemically inert polyester (PE) coating with a surface resistivity of 1 to $300 \times 10^6 \Omega/\text{square}$, applied to pre-treated metal, suitable for moderately aggressive internal environments.

Product Data

STERIS Products

Kingspan CLEANsafe 55 and CLEANsafe 120 panel coatings have been tested by STERIS Corporation Life Sciences for compatibility.

A range of STERIS cleaning agents commonly used in the Pharmaceutical industry were selected and no adverse reactions with the Kingspan panel coating were reported. The range of cleaning agents used in the tests were:

- Environ™ LpH™ Phenolic disinfectant
- Environ™ Vesphene™ se Phenolic disinfectant
- Sepithol® Sterile Alcohol Solution
- Spor-Klenz® RTU cold Sterilant
- Vesta-Syde® SQ Quaternary Ammonium Disinfectant

Please contact Kingspan Tech-eXchange for further details including compatibility with H₂O₂ and other chemicals.

Note: All trademarks are the property of STERIS.

Colour Range

RAL 9010*, RAL 9002* and RAL 9003 (CLEANsafe 120).

* Nearest match, samples and other colours available on request.

Product Tolerances

Cut to Length (≤ 3m)	± 5mm
Cut to Length (> 3m)	± 10mm
Cover Width	± 2mm
Thickness (Core ≤ 100mm)	± 2mm
Thickness (Core > 100mm)	± 2%
Flatness (per m)	± 1.5mm
End Square	± 3mm

Quality & Durability

QuadCore® UltraTech Versatile Panels are manufactured from the highest quality materials using state-of-the-art production equipment to rigorous quality control standards, complying with BS EN ISO 9001 standard, ensuring long-term reliability and service life. The panels are also being manufactured under Environmental Management System Certification BS EN ISO 14001, Energy Management System Certification BS EN ISO 50001 and Occupational Health and Safety Certification BS EN ISO 45001. QuadCore® UltraTech Versatile Panels are CE marked to BS EN 14509: 2013.



Warranty

Kingspan Panel Warranty covering the following subject to project specific information:

- 25 year thermal performance warranty
- 25 year structural performance warranty

Packing

QuadCore® UltraTech Versatile Panels are stacked. The top and sides are protected by either cardboard or polystyrene and spiral wrap stretch polyfilm. The number of panels in a pack will vary depending on thickness. The number of panels in each pack depends on panel length. Typical pack height is 1200mm, maximum pack weight is 1500kg.

Core Thickness (mm)	50	60	80	100	125	150	175	200	220
Panels per Pack	25	21	16	13	10	8	7	6	5

Note: Applies to UK pack sizes. Please contact Kingspan Tech-eXchange for export information.

Sea Freight

Fully timber crated packs are available on projects requiring delivery by sea freight shipping, at additional costs. Alternatively, steel containers can be used. Special loading charges apply.

Delivery

All deliveries (unless indicated otherwise) are by road transport to project site. Off-loading is the responsibility of the client.

Site Installation Procedure

Site assembly instructions and construction details are available from Kingspan Tech-eXchange.



Superior Pre-engineered Cleanroom Systems



WHEN CLEAN IS CRITICAL

Precision Manufacturing Ensures a Sealed, Controlled Environment

Starrco modular cleanroom systems are manufactured to meet exacting cleanroom construction standards and offer an industry-leading fit and finish that prevents contaminant seepage through joints and gaps.

Starrco Pre-engineered Cleanroom Systems

Superior Fit and Finish Ensures an Air-tight Environment



Starrco pre-engineered cleanroom systems are custom designed and built with precise tolerances to meet your specific needs and classification requirements.

We manufacture our interfacing walls, floors, and ceilings with smooth edges, accurate cuts, and precisely mitered joints. This precision engineering ensures a tight, air-leak proof construction and assembly that facilitates air particle filtration, and the control of air flow, pressure, temperature and humidity.

Starrco cleanroom interior surfaces and air plenums are made from non-particulate shedding materials such as vinyl, fiberglass, and pre-finished aluminum.

All Starrco cleanroom systems are manufactured in St. Louis, Missouri, by master craftspeople and experienced technicians.

Starrco Offers:

- ISO Class 5 to ISO Class 8, USP compliant cleanrooms.
- Cleanroom construction consulting.
- Custom designs along with all necessary construction and installation drawings.
- Starrco modular cleanrooms can be dismantled, moved and reassembled. They can even be reconfigured to accommodate changing needs.
- Starrco's modular cleanrooms are manufactured and installed 75 percent faster than conventional construction.
- Clean installation. Your cleanroom is delivered finished and ready to assemble. All the cutting, sanding and mess happens at our St. Louis facility, not at your site.

We GUARANTEE Starrco modular cleanroom systems meet or exceed classification requirements.

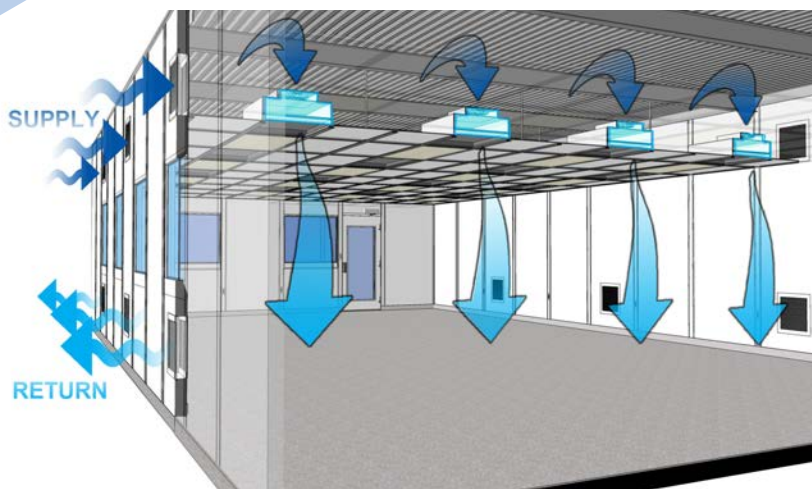
Custom Built to Meet Your Specifications

Your Starrco representative will conduct a full needs assessment to determine your building's size, features, facilities, and desired cleanroom classification. Starrco cleanroom systems are available in almost any size and configuration, and can be constructed with or without a load-bearing deck. They are designed to be installed inside existing buildings and facilities.

Starrco's industry-leading fit and finish is durable, air-tight, non-shedding, and guaranteed to meet or exceed your cleanroom classification needs.

Starrco features you can choose from:

- ☐ Cleanroom suspended ceiling grid systems.
- ☐ Factory framed openings for air devices, pass through cabinets and product conveying.
- ☐ A variety of windows including fixed windows with quarter inch tempered safety glass and aluminum frames.
- ☐ Multiple door options including swing and automatic doors.
- ☐ Power and data outlets where you need them via the raceways built into every aluminum stud.
- ☐ Connections to plumbing and other services.



Once-through System

Do You Need a Once-through System?

A once-through or single pass cleanroom draws air from the adjacent conditioned space through fan powered HEPA filter units mounted in the cleanroom ceiling grid system.

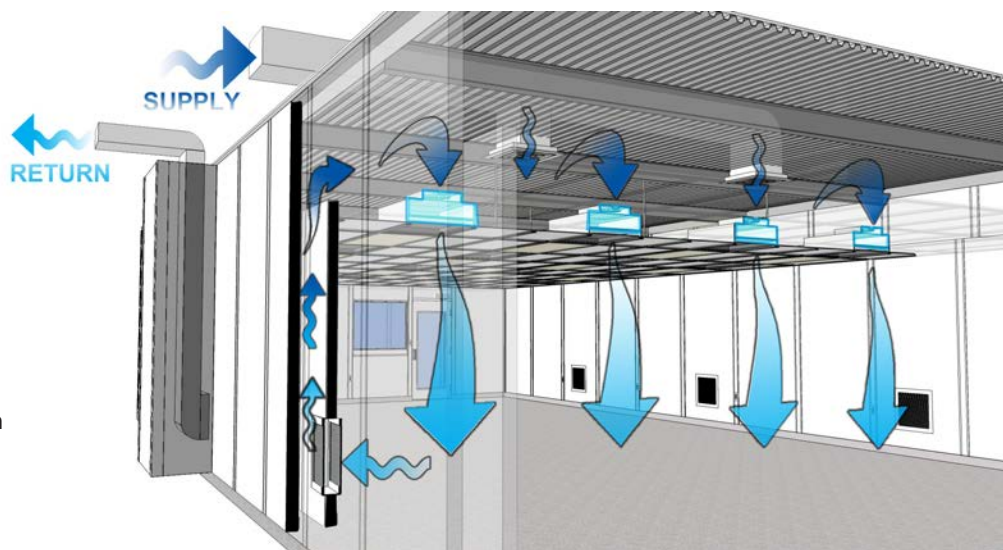
Air is returned back to the adjacent space through low-to-wall mounted grilles.

Do You Need a Recirculating System?

Conditioned air is introduced to the sealed plenum for recirculation by fan powered HEPA filter units mounted in the cleanroom ceiling grid system.

Clean air is returned to the sealed plenum through low-to-wall grilles mounted in return air chase walls.

Warm air is returned to the air handling system through conventional ductwork.



Recirculating System

Cleanroom Classifications Explained

Cleanrooms are classified by the number and size of particles found in a cubic meter of air. They are classified under ISO 14644-5:2004 and Federal Standard 209E. For example, a cubic meter of urban air has around 35,200,000 particles that are 0.5 microns or larger. By comparison, an ISO 5 cleanroom allows only 3,520 particles of that size in the same volume of air.

CLASS NAME		MAXIMUM PARTICLE SIZES					
ISO	FED STD 209E	0.1 micron	0.2 microns	0.3 microns	0.5 microns	1 micron	5 microns
ISO 1	-	10	2	1	0.35	0.083	0.0029
ISO 2	-	100	24	10	3.5	0.83	0.029
ISO 3	1	1,000	237	102	35	8.3	0.29
ISO 4	10	10,000	2370	1,020	352	83	2.9
ISO 5	100	100,000	23,700	10,200	3,520	832	29
ISO 6	1,000	1,000,000	237,000	102,000	35,200	8,320	293
ISO 7	10,000	10,000,000	23,700,000	10,200,000	352,000	83,200	2,930
ISO 8	100,000	100,000,000	237,000,000	102,000,000	3,520,000	832,000	29,300
ISO 9	-	1,000,000,000	2,370,000,000	1,020,000,000	35,200,000	8,320,000	293,000

Modular Cleanroom Applications

- Clean manufacturing
- CMM rooms
- Composite lay-up and bonding
- Controlled environments
- Laboratories
- Life science industry
- Medical device production and packaging
- Nanotechnology pharmaceutical industry
- Optic assembly and packaging
- Semiconductor wafer fabrication production
- USP compliant sterile compounding pharmacies
- USP compliant non-sterile compounding pharmacies

About Starrco

Everything we do is designed with uptime in mind, from the initial quote to the final installation. We make sure all the pieces come together with precision and personable customer service. Established in 1965, we have a legacy of product excellence and loyalty to our customers and distributors.

In addition to our pre-engineered cleanrooms, we manufacture modular office solutions; Starrguard safety guard rail systems; Starrmax tall wall systems; and pre-assembled portable buildings.



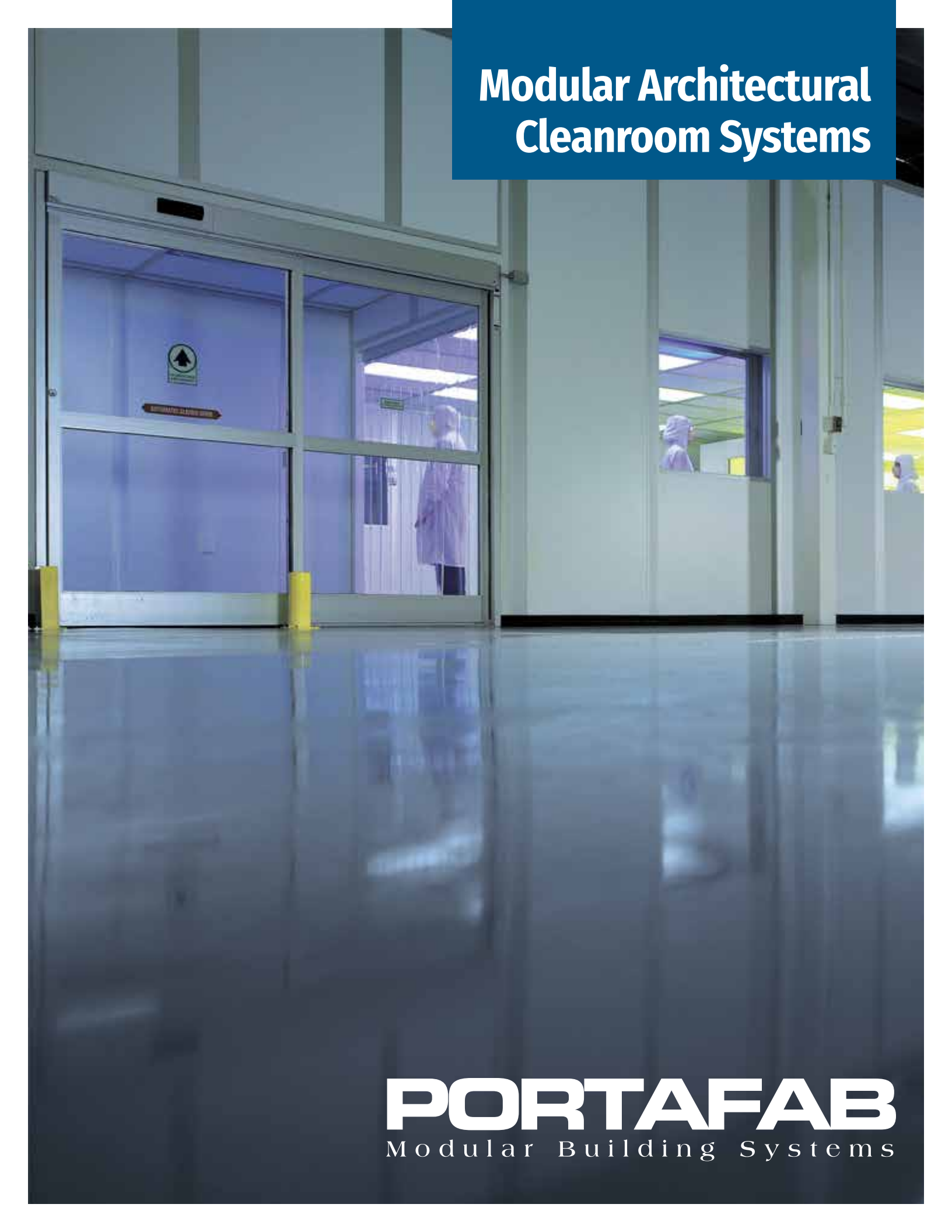
Our pre-engineered cleanroom systems
eliminate the chaos of
conventional construction.

www.starrco.com



Revolutionizing Interior Construction

11700 Fairgrove Industrial Blvd.
Maryland Heights, MO 63043



Modular Architectural Cleanroom Systems

PORTAFAB
Modular Building Systems

The PortaFab Advantage

Experience

For over 40 years, PortaFab has been helping organizations with all of their cleanroom and environmental control needs. Our staff of design consultants work with architects and general contractors to deliver functional and cost effective solutions

Comprehensive Product Line

With the industry's most complete line of architectural cleanroom components, PortaFab provides unlimited design freedom without sacrificing functionality or value. The PortaFab line includes two distinct product lines with numerous components to ensure that you have the right products for your cleanroom application. Various components of each wall system integrate with each other as well as a selection of windows, ceiling systems, and doors.

Worldwide Installation

Our commitment to maintaining the highest quality standards extends to our international network of specialized cleanroom contractors. All of our contractors maintain the highest quality control programs to assure compliance with all critical standards. As independent contractors, they choose to work with PortaFab because our systems are the most cost effective products for constructing quality cleanrooms.

Why Modular Construction?

While flexibility remains a key advantage for the use of modular building systems, there are many reasons to consider modular over conventional construction.

Flexibility & Adaptability

Today's manufacturing facilities are being designed and constructed for maximum adaptability, and modular design accommodates this need for flexibility. Non-progressive construction with demountable walls allows the removal of individual wall panels without disturbing adjacent panels, flooring or ceiling. Modular systems can also be disassembled and relocated to quickly create or expand cleanrooms, lowering the costs of expanding existing facilities.

Reduced Construction Time

Speed to market is critical for many manufacturing companies, and modular cleanrooms utilize a flexible design that allows for fast, easy installation. The integrated systems and ability to perform construction activities in parallel can reduce construction time by up to 40 percent and greatly reduce facility clean-up post construction. Using modular components also significantly reduces design, architecture and engineering time and associated costs.

Minimized Disruption

Construction activities invariably result in jobsite disruption. Dust, increased personnel, and noise can all negatively affect any job site. Since cleanroom wall panels are prefabricated and require little or no modification for installation, construction creates very little dust. This prefabricated "clean build" approach also allows for the coordination of project schedules so that construction materials can be shipped in stages to coordinate with other trades.

Consistent Quality

Modular systems offer advantages for meeting regulatory requirements and standards because they are manufactured in accordance with ISO 9001 standards that produce a consistent, quality product with no variation. This ensures that what has been successfully employed at one facility will perform the same in future installations, and the system will be installed in a set manner, producing a consistent performance and appearance.

Financial Savings & Environmental Benefits

Modular construction has proven to have a lower lifetime cost over conventional construction for many reasons:

- Modifications are inexpensive, clean and non-disruptive to the current operation and site.
- Existing walls can be reused eliminating the need for new materials, labor, and renovation costs.
- There are tax advantages associated with modular construction.
- Greater productivity, decreased design costs and increased construction predictability achieve significant savings.
- Less construction material is wasted due to greater reliance on prefabricated components that eliminate on-site modifications.
- A facility can earn LEED points to improve its Green Building Rating.

Two Unique Systems

CleanLine

Designed to meet the specifications of cleanroom environments, CleanLine is an all-purpose system featuring 2", 3" and 4-5/8" thick wall systems that can utilize a wide variety of wall panels. This system can be used to outfit existing facilities or create freestanding envelope structures.

Features

- Unlimited Wall Panel Options
- In-Stud Wiring / Utility Raceways
- Heights up to 24' Tall
- 3 Integrated Ceiling Options
- 4 Integrated Window Options
- Non-progressive Construction

FabLine

Designed primarily for the microelectronics and nanotech industries, FabLine systems are ideal for applications with significant bulkheading requirements or environments that require non-outgassing, non-shedding, and anti-static wall systems.

Features

- Extensive Bulkheading Flexibility
- Support for Process/Utilities
- Batten System for Interior Partitions
- Gasketing Options
- Anti-static Wall Panels
- Furring Walls

CleanLine Wall Systems



CleanLine

The CleanLine System represents our all-purpose solution for creating a wide variety of cleanrooms and environmental enclosures. The line is designed for applications from ISO 4 to ISO 8 cleanroom environments, but it is cost effective enough to use for simpler applications involving basic process segmentation or control over air quality, temperature, or humidity.

The extruded aluminum components and ultra smooth panel surfaces are ideal for achieving maximum cleanliness in a controlled environment. With all the options available, PortaFab can tailor a cleanroom to fit your environmental control and plant configuration needs faster and at a lower cost than with conventional construction.

CleanLine Wall Systems

The CleanLine System includes four distinct wall systems that can be used in combination with each other to create functional environments with a consistent appearance.

P2000 Wall System

The CleanLine P2000 is a 2" thick wall system that provides the benefits of a partition system for interior walls, plenum chase returns, and column enclosures.

- 2" (50mm) wall panel system with wiring raceway
- Available in heights up to 12' tall
- Integrates with the FabLine wall system
- All aluminum framework

S3000 Wall System

The S3000 3" thick cleanroom wall system is the perfect solution when a freestanding cleanroom envelope with a plenum cap is required and the design criteria do not allow the cleanroom to tie into an existing structure where the ceiling can be supported. The system's load-bearing roof provides support of mechanical equipment.

- 3" (76mm) wall panel system with wiring raceway
- Load-bearing roof capabilities
- Available in heights up to 18' tall
- All aluminum framework

PM458 XTRA TALL Wall System

The PM458 system features extra height walls that make it the ideal choice for applications where extended ceiling heights are demanded due to tall equipment.

The system can integrate with an existing ceiling or be used to create a freestanding envelope with load-bearing decks. The simple, fast installation of the PM458 minimizes plant disruption while the variety of core materials and panel finishes allow you to meet requirements for acoustic, thermal insulation, chemical resistance, and static control.

- 4-5/8" (117mm) wall panel system with wiring raceway
- Load-bearing roof capabilities
- Available in heights up to 24' tall

Furring Wall System

PortaFab's FabLine Furring Wall System integrates seamlessly with CleanLine wall systems and can be used as a cost effective option for lining existing walls. It is available in 1/4" and 1/2" thick sizes and can accommodate a wide variety of panel options.



The P2000 wall system offers a cost effective solution for interior wall partitions.



S3000 walls are ideal for creating stand-alone cleanrooms for the medical device industry.



PM458 provides extra tall walls for increased ceiling heights.

CleanLine Wall Panels



Panel and Post

The “Panel and Post” design of the CleanLine system provides maximum flexibility relative to the types of wall panels that can be utilized. PortaFab can manufacture composite panels to meet a wide variety of specifications. Common wall panels are listed below, but numerous surface finishes and cores are available.



**S3000
Load-Bearing
Aluminum
Stud System**

Typical Layouts

Panels are available with various surface finishes including:

- Fiberglass reinforced plastic (FRP)
- High pressure laminates (HPL)
- Painted aluminum (conductive or non-conductive)
- Painted steel
- Porcelainized steel
- Stainless steel
- uPVC
- Vinyl

Panel cores include:

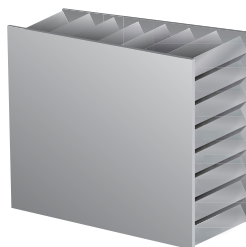
- Aluminum honeycomb
- Polystyrene
- Hollow (air return)
- Polyisocyanurate
- Others based on project requirements



Fire & Sound Panels

Our best selling cleanroom wall panels feature gypsum board over a polystyrene core with vinyl, steel, aluminum, or FRP surfaces. These panels meet most building codes and provide ample sound deadening for most applications.

Aluminum Honeycomb



Polyisocyanurate



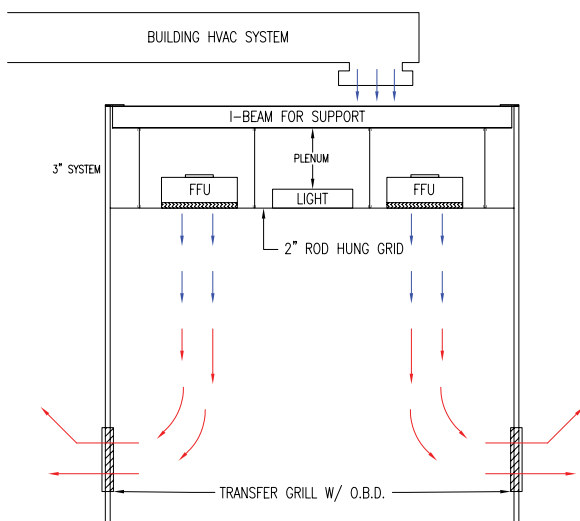
Stainless Steel



Applications

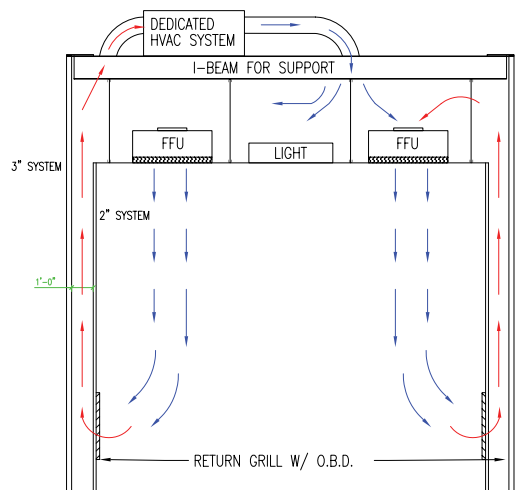
The CleanLine System is a very versatile wall system that can be used in a wide variety of applications. It can be installed as a freestanding envelope structure independent of the rest of the building or as a floor-to-ceiling system that integrates with existing structural elements.

CleanLine can be used to create both “Single Pass” and “Recirculating” type cleanrooms. Load-bearing decks provide support to mechanical equipment and the non-progressive construction allows one to change panels easily or relocate the entire structure.



Single Pass

Ambient air is filtered into the cleanroom and transferred out into building space. Single pass systems are utilized commonly in environments that are smaller and not a stringent classification of cleanroom with low tolerance of temperature and humidity control.



Recirculating

Ideal for rooms with temperature or humidity requirements. Air handling units condition the air which is drawn through low wall returns and into the ceiling plenum. Recirculating designs are used in applications to isolate the environment for greater process control.

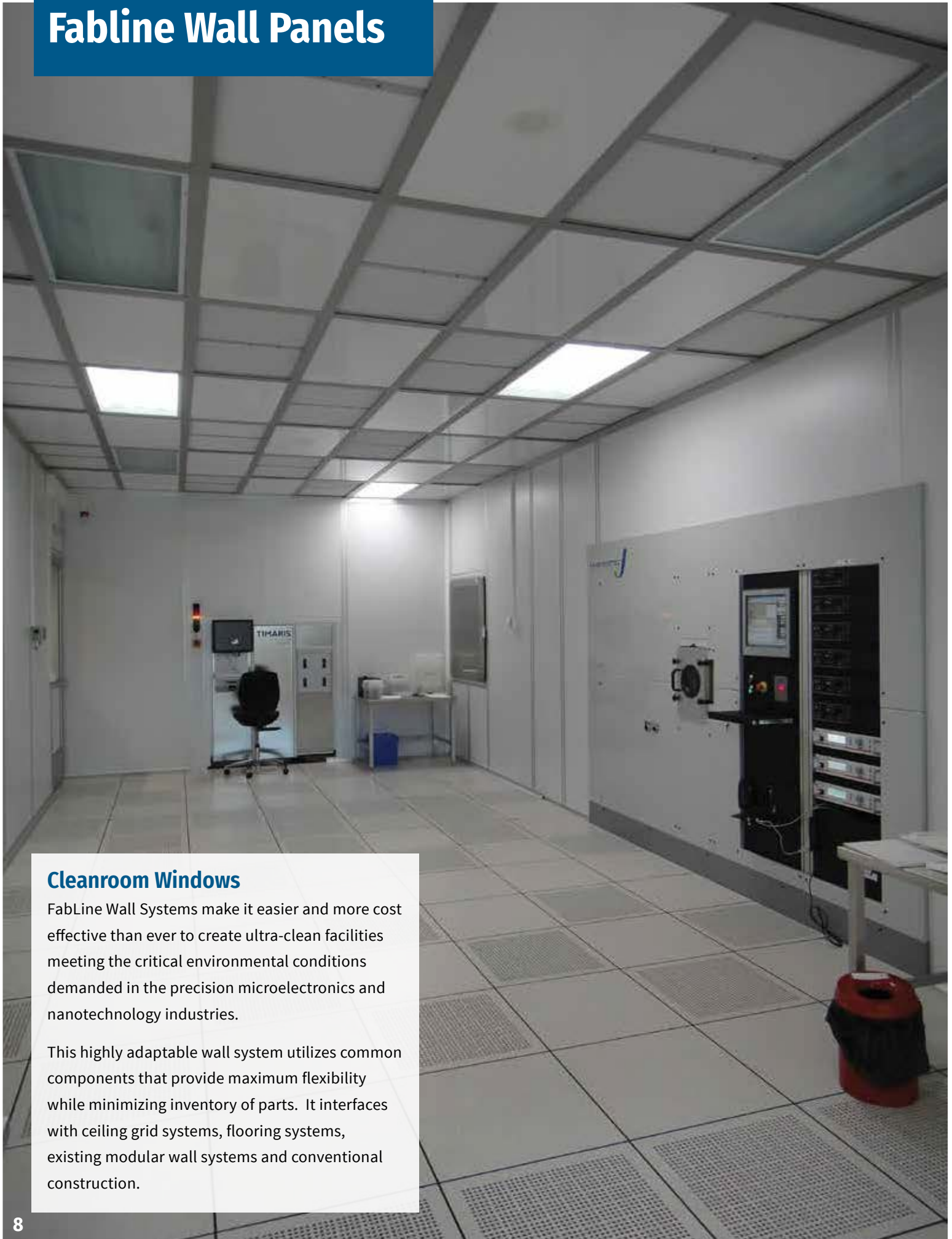


CleanLine Systems can provide environmental control for all types of molding & machining operations.



Cleanline Systems can be used to meet USP 797 regulations in the design & construction of compounding pharmacies.

Fabline Wall Panels



Cleanroom Windows

FabLine Wall Systems make it easier and more cost effective than ever to create ultra-clean facilities meeting the critical environmental conditions demanded in the precision microelectronics and nanotechnology industries.

This highly adaptable wall system utilizes common components that provide maximum flexibility while minimizing inventory of parts. It interfaces with ceiling grid systems, flooring systems, existing modular wall systems and conventional construction.

Fabline Wall Systems

The FabLine Series includes four wall systems for a variety of applications. Pre-engineered wall panels are interchangeable within all four systems for consistent appearance, reduced inventory, and faster installation.

Framed Wall System

FabLine Framed Wall Systems provide the optimum combination of high durability, design versatility, and simple installation. Designed for extensive bulkheading around tools, this system features vertical and horizontal members that are easily connected to each other to simplify construction and provide air tight seals around equipment tooling for minimum loss of room pressurization.



- Minimal connection hardware allows for quick installation.
- Three panel thicknesses are available: 1/4", 1/2", 2"
- Walls can be supported from the floor or ceiling.
- Strut clamps can be used to attach conduit and piping on the rear of the wall.

Furring Wall Systems

This economical system provides the ability to create a cleanroom out of an existing room or upgrade a cleanroom already in use. It is a cost effective solution for installation over existing block or gypsum walls, drywall studs, and columns. Its functional design also allows it to be installed on strut-type framing to create a mechanical chase.



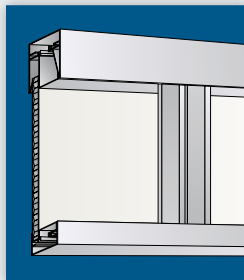
Batten Wall System

The Batten 2000 wall system is a cost effective alternative to Framed Systems for areas which do not require extensive bulkheading, but can benefit from a double-flush surface partition system.



Strut Wall System

The Strut Wall System is a cost effective alternative to the FabLine Framed System for applications requiring a bay and chase design, but that do not require a double flush wall. It is designed to work with 1/2" thick wall panels and the unique stud strut design allows unlimited connections to the back side of the stud.



Chase side of a bay and chase cleanroom featuring piping, conduit, and support equipment.



Cleanroom in wafer fabrication facility.

FabLine Wall Panels

A. Furring Wall System

Available with ¼" and ½" thick wall panels, FabLine Furring can be used to skin existing walls or create side wall returns and mechanical chases in a quick and cost effective manner.



B. Aluminum Wall Panels

Engineered for use in any class cleanroom, FabLine features aluminum honeycomb wall panels that are non-outgassing, non-particle shedding and anti-static. Tested in accordance with ASTM E595, these wall panels decrease product contamination.

Other Panel Options

In addition to aluminum honeycomb panels, panels with alternate cores and surfaces are available. Surfaces offered include melamine, vinyl, painted steel, stainless steel, fiberglass reinforced plastic (FRP), polyvinyl chloride (uPVC), high pressure laminates or porcelainized steel.

C. Ceiling Head Track Interface

Gasketed head tracks interface with standard grids and flush grids to provide a virtually seamless transition.

D. Wall Penetrations

Pass through chambers and other equipment can penetrate wall panels through factory installed framed cut-outs.

Trimming at Existing Openings



Furring wall systems are designed to skin and trim around most wall openings and penetrations including doors, windows, and equipment.



E. Framed 250 & 500 Wall Systems

These systems provide a flush surface on the cleanroom side with integrated support on the chase side for piping, conduit, and related equipment required to service the cleanroom. They are a cost effective solution for bay and chase cleanroom designs requiring small and large gasketed bulkheads.

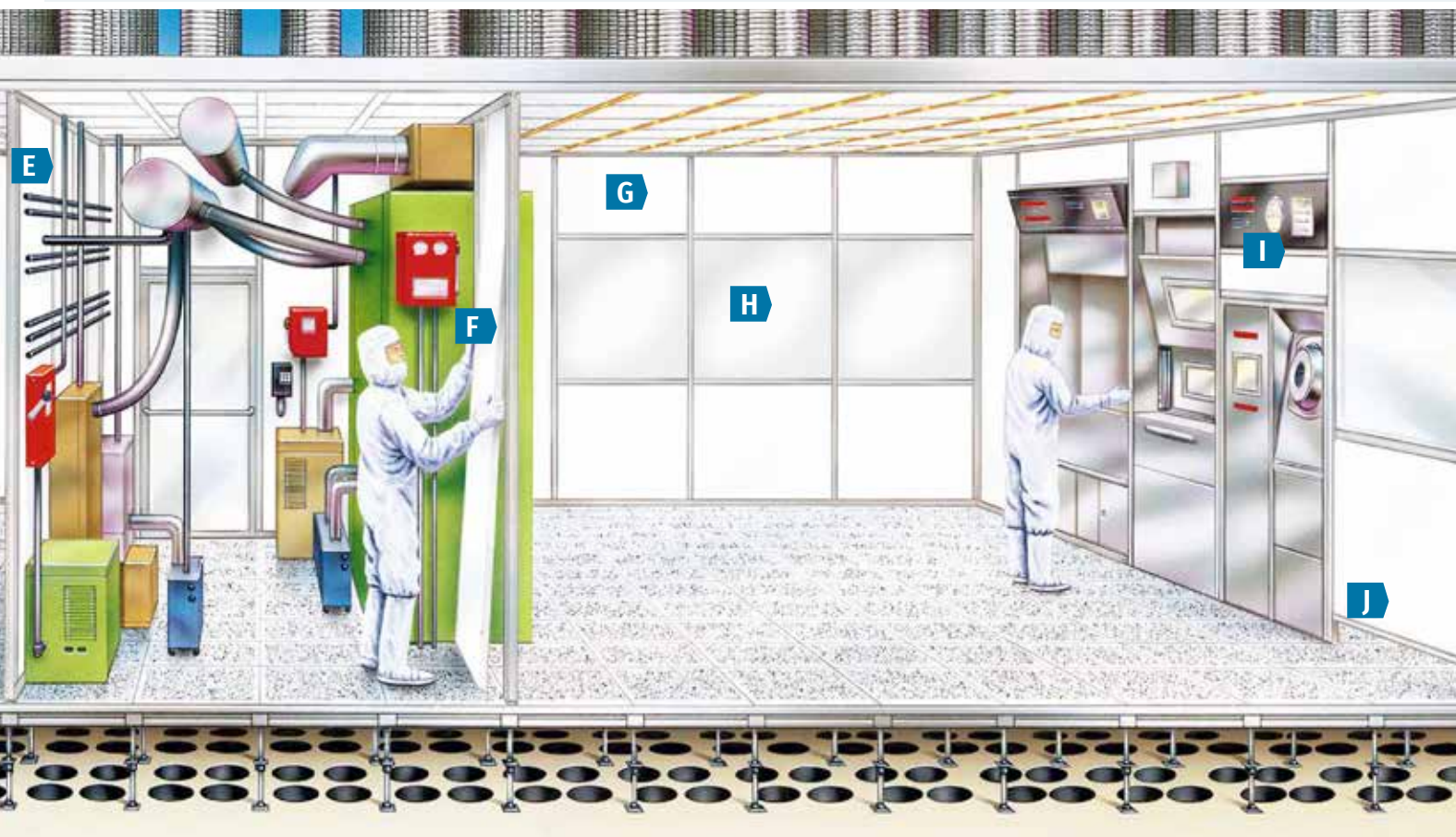
Fabline Framed 2000



Utilizes a 2" thick wall system for cleanrooms requiring a flush surface on both sides of the wall panel.

F. Non-Progressive Construction

Non-progressive construction allows easy removal of panels from either side of the wall without disturbing adjacent panels, ceiling, or framing posts.



G. Batten Wall System

The Batten 2000 wall system is a cost effective alternative to Framed Systems for areas which do not require extensive bulkheading, but can benefit from a double-flush surface partition system. The unique design features fewer components and lighter weight panels than the Framed System allowing it to be installed more quickly.



Paint Finishes

A variety of painted finishes are available including conductive epoxy, non-conductive epoxy, acrylic, polyester or powder coating.

Resistance Against ESD Contamination

With excellent panel surface resistivity and impressive electrostatic decay times, FabLine wall panels provide optimum static protection in most applications. Framework and doors are also available to meet the same criteria in a variety of colors.

H. Factory Installed Windows

Single or double flush windows with mitered corners provide flush glazing with a beveled sill that allows for easy wipe down. Windows can be glazed from stud to stud for full glass viewing and can be pre-installed in full size panels to reduce labor costs and time in the field.

I. Extensive Bulkheading Capabilities

Tool fit-ups and equipment can be easily integrated into the Framed Wall System for a sealed interface. Vertical and horizontal members connect to each other simplifying construction and providing gasketed air tight seals around equipment tooling for minimum loss of room pressurization.

J. Elevated Wall Panel

Panels can be elevated for side wall returns. Egg crate and wire mesh grills can be integrated with the studs to conceal mechanical plenums.



Cleanroom Windows

PortaFab manufactures a number of standard window units that integrate seamlessly with its modular wall and ceiling systems. Windows can also be integrated into return air walls to minimize any air flow disruption.

Beveled Window

Designed specifically for cleanroom applications, the absence of a ledge on this window makes cleaning easier as the design eliminates corners that often collect dust, particles and other microorganisms. It is a cost effective alternative to double flush window systems.



Double Flush Window

Designed for interior wall applications that require flush surfaces on both sides, the double flush window system provides an attractive appearance and two completely flush surfaces.



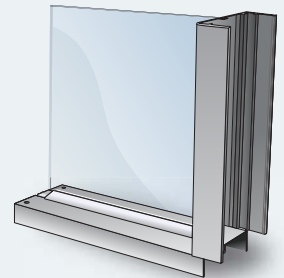
Flush Window

Windows are mounted into the wall system to provide a completely flush surface. To minimize any air flow disruption, windows can also be integrated into return air walls.



Standard CleanLine Window

These economical windows include fixed windows that measure either 4' or 2' wide by 3' high. All standard windows feature 1/4" clear tempered safety glass, but we also offer laminated glass for added sound control, insulated glass and break resistant polycarbonate windows.



Glazing Options

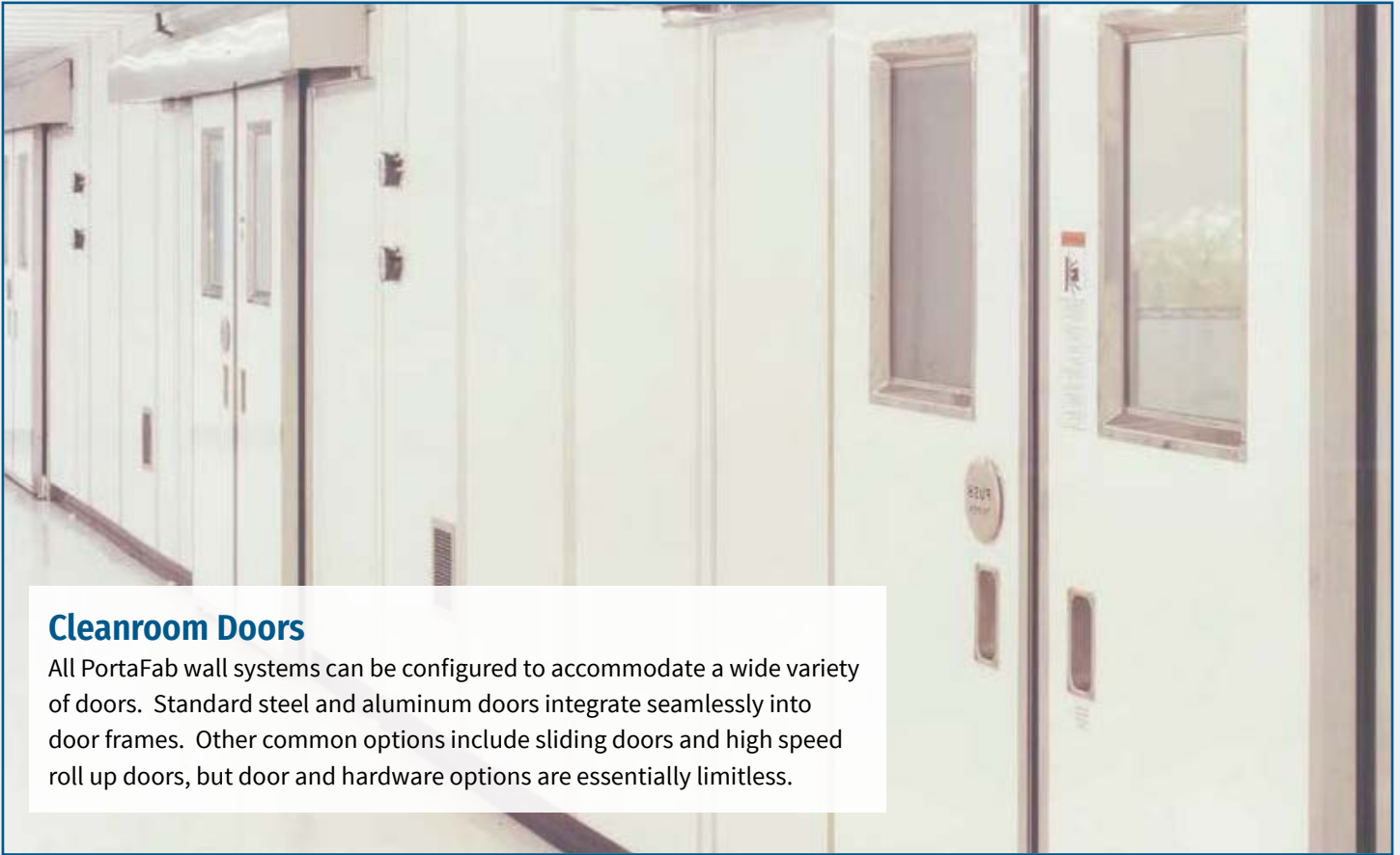
Windows can be glazed with a variety of options as specified by the project requirements. Common options include:

- Acrylic
- Double glazing
- Film covered glass
- Laser glass
- Lexan™
- Static dissipative
- Tempered glass
- Tinted glass
- Laminated
- Insulated
- Wire

Sizes

Available window sizes will depend on the wall system being utilized, but various sizes are available and easy to integrate into most applications.

Ceiling Doors



Cleanroom Doors

All PortaFab wall systems can be configured to accommodate a wide variety of doors. Standard steel and aluminum doors integrate seamlessly into door frames. Other common options include sliding doors and high speed roll up doors, but door and hardware options are essentially limitless.

High Speed Roll Up Doors

High speed doors reduce the amount of time the cleanroom is exposed to the outside environment. Door sizes up to 18' x 18' can be integrated.



Aluminum Doors

Full glass or half glass architectural aluminum doors are available with a variety of hardware options, including pivot hinges, surface mounted closers, concealed closers, panic hardware, and locksets.



Electric Sliding Doors

Sliding doors integrate into our wall systems and are available in any size with a variety of hardware available including push button entries, motion sensors, and interlocks.



Specialty Doors

From fiberglass to stainless steel, PortaFab designers can integrate all types of specialty doors with its wall systems.





*The Flexible Alternative to
Permanent Construction*



Pre-Engineered, Modular In-Plant Buildings & Enclosures



A-WALL™ 300

- Color coordinated, aluminum I-Stud for fast, simple assembly
- Full wall thickness for excellent sound control
- Wide variety of panel finishes
- Panels can be stacked for higher, interior ceilings



Inline freestanding system with acoustical panels



CMM room (available with hi-speed roll-up door)



Gray Distribution Center Office

A narrow, aluminum I-Stud is used to join the panels allowing a wide variety of building finishes. The I-Stud is color coordinated and conceals the edges of FRP, steel, and aluminum facings... Without creating an unattractive, "hollow post" appearance. Installations are simplified because like the A-WALL 200 hidden stud, the I-Stud is a friction fit component that doesn't require fasteners.

A-WALL 300 offers higher ceilings using stacked panels and the I-Stud as a horizontal panel connection. Ceiling heights up to 11'-6" are standard, with unlimited, custom room sizes available when your application dictates.

Both A-WALL 200 and 300 buildings are available with an optional raised base track that resembles a conventional 3" vinyl cove base. It allows up to 1-1/4" panel leveling capability and elevates the panels above the floor in wet environments. It also provides an additional low voltage wiring raceway around the perimeter of the building for even greater wiring flexibility.

Interior Partitions

When equipped with 2-piece ceiling track, A-WALL 300 becomes a truly flexible, demountable wall system.



The A-WALL Channel Stud is a versatile component used for both two-story and custom, single-story buildings. It accepts standard "strut" spring nuts and fittings and is compatible with most slotted channel, metal framing systems.



Cleanroom recirculates conditioned, plant ambient air and maintains Class 1,000 (ISO Class 6) conditions.

Cleanroom with internal ante room and dedicated HVAC system maintains Class 10,000 (ISO Class 7) conditions.



A-WALL™ 400

- Two-story design utilizes wasted, overhead space
- Meets or exceeds all major building codes governing floor loads
- Available with any combination of A-WALL panel finish
- Color coordinated, aluminum Channel Studs offer a “monolithic” appearance



Improve your view of the plant and release valuable, productive floor space with A-WALL 400 pre-engineered, two-story buildings. This system takes advantage of wasted overhead space yet requires less than 18 feet of clear height. It uses standard gypsum panels which are interchangeable with A-WALL 200 and 300 buildings for total flexibility throughout your facility. Stairs and landings are available in unlimited sizes and configurations with many different tread and handrail options.

A-WALL 400 was designed using stringent safety factors. Channel Studs are rated at up to 17,000 pounds column load capacity and standard A-WALL gypsum panels support up to 6,000 pounds each. Lightweight, galvanized steel floor joists conform to A.I.S.I. standards and install using simple hanger bracket assemblies. Unlike bar joists and I-beams, A-WALL floor joists are easily field cut to new lengths when you reconfigure your building to meet changing needs. A-WALL 400 structural components are “in-stock”, require no additional production time and arrive pre-engineered, ready to install.

Mezzanine Building Systems

When combined with pre-engineered, steel mezzanines, A-WALL single-story buildings offer you the same advantages of the 400 system, but with even more flexibility. There is no limit to the size, span or floor load capacity offered by mezzanines.

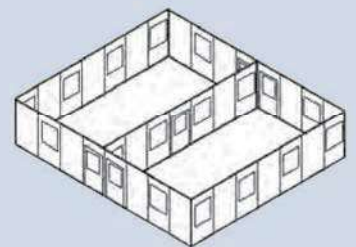
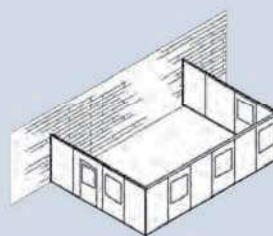
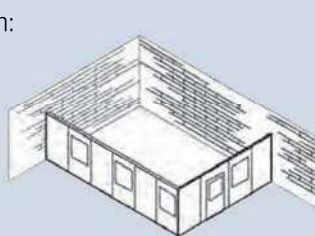
A-WALL buildings can be elevated above limited floor space, or integrated with the mezzanine to create a custom, two-story structure. Mezzanine two-story buildings allow changes to either level without affecting the other.

When your needs change, all three structures can be relocated together, or utilized independently in different parts of your facility.



Standard Building Configurations

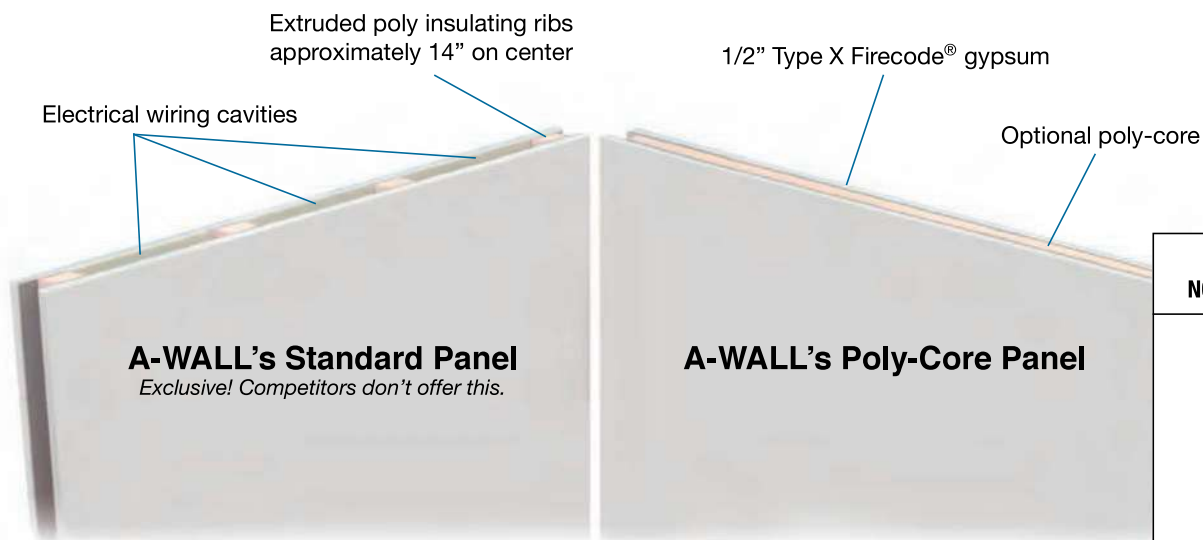
- Standard buildings are shipped complete with:
 - a corrugated steel roof deck
 - A-WALL panels
 - aluminum connecting components
 - a suspended ceiling
 - a sound core, birch door
 - fasteners
 - comprehensive assembly drawings and instructions
- Two-story models also include an additional door, structural components and one stair with 4'x4' landing and handrail



2-Wall and 3-Wall buildings utilize your existing walls and minimize cost. Steel roof deck adaption is provided for support at existing walls.

4-Wall buildings allow total flexibility. All models can be subdivided with interior walls.

PANELS



A-WALL's Standard Panel
Exclusive! Competitors don't offer this.

A-WALL's Poly-Core Panel

STANDARD A-WALL PANEL NOISE REDUCTION IN DECIBELS

FREQUENCY	DECIBELS
125	27
250	27
500	37
1000	39
2000	48
4000	48

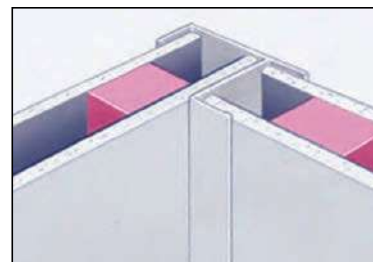
STC = 32

A-WALL panels are 2-5/8" thick, 4' wide and either 8' or 9' high. They can be cut to specific widths or stacked to meet the dimensional needs of your project. Our standard panel is constructed of two pieces of Type X, Firecode gypsum board with a specifically formulated core. It is a **superior fire barrier compared to regular core board**. The gypsum panel surfaces contain insulating ribs which **reduce sound transmission** from one side of the wall to the other. These ribs also **create three, independent wiring cavities** which are sized to accept standard electrical boxes.

An optional Poly-Core is available for buildings being located in severe environments such as refrigerated warehouses or next to production furnaces. Poly-Core increases the panel's insulating value to R-9.

A-WALL EPS Core (expanded polystyrene) panels can be used in wet environments such as food processing plants. They provide an insulating value of R-12. Wiring is surface mounted in conduit or Wiremold to maintain the wall's thermal properties. EPS Core panels are available with fiberglass reinforced plastic (FRP) or aluminum surfaces.

STC = 36 can be achieved with 24 gauge steel finish on one side of the panel.



A-WALL corner maintains a full wall thickness for uniform sound control.

Factory-Wired Wall Panel Options

Reduce assembly time! Two "factory-wired" panel options are available to eliminate the need for field installation of your receptacles and switches. Prefabricated receptacle and switch wiring assemblies are UL listed/labeled and factory installed in the wall panels in accordance with the National Electrical Code.



1. Factory Pre-Wire

The MC cables from the prefabricated wiring assemblies are equipped with box connectors. Your electrician connects them to junction boxes and rigid or flexible conduit he provides above the ceiling. The electrician also installs conduit and wire for the light fixtures, with all devices terminating at the breaker panel.

2. FLEX-4 Modular Wiring

The MC cables from the prefabricated wiring assemblies are equipped with Flex-4 modular connectors. The light fixtures are also prepared for Flex-4 cables so all of the electrical components "snap together". An electrician is only required to wire the breaker panel.



Panel Finishes

A-WALL panels are factory-finished for lasting durability.

Steel Clad Gypsum

Smooth, 24 gauge, galvanized, painted steel. Almond and white are standard.

Vinyl Clad Gypsum

6 mil., Class A fire rated, stipple textured vinyl. Bone, white and gray are standard.

FRP Clad Gypsum

Pebble textured, Class C fire rated, Fiberglass Reinforced Plastic. Khaki, white and gray are standard. Smooth and Class A also available.

Choose A-WALL unfinished gypsum panels for field painting to your specific corporate color scheme.

Electrical Devices

You can choose the locations of your switches, receptacles, phone and data boxes. Several devices can be installed in a wall panel. If additional devices are required after installation, “off-the-shelf” boxes and conduit can be used.



Light Switch



Duplex Receptacle



Phone and Data Boxes



2-Gang Light Switch



Quad Receptacle



Low Voltage Boxes

Common Sense Construction

A-WALL was developed more than three decades ago using a common sense approach to creating a truly “pre-engineered” building system. Modular, in-plant buildings were available then too, but had significant limitations. Wiring could only be installed in hollow posts at the panel connections. These narrow posts limited the number, type and location of wiring devices needed in the building. They also created acoustical voids at the panel connections. This allowed sound to penetrate the wall. Furthermore, all wiring had to be done on-site, with the electrician supplying the wire.

A-WALL panels don't require hollow wiring posts. They are constructed like a permanent wall and allow virtually unlimited wiring flexibility. Switches and outlets can be installed at the factory to reduce assembly time on-site. And without wiring posts, you enjoy a quieter building. These unique benefits earned A-WALL a federal patent... And since, earned the respect of thousands of A-WALL customers worldwide.

Quiet, Fire Safe Construction

Interior walls have been built using gypsum wall board bonded to studs for nearly a century. Gypsum is durable, fire retardant, has excellent acoustical properties and is easily repaired if damaged. The standard A-WALL panel is built in the same way.

Design Versatility Without Delays

Throughout this catalog you will see “systems” that represent combinations of standard A-WALL components configured to meet typical in-plant building needs. However, when your project requires a special design or environmental controls, there are infinite ways to integrate these components and accessories to meet your project's specific needs.

Fast, Trouble-Free Installation

A-WALL buildings require 20% fewer parts than comparable building systems and arrive with detailed instructions and drawings. Your crew can achieve a professional looking installation using common hand tools. If you prefer, A-WALL or your A-WALL local dealer can provide you with a turn-key project using their experienced installers.

Total Flexibility

As your needs change, so does A-WALL. Pre-engineered A-WALL panels are interchangeable and 100% reusable. Your building can be expanded, rearranged or relocated to a new location.

Significant Tax Benefits

Pre-engineered in-plant buildings are generally considered capital equipment and not a permanent improvement to your facility. As equipment, A-WALL qualifies for 7 year, accelerated depreciation compared to permanent construction's 39 years. This rapid depreciation gives A-WALL a significant price advantage.

A-WALL Building Accessories

A-WALL offers a turn-key application; No need for an additional quote or waiting on a separate contractor. From cabinetry, acoustical solutions, guard rails, flooring options and more, A-WALL is your one-stop shop for all your building needs.

For product updates,
design ideas and a
gallery of unique
project photos, visit
www.a-wall.com



Warwick Products (WP) manufacturer of **A-WALL** Building Systems & **MPC** Silent Wall, has been serving customers for 75+ years with high attention to detail and quality craftsmanship. WP specializes in custom manufacturing of commercial cabinets, casework, retail fixtures & displays. For 40+ years, **MPC Silent Wall** has been producing acoustical products. The MPC product line is a proprietary fabric-wrapped acoustical and tack panel system that mitigates distracting noise and reverberation. **A-WALL Building Systems**, acquired by WP in 2021, manufactures modular offices along with in-plant buildings that are easy to install and relocate. They require fewer parts than comparable building systems and the electrical devices are factory-installed in the wall panels. This means your initial installation and future changes will require less time and cost.

Rigidwall Cleanrooms

What happens outside our walls, stays outside our walls.



Technical Air Products' LogiClean® rigidwall cleanrooms offer the same flexibility and performance of our softwall cleanrooms, but with a more robust and durable wall system. Our rigidwall cleanrooms are cost-effective, less permanent alternatives to hardwall cleanrooms. Our modular design makes it easy to assemble or disassemble, and economical to add on to. As your business grows, your rigidwall cleanroom from Technical Air Products can grow along with it.

Our Rigidwall system is perfect for pharmacies that are required to meet ISO Class 7 for USP 797. Our Rigidwall cleanrooms utilize adjustable louvers to achieve correct pressure relationships between rooms.



Technical Air Products
Find your clean space.

The LogiClean® Rigidwall Cleanroom Difference

Technical Air Products' rigidwall cleanrooms utilize high-strength 6063-T6 aluminum extrusions. We then encapsulate all parts in a durable coat of white powder-baked enamel that prevents corroding and contamination.

Other companies require their cleanroom components to be drilled and tapped, which can cause corrosion and compromise frame structure. We use a T-slot fastening system which requires no drilling and tapping, which makes our LogiClean® system much cleaner, and easier to install.

PERFORMANCE YOU CAN COUNT ON

Our motorized HEPA fan filter units (FFU's) are included with our cleanrooms, so we can guarantee the room will meet the level of cleanliness you require from Class 8 (100,000), to Class 4 (10). Our FFU's offer an exceptional level of performance, in a quiet, competitively priced package. Our cleanrooms also come standard with LED light panels, offering you long-lasting, energy-efficient operation, which saves you money.

SPECS

Available Sizes	Rooms are available in 2'x4' increments, heights up to 16'. Clearspans up to 30'.
Room Class	ISO Class 8 (100,000) to ISO Class 4 (10)
Frame Construction	Steel and high-strength 6063-T6 extruded aluminum.
Finish	White powder-baked enamel.
Filtration	Standard motorized HEPA fan filter units (FFU), 99.99% efficient at .3 micron. Several sizes and options available, including advanced automation and monitoring.
Walls	1/4" clear acrylic in powder-coated extruded aluminum frames. Standard frames are 4'x 8'. Clear polycarbonate, and white polypropylene, as well as antistatic acrylic or polycarbonate are also available.
Entries	Doors can be hinged, sliding or strips. Hinged doors have hydraulic closers, heavy-duty stainless steel hinges and aluminum pull handles. Panic hardware also available.
Lighting	2'x 4' LED light panels standard. Other sizes and options available.
Blank Panels	1/2" gypsum, vinyl faced on both sides with sealed edges.
Electrical	FFU's are standard with a variable speed control and 8' power cord. Light fixtures have ballast wires inside a top-mounted access cover for connection.
Voltage	Standard voltage for filters is 120/1/60, with options available of 220/1/50-60 and 277/1/60. Lights are universal voltage.
Optional Pre-wiring	Rooms can come with components factory wired with "plug and play" connections to a central control panel. The panel is a powder-coated NEMA 1 enclosure with face-mounted variable speed controls and light switches.

QUICK SHIP

Technical Air Products offers quick shipping for in-stock standard size rigidwall cleanrooms in 3 weeks or less. Custom sizes and options are also available, but lead times for custom orders will vary accordingly.

DESIGN EXPERTISE

For over 25 years, Technical Air Products has been designing high-quality clean air products. Our engineers can assist you in designing a cleanroom, or other clean air products to meet your exact needs. CAD drawings will be created for your specific requirements, so no details will be missed. Contact us today, and let our design experts go to work for you.



Technical Air Products
Find your clean space.

For soft walls, they're pretty tough.

A softwall cleanroom from Technical Air Products is a flexible, cost-effective way to create a clean air environment. Our proprietary LogiClean® design allows you to quickly and easily turn any space into a high-performance cleanroom. Our modular softwall cleanrooms are durable, adaptable to your specific needs and expandable as your business grows. Our modular cleanroom design makes it easy to install and move, and economical to add on to. In fact, you can completely assemble a LogiClean® softwall cleanroom frame and curtains with only a screwdriver and two wrenches. If flexibility and price is important to your operation, then a modular softwall cleanroom from Technical Air Products is the solution for you.



Our cleanrooms use a proprietary, self-supported aluminum extrusion ceiling grid system which is robust, yet it is still lightweight and easy to install.



Technical Air Products
Find your clean space.

It's curtains for contaminants.



THE LOGICLEAN® SOFTWALL CLEANROOM DIFFERENCE

Technical Air Products' softwall cleanrooms utilize high-strength 6063-T6 aluminum extrusions. We then encapsulate all parts in a durable coat of white powder-baked enamel that prevents corroding and contamination.

Other companies require their cleanroom components to be drilled and tapped, which can cause corrosion and compromise frame structure. We use a T-slot fastening system which requires no drilling and tapping, which makes our LogiClean® system much cleaner and easier to install.

PERFORMANCE YOU CAN COUNT ON

Our motorized HEPA fan filter units (FFUs) are included with our cleanrooms, so we can guarantee the room will meet the level of cleanliness you require from Class 8 (100,000) to Class 4 (10). Our FFUs offer an exceptional level of performance, in a quiet, competitively priced package. Our cleanrooms also come standard with LED light panels, offering you long-lasting, energy-efficient operation, which saves you money.

SPECS

Available Sizes	Standard rooms start at 4'x4', and are available in 2'x4' increments, up to 12'x12'. Custom sizes are available. Clearspans up to 30'.
Room Class	ISO Class 8 (100,000) to ISO Class 4 (10).
Frame Construction	High-strength 6063-T6 extruded aluminum.
Finish	White powder-baked enamel.
Filtration	Standard motorized HEPA fan filter units (FFU), 99.99% efficient at .3 micron. Several sizes and options available, including advanced automation and monitoring.
Walls	40 mil clear standard vinyl around perimeter. Options include antistatic vinyl and 8" or 12" wide strips.
Entries	12" strip entries available in 40, 60 and 120 mil.
Lighting	2'x4' LED light panels standard. Other sizes and options available.
Blank Panels	1/2" gypsum, vinyl faced on both sides with sealed edges.
Electrical	FFUs are standard with a variable speed control and 8' power cord. Light fixtures have ballast wires inside a top-mounted access cover for connection.
Voltage	Standard voltage for filters is 120/1/60, with options available of 220/1/50-60 and 277/1/60. Lights are universal voltage.
Optional Pre-wiring	Rooms can come with components factory wired with "plug and play" connections to a central control panel. The panel is a powder-coated NEMA 1 enclosure with face-mounted variable speed controls and light switches.

QUICK SHIP

Technical Air Products offers quick shipping for in-stock standard size softwall cleanrooms in two weeks or less. Custom sizes and options are also available, but lead times for custom orders will vary accordingly.

DESIGN EXPERTISE

For over 25 years, Technical Air Products has been designing high-quality clean air products. Our engineers can assist you in designing a cleanroom or other clean air products to meet your exact needs. CAD drawings will be created for your specific requirements, so no details will be missed. Contact us today, and let our design experts go to work for you.



Technical Air Products
Find your clean space.



Ceiling Systems

2" CLEANROOM CEILING SYSTEMS

GORDON
ARCHITECTURAL • ENGINEERED SOLUTIONS

HEAVY-DUTY, ROD-SUSPENDED, GASKET OR GEL-SEAL CEILINGS



WS-20 GEL SEAL
CEILING SYSTEM

Cleanroom Ceiling Systems for Semiconductor, Microelectronic, Medical Device, Aerospace, Pharmaceutical, Biotechnology, and Data Center Applications

2" CLEANROOM CEILING SYSTEMS

Gordon offers the greatest number of ceiling options available, allowing you to select the ideal ceiling to match the performance requirements of your cleanroom.

TECHNICAL INFORMATION

Gordon's rod suspended cleanroom ceiling systems share attributes that combine to create a common design platform.

- All extrusions have a continuous 1/4-20 thread boss for connection and suspension at any location
- Intersection connectors join the extruded aluminum grid members and provide an attachment point for suspension
- Extruded aluminum grid members have a 2" wide flange

Tailoring Gordon's ceiling systems to the unique requirements of your cleanroom is as easy as 1-2-3.

STEP ONE - CHOOSE YOUR SUSPENSION

- 1/4-20 threaded rod suspension for standard-duty loading requirements
- 3/8-16 threaded rod suspension for more extreme loading conditions

STEP TWO - SPECIFY YOUR CEILING TYPE

- **SEAL**
 - Gasket
 - Gel
- **GRID PROFILE**
 - Flush face for basic lay-in ceilings
 - ScrewSlot for face attachment of teardrop light fixtures, partitions or other accessories
 - DS-40 Double-T extrusions to accommodate special grid penetrations or lay-outs
- **LOADING REQUIREMENTS**
 - DS / WS extrusions for standard loads
 - WG extrusions for walkable ceiling grids
 - ST (Suspension Track) extrusions in DS or WG versions for extreme load suspension from the grid
- **PERIMETER**
 - Fixed
 - Floating
- **FIRE SPRINKLER**
 - Custom engineered through-grid fire sprinkler fixtures

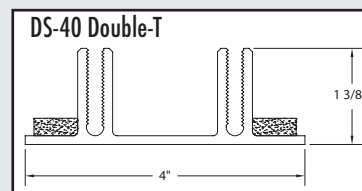
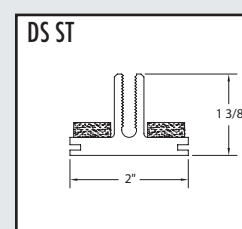
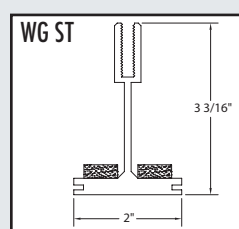
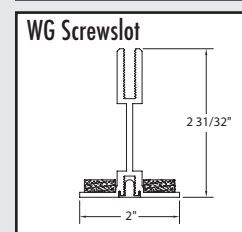
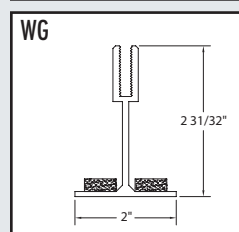
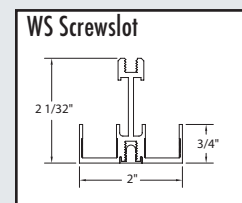
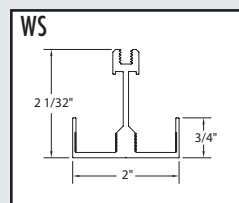
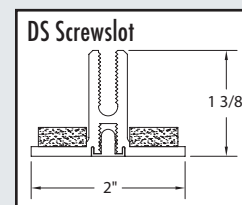
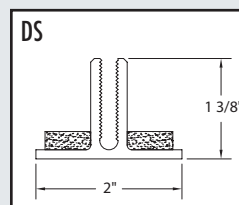
STEP THREE - SELECT YOUR FINISH

- Pearl White Antimicrobial powder coat
- Clear Anodized



**DS-38 SCREWSLOT
CEILING SYSTEM**

PROFILES



SUSPENSION

GORDON 20-SERIES GRID SYSTEMS

1/4" - 20 SUSPENSION

For Standard Load
Applications:
Cleanliness levels to ISO
Class 6 (Class 1,000)

Filters: Ducted

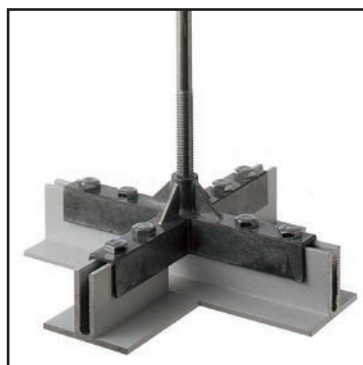


GORDON 38-SERIES GRID SYSTEMS

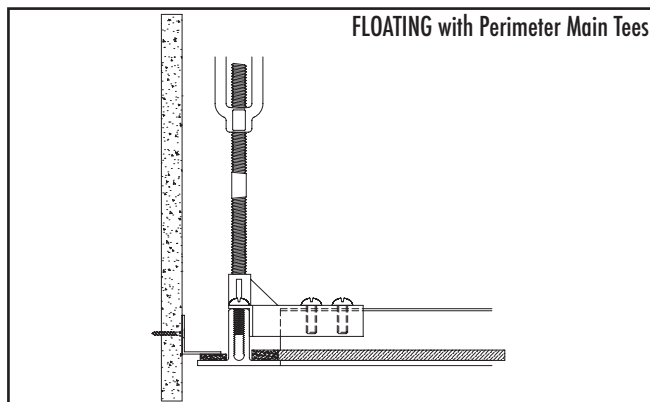
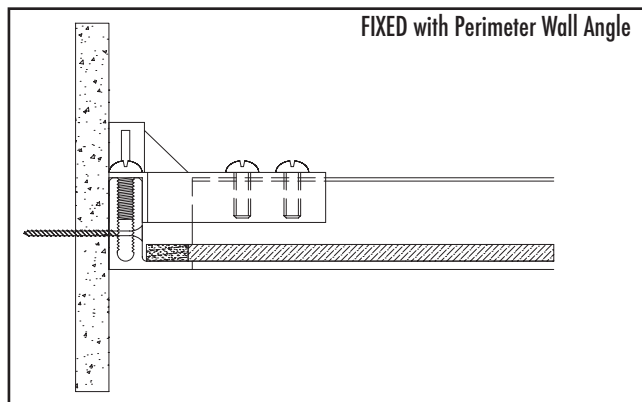
3/8" - 16 SUSPENSION

For More Extreme Load
Applications:
Cleanliness levels to ISO
Class 3 (Class 1)

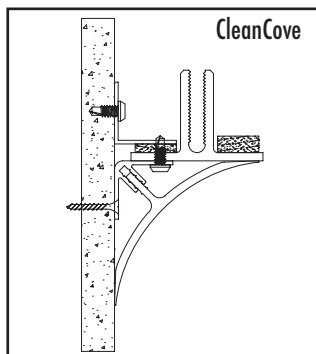
Filters: FFUs or Ducted



PERIMETER



OPTIONAL ACCESSORIES

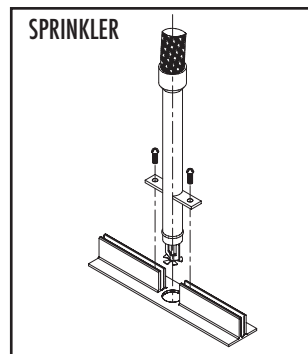


COVING

Gordon offers CleanCove extruded aluminum coving system for radius ceiling-to-wall transitions in Life Science cleanroom applications.

INTEGRATED FIRE SPRINKLERS

Gordon offers fire sprinkler fixtures, custom engineered to provide through-grid fire protection for fully populated cleanroom ceilings. Factory approved fixtures are available exclusively from Gordon and are furnished complete with sprinkler heads and up to 6-foot maximum flexible stainless steel supply hose.



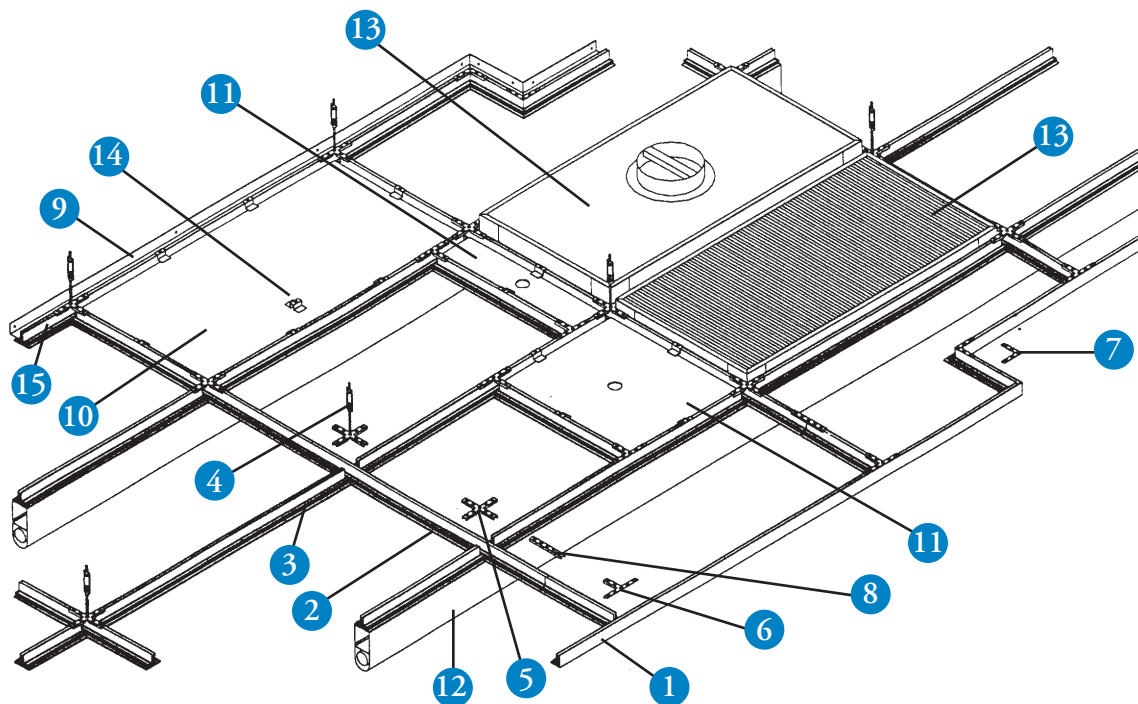
BLANK PANELS

Gordon can supply metal blank panels to your design specification. Consult your Gordon sales professional for assistance when specifying the panel type most compatible with your cleanroom application.

HOLD DOWN & SUSPENSION CLIPS

Gordon provides panel hold down clips and accessory hanger clips for all 2-inch cleanroom ceiling systems. Consult your Gordon sales professional for assistance when specifying these devices for your cleanroom ceiling installation.

DS COMPONENTS & ACCESSORIES



1. Perimeter Wall Angle: 12'
2. Main Tee: 12'
3. Cross Tee: 4' or 2'
4. Rod/Turnbuckle
5. 4-Way Connector

6. 3-Way Connector
7. Corner Connector
8. Main Tee Splice Connector
9. Perimeter In-Fill Trim
10. Blank Panel

11. Sprinkler Blank Panel
12. Teardrop Light Fixture
13. Filter Modules
14. Hold Down Clips
15. Perimeter Main Tee

GREEN BY DESIGN

- Products contribute to LEED^{®1} certification
- In-House Finishes
 - Biodegradable pre-treatment (No phosphates)
 - No hazardous waste
 - No VOCs
 - No heavy metals
- Reference our sustainability page for more information.

GORDON[®]
ARCHITECTURAL+ENGINEERED SOLUTIONS

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BOSSIER CITY, LA 71111
800.747.8954
GORDON-INC.COM
SALES@GORDON-INC.COM

¹ LEED[®] is a registered trademark of the U.S. Green Building Council.



WG-XTR WALKABLE CEILING GRID

Heavy-Duty Cleanroom Ceiling for AMHS Applications

GORDON[®]
ARCHITECTURAL+ENGINEERED SOLUTIONS

WG-XTR WALKABLE CEILING GRID

The Gordon WG-XTR ceiling system is designed to keep pace with the increasing demands of modern Semiconductor Fabrication facilities. This design incorporates a gasketed and walkable system, capable of supporting extreme AMHS loads without the need for additional hanger supports beyond the intersections. Each intersection has the ability to hold up to 2,200 lbs in addition to allowing for sprinkler penetrations. The Gordon WG-XTR is built to exceed load requirements, while reducing the labor inputs needed for installation.

Suspension

- 1/2" threaded rods

Finish

- Powder White Antimicrobial Powder Coating

Load Capacity

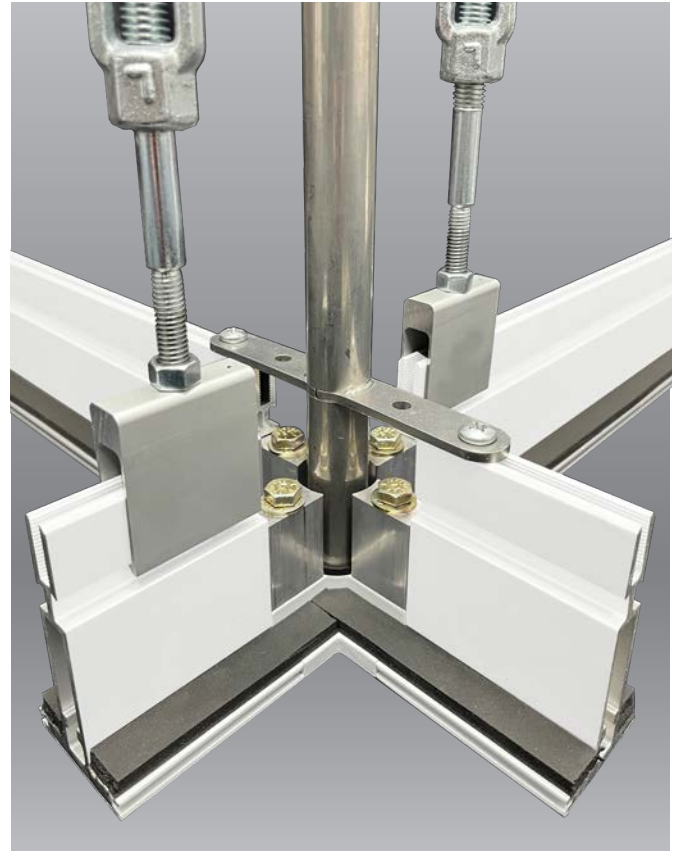
Main Tee Spacing	Hanger Spacing	Max Allowable Deflection	Max Load at Mid-Span	Max Uniform Load
48"	48"	L/360 (.133)	1248 lbs.	500 lbs./LF

Up to 2,200 lbs within 6" of intersections

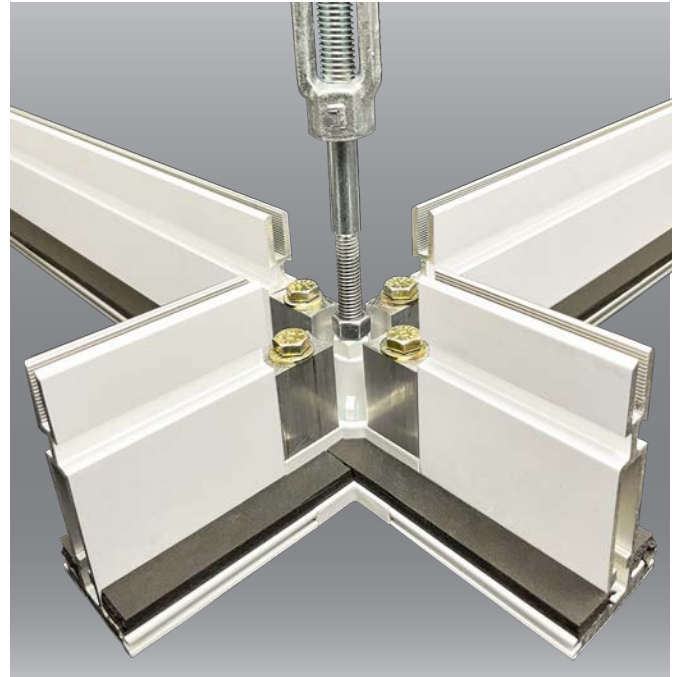
WG-XTR Accessories

- AMHS Clips for any AMHS track system
- Snap-On Hold Down Clips – no tools required
- Stainless Steel Gordon/Vic-Flex Victaulic fire sprinklers
- Snap-On Hanger Clips for easy threaded rod placement
- Aluminum Honeycomb Walkable Ceiling Panels
- Gordon Phantom FFU's

Sprinkler Installed at Intersection

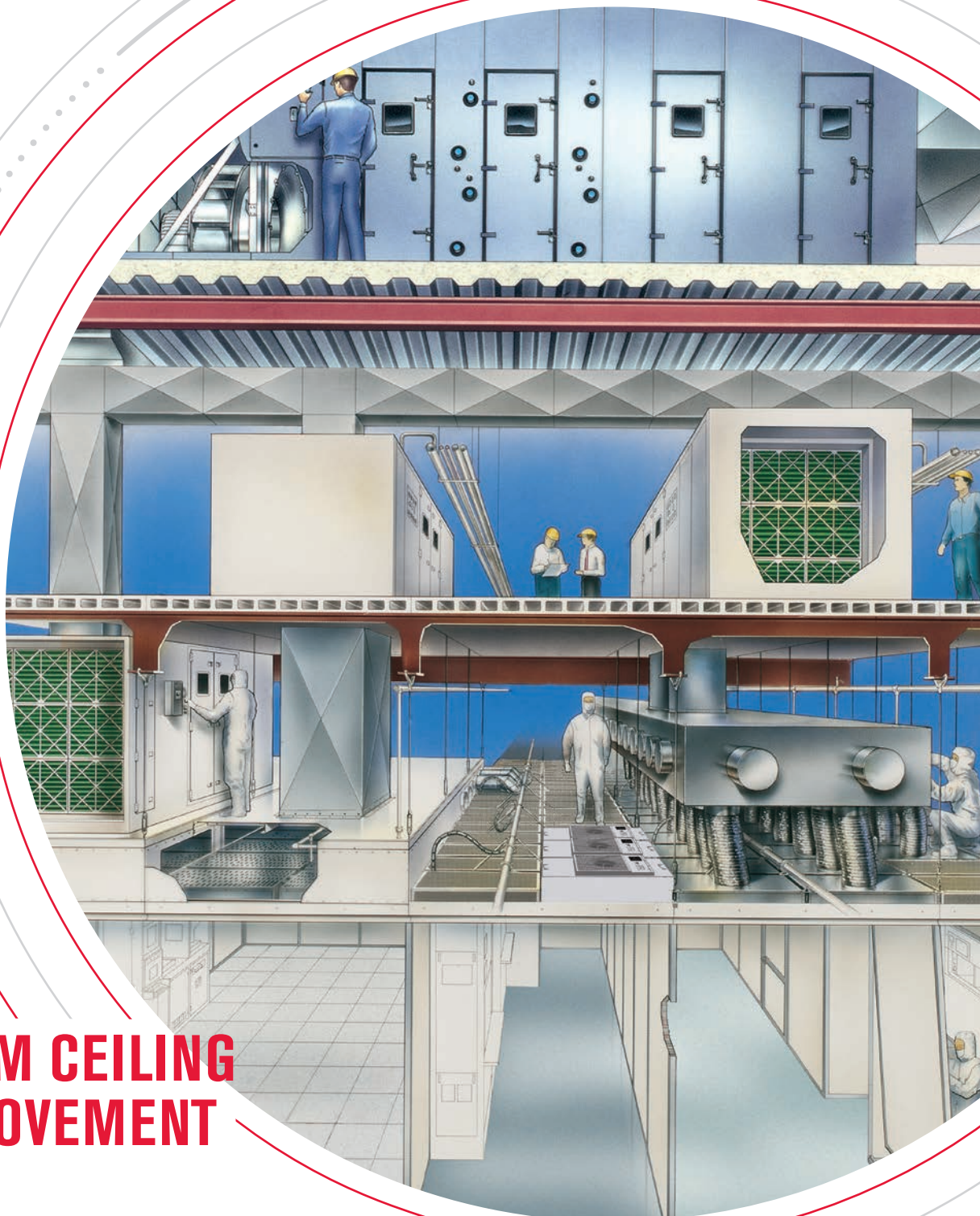


Standard Suspension at Intersection



PATENT PENDING





CLEANROOM CEILING AND AIR MOVEMENT SYSTEMS

Advancing the Clean Environment from Concept to Completion for these Industries

- Semiconductor Manufacturing
- Biopharmaceutical Sterile Manufacturing
- Clean Assembly
- Life Science Research
- University & Lab Research
- Nanotechnology Research

CLEANROOM CEILING AND AIR MOVEMENT SYSTEMS

CLEANPAK™, a Nortek CLEANSPACE brand, is a fully-customized line of cleanroom equipment including ceiling grids, unidirectional plenums and custom air handling equipment serving all classes and grades of cleanrooms in the Semiconductor and Life Sciences industries.

With over 30 years serving all types of clean environments, we have the experience to support every phase of cleanroom design and construction

Ceiling Value Features

Custom design and support with standard components

The most options of modular, stick-built, and hybrid pre-assembled grids of any manufacturer

High strength and versatile configurations

Rapid installation

AHU Value Features

High reliability and redundancy

Low sound and vibration

Small footprint and flexible aspect ratios

Customer Benefits

Integrated Ceiling and Air Movement system

Reliable system cuts down on maintenance/operations costs

Fast lead-times and engagement

Flexibility of design to fit any architectural need

Install support saves time and avoids errors

Factory Capabilities

- Large manufacturing facility used exclusively for cleanroom technologies
- Automated sheet metal breaking and notching equipment
- Aluminum, mild steel and stainless steel welding capabilities
- Powder coating line
- Clean environment assembly
- Centrifugal fan fabrication & balancing
- Vertically integrated fabrication methods for air handlers
- U.L. Certification
- Innovative technologies for ceiling systems, air management control systems and FANWALL TECHNOLOGY®
- Revit BIM design services

Laminar Flow Ceiling Systems

- Clean-Trak® Modular Grid
- Flex-Trak T Grid
- Clean-Trak Plenums
- Fire Protection
- Fan Powered Plenums

Air Handling Units

- Recirculation Air Handler
- FANWALL TECHNOLOGY
- Makeup Air Handler
- Fan Filter Units



CLEAN-TRAK® MODULAR CEILINGS

Installed in thousands of cleanroom facilities, the Clean-Trak® modular flush-surface ceiling system has revolutionized the cleanroom industry. Operational in more than 20 million square feet of cleanroom ceilings, Clean-Trak is the worldwide standard providing the highest degree of unidirectional airflow and lowest turbulence of any integrated grid system.

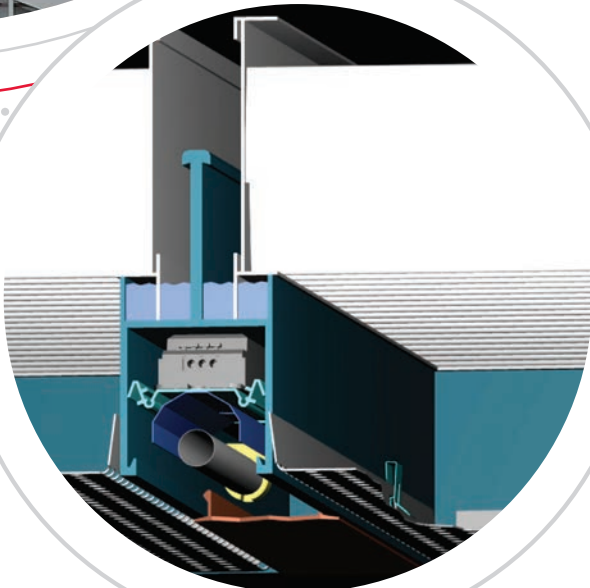
CLEANPAK™ products offer the widest range of cleanroom ceiling systems to suit any semiconductor, pharmaceutical, aerospace, biotechnology, nanotechnology, research laboratory or life science requirement. We offer several versions of modular top and bottom-load systems, gasketed and gel flush ceilings with integrated lighting and fire protection, and for meeting clients' off-site manufacturing needs.

Clean-Trak Modular grid

- Modular grid with all components built in factory
- Modules are lifted into place with sprinklers, lights, lenses, wiring and ionization wiring already installed
- Significant on-site labor and time savings
- Integrated LED lighting
- Integrated fire protection system--hard-piped or FM approved flex hose
- Top-load or Bottom-load filter systems
- Optional GelLink module-to-module joint seal
- Optional LED lighting troffers
- Optional stronger grid profiles to handle high automated material handling system (AMHS) loads and high suspended loads
- UL listed

Featuring

- Solid Welded Pressure Plane
- Clean-Screens
- Sealed Grid Penetrations
- Hanging Hardware
- Wall Blank-Offs
- Walkable Blank Pans/Filters/Return Grills
- Superior Flexibility



CLEAN-TRAK® PLENUMS



Clean-Trak Plenums are utilized to minimize transverse ducts and duct collars while reducing overall pressure drop. These plenums offer the benefits of Clean-Trak flush ceiling grid, including integrated lighting and fire protection, as well as Clean-Trak's superior performances.

Structurally, Clean-Trak Plenums support high point loads with minimum deflection. This allows the system to support a fan module, live loads and process accessories. Walkable top skins make maintenance easy by allowing quick access to the fan module.

Plenums are available with side-wall openings so one fan module can be shared with multiple plenums. We can make them ducted from the fan deck if required for special applications.

Our Laminar Flow performance can meet the highest levels of HEPA and ULPA filtration required in the industry, and positive/ negative pressure requirements. Unidirectional air flow is achieved within a few inches of discharge screens with our unique Flush Grid design and can be maintained at the work surface even in high ceiling areas.

- Support high point loads with minimum deflection
- Available with side-wall openings
- Welded construction with walkable top skins
- Powder coated for easy cleaning and non-particulation
- Integrated sprinkler system with optional fully concealed head
- Optional PlenPAK™ fan powered plenums
- Optional cooling coils
- Integrated flush lighting systems
- Top-load or bottom-load filter grid
- Gel grid for pressurized plenums
- Gasketed grid for plenums with negative pressure with FFUs
- Optional Equalizer for air distribution inside plenums
- Optional GelLink module-to-module joint seal
- Optional GelShare shared-air opening seal



CLEANPAK FLEX-TRAK™ T GRID

The CLEANPAK Flex-Trak™ cleanroom ceiling is a high-performance walkable stick-built gasketed T grid system that, in its Hybrid version, has the ability to optionally be pre-assembled in modules.

The anodized aluminum grid profiles feature side T-slot channels that allow for flexibility in layout configurations. They also feature top and bottom slots for grid suspension and below grid suspension. The nuts into all channels drop into place to enable hardware installation at any time.

The grid cross sticks optionally feature a port bracket that allows for installation of flexible fire protection hoses or other electrical or instrumentation devices.

The grid extrusion also incorporates a slot for accepting an optional rotating flange to allow for bottom-loading of components.

Key features:

- Walkable grid
- T-nut slots for flexibility in grid configurations
- Pre-marked main runners for cross-stick locations
- Top and bottom tracks with high single point load capacity
- Minimized added parts to handle drag loads
- Grid sticks are available in a standard 5" tall profile for around 4' spans and an 8" tall profile for large spans
- Optional ports in cross-stick
- Optional bottom-loading flange

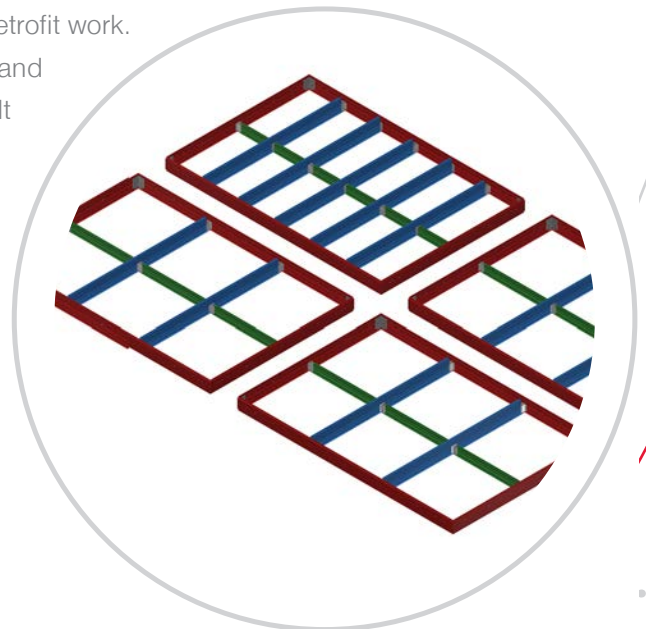
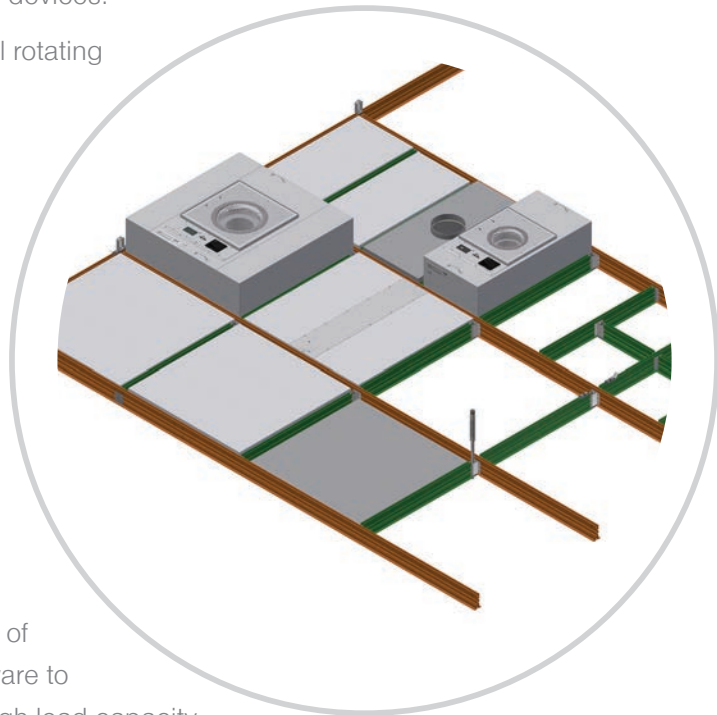
There are 2 versions of the grid:

- FLEX-TRAK STICK-BUILT where there are only full profile sticks of Main Runners and Cross Sticks. The top track takes 1/2" hardware to enable single point hanging on a 4'x4' suspension array with high load capacity.
- FLEX-TRAK HYBRID marries the best features of modular grids and stick-built grids by utilizing Exterior Half Sticks to allow for a bolted together module that can be installed rapidly in modules but also be disassembled for future retrofit work.

The grid modules are nominally sized at 8'x12'. The Cross Sticks and Intermediate Sticks are the same full profiles used in the stick-built version. This hybrid version is suspended on a 6'x8' suspension array with 5/8" hardware.

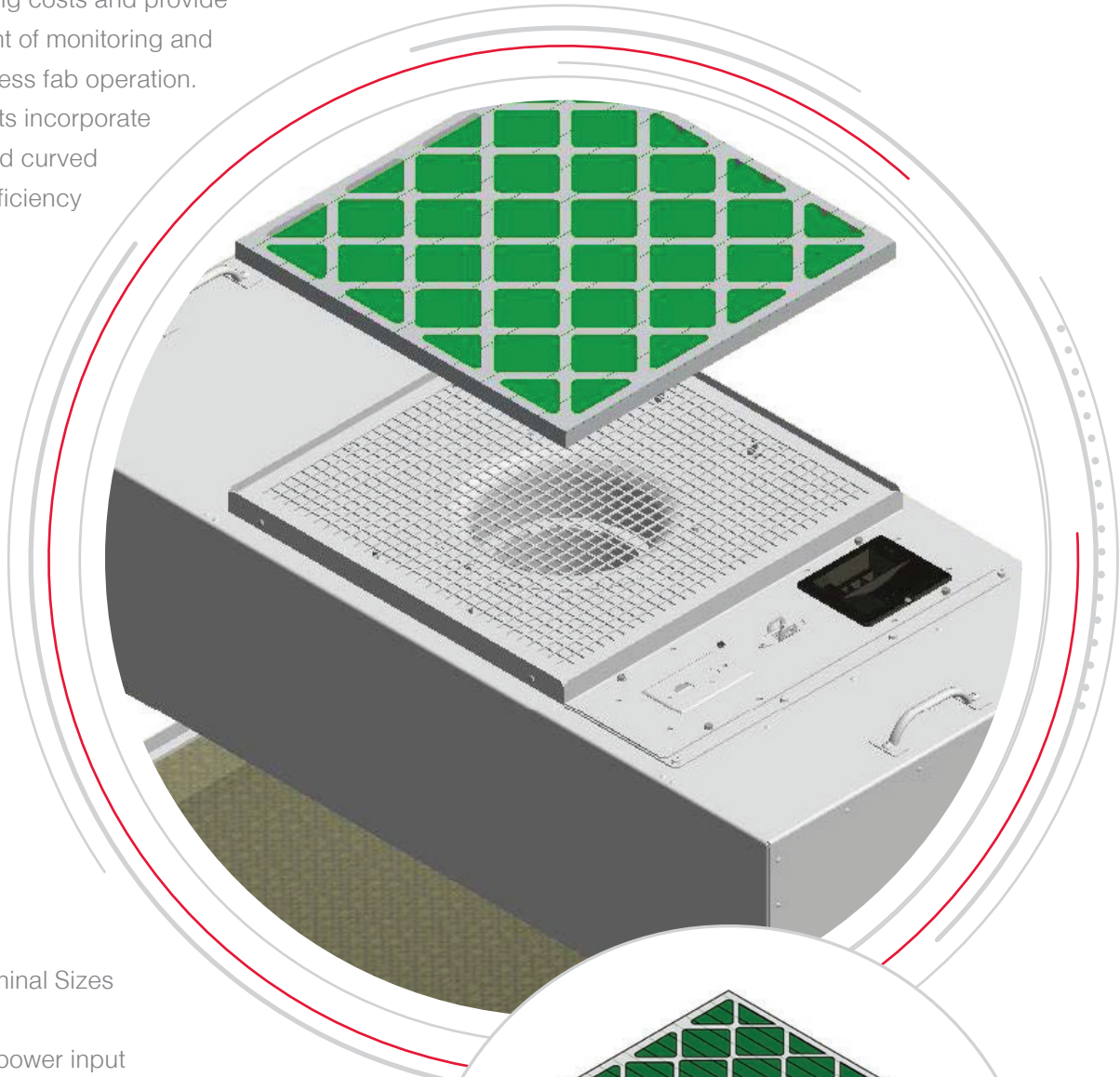
This grid system ships in 3 configurations:

- FLEX-TRAK STICK-BUILT where the Main Runners and Cross Sticks are shipped flat-packed for field assembly.
- FLEX-TRAK HYBRID FLATPAK where the Exterior Half Sticks, Cross Sticks are shipped flat-packed for field assembly.
- FLEX-TRAK HYBRID MODULE where modules are pre-assembled at the factory.



CLEANPAK FAN FILTER UNITS

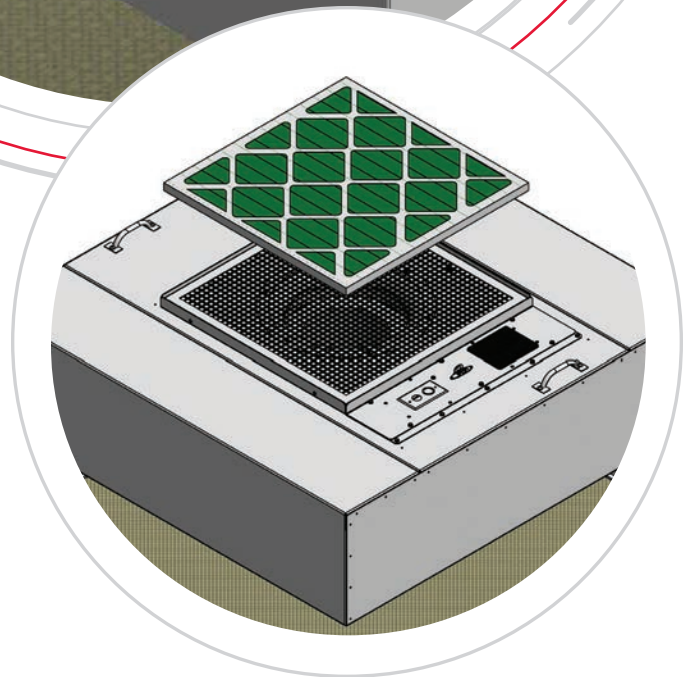
Our FFUs reduce operating costs and provide an unprecedented amount of monitoring and control features for seamless fab operation. CLEANPAK Fan Filter Units incorporate a highly efficient backward curved plenum fan with a high-efficiency brushless DC motor.



- 4x4, 2x4, 2x3, 2x2 Nominal Sizes
- HEPA / ULPA Filters
- 200-277VAC 50/60Hz power input
- High reliability motors and drive electronics
- Designed to eliminate bearing corrosion due to electrical discharge
- Pre-Filter mounted on top (optional)
- Room side replaceable filter cartridge (optional)

Control Options

- Local Manual Speed Control
- MODBus RTU with control console
- MODBus RTU for direct control from building management system



CLEANPAK AIR HANDLING UNITS

Custom Air Handling Units offer very low vibration and noise levels. Featuring FANWALL Technology for superior redundancy, small footprints, versatile inlet and discharge configurations, low noise and vibration. Integral to the quality of the air handling unit are high efficiency fans, designed and manufactured specifically for our products for extremely quiet/low vibration operation. Air handlers feature Premium efficiency motors, Ultra-premium Efficiency IE5+ motors, or ECMi motors/drives.

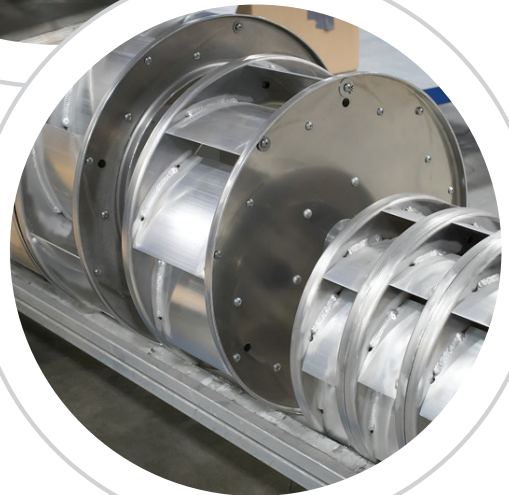
Our air handling units are available to ship from multiple manufacturing sites strategically located across North America.

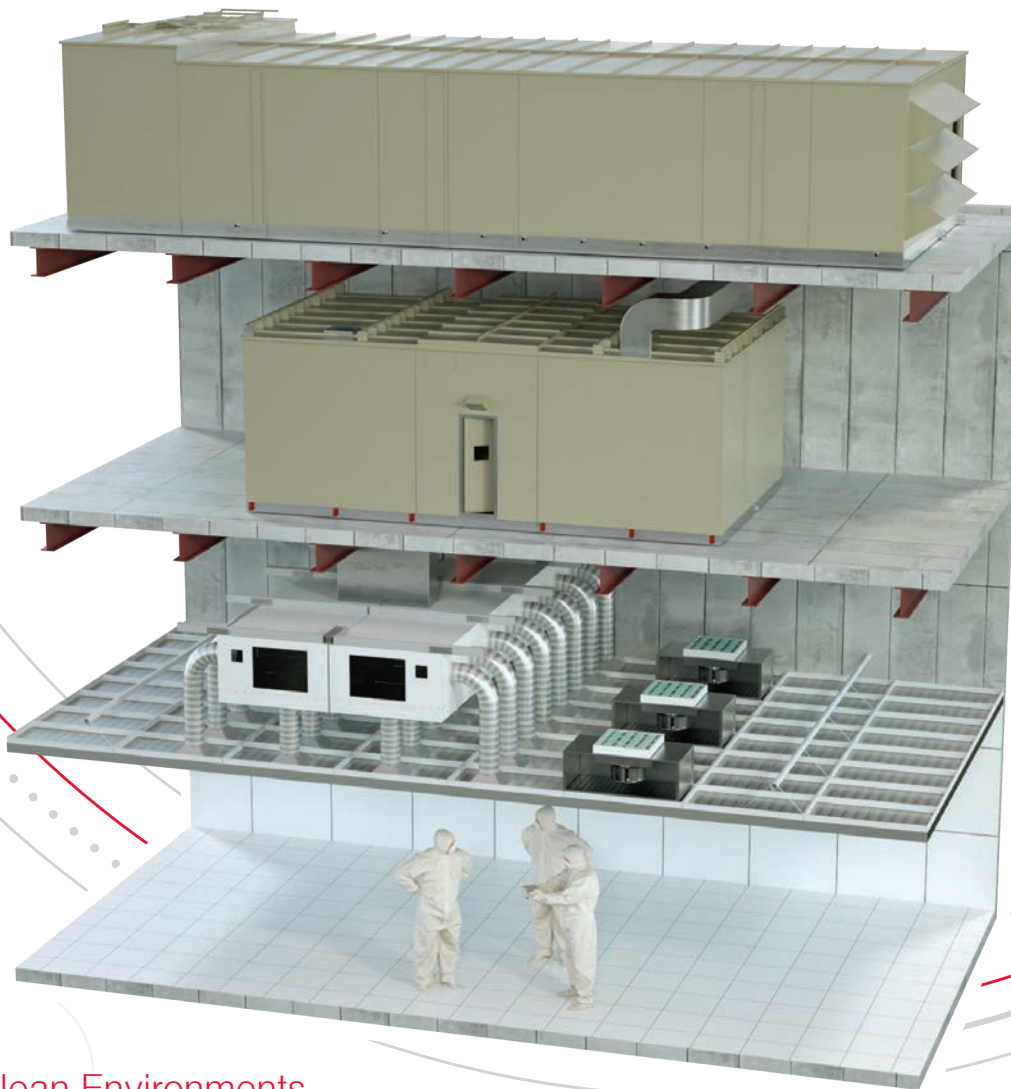
Recirculating Air Handlers

- Highest level of performance & reliability
- Meets NC-60 noise criteria & below
- Custom sizes from 1000 to 200,000 CFM
- Easy to remove fan/motor assembly
- Volume control & flow measurement options
- Cabinet finish easy to maintain with low off-gas materials

Make-Up Air Handlers

- Welded structural steel base
- Removable panels & insulation
- Rugged, efficient, & quiet fans
- FANWALL TECHNOLOGY® fan arrays with built-in redundancy for no down time, reliability, low noise and vibration, and flexible aspect ratios.
- Non-shedding insulation panels
- Optional flow control and optimization

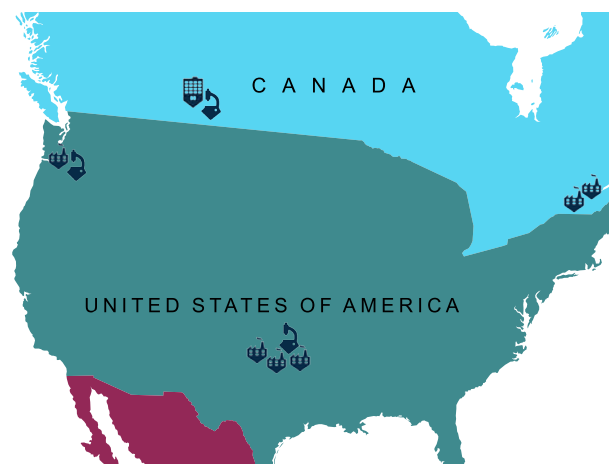




Advancing Clean Environments From Concept to Completion

CLEANPAK® continues to advance all standards of clean environments by controlling the full process of cleanroom development, from design concept to project completion. By responding to industry-specific requirements, our cleanrooms are setting precedents for the microtechnology, semiconductor, biotechnology and pharmaceutical industries. Being responsive to customer needs with strong support while maintaining active engagement in research and development has placed us in the forefront of cleanroom products and systems. Creating the right solution for your critical environment begins with discussing your specific requirements, identifying the challenges, designing a solution and ultimately delivering a custom-engineered package that meets all your unique needs.

Our air handling units are available to ship from multiple manufacturing sites strategically located across North America.



-  Manufacturing & Centers of Excellence
-  Office
-  Innovation Centers

Patents pending. To see patents related to products in this brochure please visit www.nortekair.com/patents.

Specifications and illustrations subject to change without notice and without incurring obligation.

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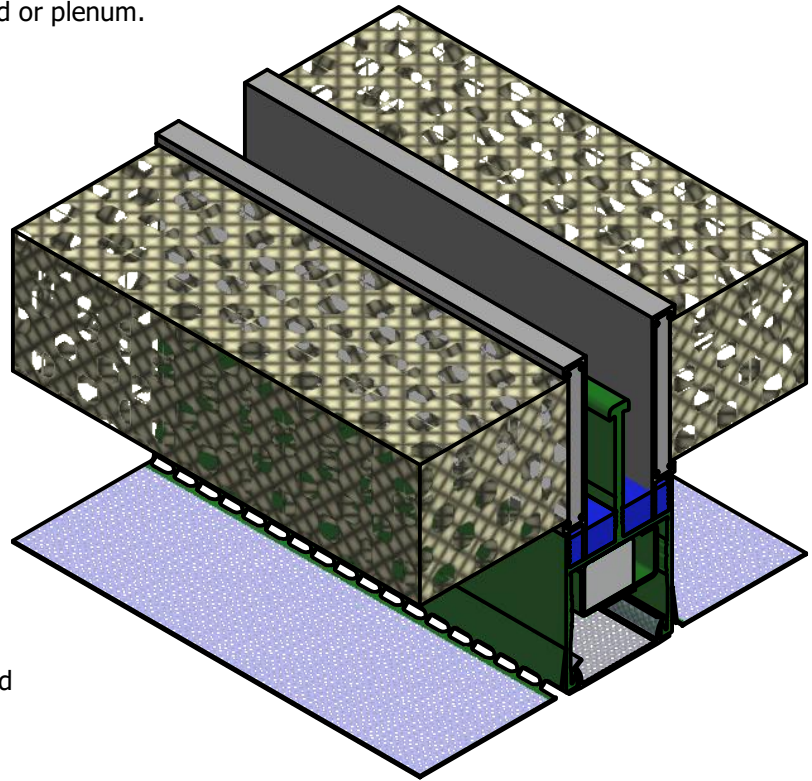
 **NORTEK**
CLEANSPACE

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nortekairinfo@nortek.com

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NAS-CSP-SB-1 20231104

CLEAN-TRAK TOP-LOAD FLUSH CEILING SYSTEM

The CLEANPAK cleanroom filtered ceiling system with continuous grid in both directions features powder coated extruded aluminum grid channels, integrated lighting, integrated sprinkler system, associated connectors, grid hanging all-thread rod from grid to turnbuckle, filters, and accessories such as filter dampers, blank pans, return air grilles, clips, and miscellaneous hanging hardware and clips for wall head track and grid face hanging support. The system enables up to full filter coverage by moving the lighting out of the grid opening and placing it in a linear grid channel. It allows full flexibility in cleanroom, wall, equipment, and track layouts. Filters and components can be top loaded or loaded from the bottom by tipping the component through the grid opening. The ceiling fully integrates with air movement devices for complete systems like fan tunnel systems with RAHs on top of plenum, remote RAHs ducted to filters in grid, remote RAHs pressurizing interstitial, end blower modules, vertical side blower modules, or FFUs in grid or plenum.



KEY FEATURES

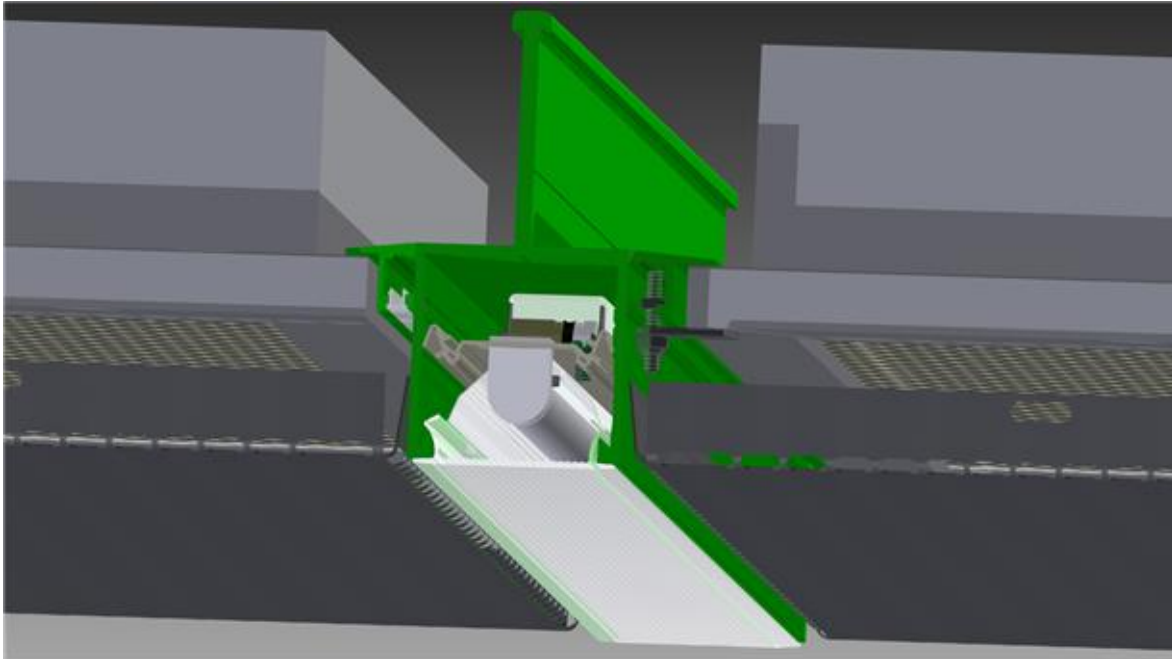
- Flush ceiling grid module.
- Extruded aluminum top-load grid.
- Welded modules up to 8x24 foot for rapid field installation. Optional stick-built grid.
- Gasketed or gel filter interface.
- Integral LED lighting.
- Integral fire protection. A true flush concealed sprinkler head can be used in the grid extrusion.
- Clean-Screens for washing out particles under grid channel.
- Optional GelLink seal that flows between modules for leak-free module to module joints.
- Optional integrated ionization wiring.
- Option to be walkable on the filters, FFUs, or blank pans.
- Optional Equalizer can be used to balance the ceiling filters.
- Optional plenum can.

CONDENSED SPECIFICATION optional items noted in []

The grid [plenum] system shall be the Clean-Trak top-load flush as manufactured by CLEANPAK. The cleanroom filtered ceiling system shall consist of a continuous ceiling grid with powder coated extruded aluminum grid channel, integrated lighting, integrated sprinkler system, associated connectors, grid hanging all-thread rod from grid to turnbuckle, nominal 2x4 foot [4x4 foot] filters, and accessories such as filter dampers, blank pans, return air grilles, clips, and miscellaneous hanging hardware and clips for wall head track, grid face hanging, and piping. The ceiling grid shall have a top trough to accept gel in the field for a leak-free seal of components. [The ceiling system shall have gasket on the top for a non-pressurized interstitial application.] [The ceiling system shall also include a positively pressurized plenum that is an integral part of the ceiling grid. The ceiling grid for plenums is required to have gel seals for sealing the filters to the grid. Gasketed seals between filter and grid for positively pressurized plenums are not allowed.] [The plenum shall have a series of fans installed in the roof to provide for airflow through the system.] The grid extrusion shall have integrated flush lighting within the grid channel that is capable of 100% filter coverage of the entire ceiling. The grid extrusion shall be capable of accepting a true flush sprinkler head within the width of the extrusion. [The grid shall have a GelLink seal that flows gel between module joints.] [The grid shall have Clean-Screens at the grid face that have perimeter slots to jet air underneath the grid member and wash out the area of particles.]

CLEAN-TRAK BOTTOM-LOAD FLUSH CEILING SYSTEM

The CLEANPAK Bottom-Load Flush ceiling is an extension to the Clean-Trak flush ceiling system. This extrusion is suited for applications where the space above the ceiling grid is limited and where the application calls for the filters to contain gel rather than the ceiling grid. It enables you to load filters, fan filter units, or blank pans straight up without tipping or rotating them through the grid opening. The extrusion features a downward facing knife-edge to which the gel in the filter or blank pan will seal.



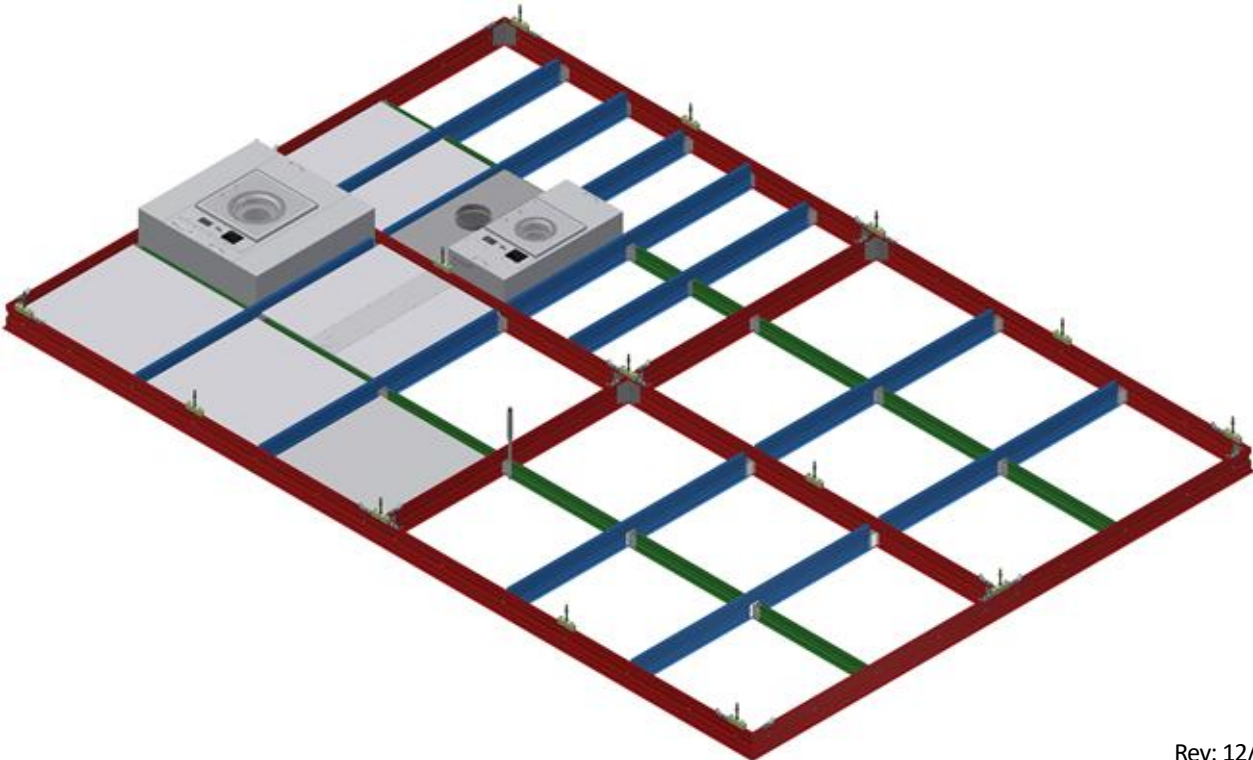
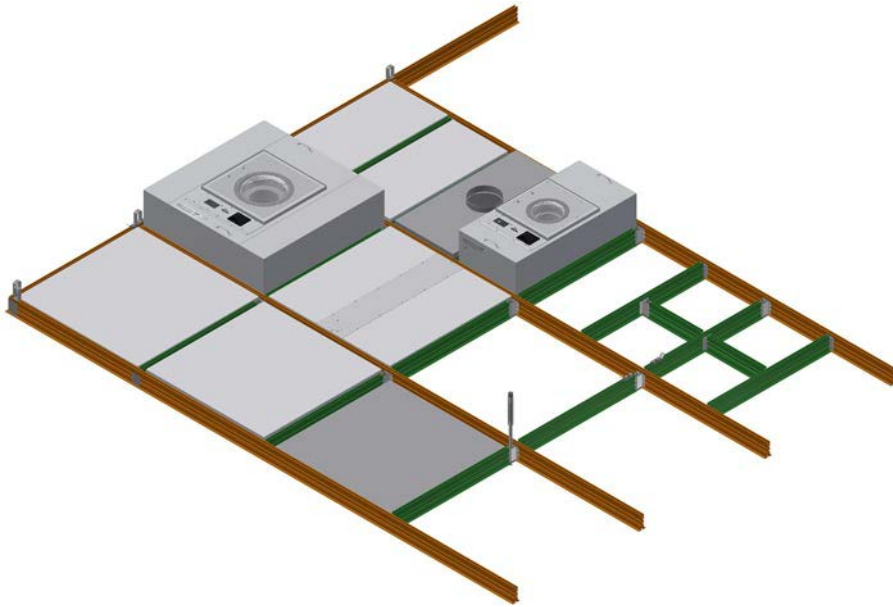
KEY FEATURES

- Integral knife-edge extrusion.
- Welded module grid with welded knife-edges miters. Optional stick-built grid with field caulked miters.
- Integral LED lighting.
- Continuous slot extrusion for the retaining clips allows for superior load capacity.
- ¼ turn filter retaining clips that do not generate particles (we do not use a screw receiver extrusion since it generates particles).
- Closure strip for the slot to eliminate particle cavities.
- A true flush concealed sprinkler head can be used in the grid extrusion.
- Filters that are pre-gelled at the filter manufacturer's facility.
- Option to be walkable on the filters, FFUs, or blank pans.
- Optional Equalizer can be used to balance the system with a center adjustment port in the filter.
- Optional plenum can.
- Of course, this system includes all the features and options of the patented Clean-Trak ceiling system such as the flush ceiling, integrated lighting, built-in fire protection, Clean-Screens®, welded modular grids or stickbuilt grids, modular plenums, special finishes for chemical resistance, and GelLink™ seal at module joints.

CONDENSED SPECIFICATION optional items noted in []

The grid [plenum] system shall be Clean-Trak Bottom-Load Flush as manufactured by CLEANPAK International. The grid will have a downward facing knife-edge that will accept pre-gelled filters. [Welded modules shall have welded knife-edge miters.] Filters, blank pans, and FFUs shall be capable of being loaded from the bottom without tipping or rotating of the filters into the grid opening. The grid extrusion shall have integrated flush lighting within the grid channel that is capable of 100% filter coverage of the entire ceiling. The extrusion shall have a continuous slot to seat a nut to which the filter retaining clip shall attach. A screw receiver slot extrusion shall not be used. The grid extrusion shall be capable of accepting a true flush sprinkler head within the width of the extrusion. [The grid shall have a GelLink seal that flows gel between module joints.] [The grid shall have Clean-Screens at the grid face that have perimeter slots to jet air underneath the grid member and wash out the area of particles.]

CLEANPAK FLEX-TRAK™ STICK-BUILT T GRID & FLEX-TRAK HYBRID T GRID



Rev: 12/12/2023

CLEANPAK FLEX-TRAK GRID

The CLEANPAK Flex-Trak™ cleanroom ceiling is a high-performance walkable stick-built gasketed T grid system.

The anodized aluminum grid profiles feature side T-slot channels that allow for flexibility in layout configurations. They also feature top and bottom tracks for grid suspension and below grid suspension. The nuts into all channels and tracks drop into place to enable hardware installation at any time.

The grid cross sticks optionally feature a port bracket that allows for installation of flexible fire protection hoses or other electrical or instrumentation devices.

The grid extrusion also incorporates a slot for accepting an optional rotating flange to allow for bottom-loading of components.

Key features:

- Walkable grid
- T-nut slots for flexibility in grid configurations
- Pre-marked main runners for cross-stick locations
- Top and bottom tracks with high single point load capacity
- Minimized added parts to handle drag loads
- Grid sticks are available in a standard 5" tall profile for around 4' spans and an 8" tall profile for large spans
- Optional ports in cross-stick
- Optional bottom-loading flange

There are 2 versions of the grid:

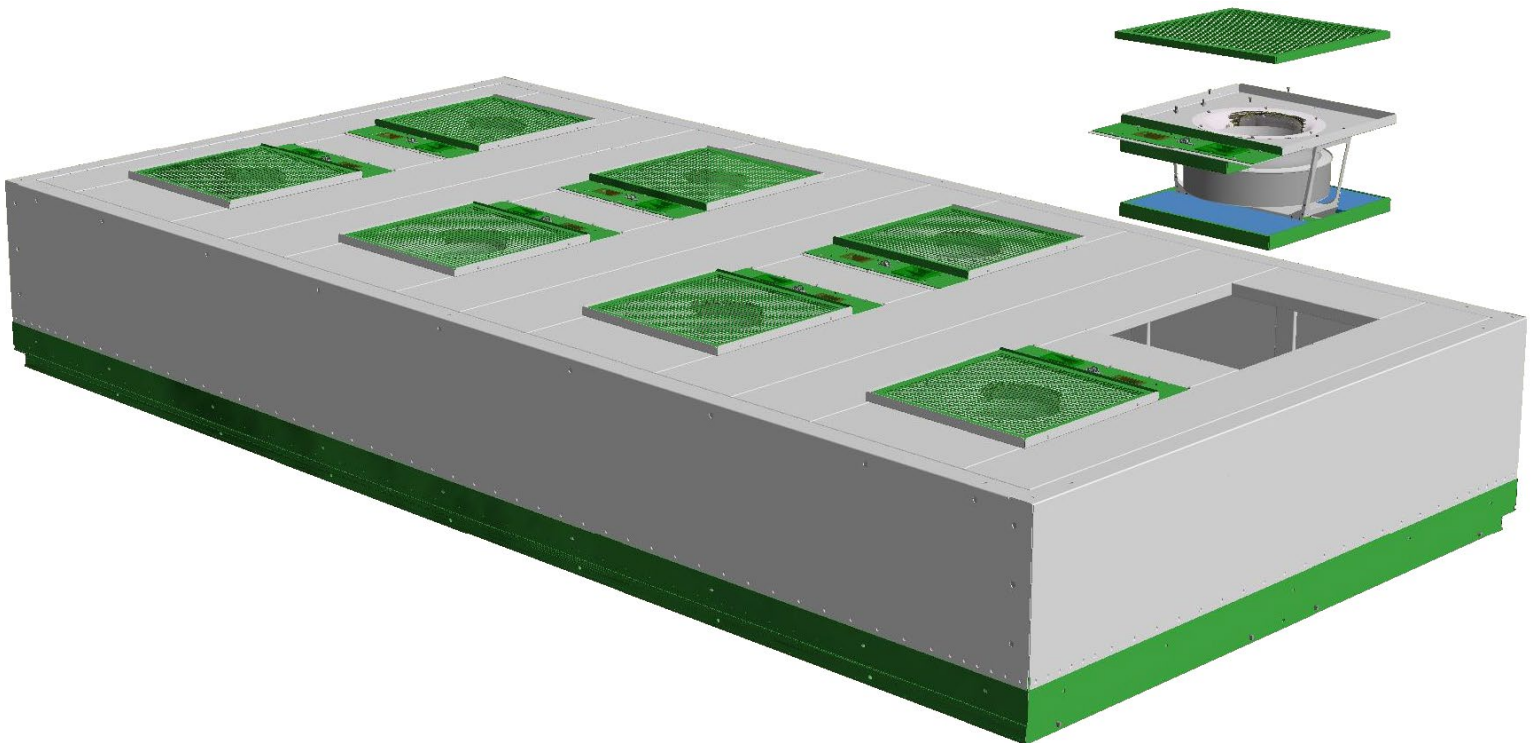
- Flex-Trak Stick-built where there are only full profile sticks of Main Runners and Cross Sticks. The top track takes 1/2" hardware to enable single point hanging on a 4'x4' suspension array with high load capacity.
- Flex-Trak Hybrid marries the best features of modular grids and stick-built grids by utilizing Exterior Half Profile Sticks to allow for a bolted together module that can be installed rapidly in modules but also be disassembled for future retrofit work. The grid modules are nominally sized at 8'x12'. The Cross Sticks and Intermediate Sticks are the same full profiles used in the stick-built version. This hybrid version is suspended on a 6'x8' suspension array with 5/8" hardware.

This grid system ships in 3 configurations:

- Flex-Trak Stick-built where the Main Runners and Cross Sticks are shipped flat-packed for field assembly.
- Flex-Trak Hybrid Flatpak where the Exterior Half Profile Sticks and Cross Sticks are shipped flat-packed for field assembly.
- Flex-Trak Hybrid Module where modules are pre-assembled at the factory.

PlenPAK CPPP-EC-ZA

- Cleanroom flush ceiling grid, with integrated lights and sprinkler system, with integrated welded plenum modules, and with integrated fans.
- Bottom-load or top-load filter ceiling grid.
- Optional return air plenum.
- Optional coils in return air plenum.
- Powder-coated or stainless steel
- Integrated top-plate fan assemblies featuring:
 - High capacity of 1440 CFM true airflow volume at 1.5 iwg TSP
 - Acoustically baffled fans
 - High efficiency UL listed brushless DC electronically commutated external rotor motor with integrated electronics. Permanently lubricated ball bearings with bearing L10 life > 100,000 hours. Integrated method to mitigate electrical arcing across the bearings. Integrated encapsulated electronics with built-in electronic motor overload protection, locked rotor protection, active thermal management, and active power factor correction.
 - Integrated ModBus RTU communication for direct control from building management system. Unit is capable of accepting speed and status setpoints, and reporting out motor/controller alarms, and speed and status. Several other Modbus RTU points are available. Capable of handling up to 62 fan modules per Modbus master line. 2 female RJ45 jacks provided in fan module for daisy chaining of patch cables.



STARRCO SG-200

Cleanroom Ceiling Grid

The System

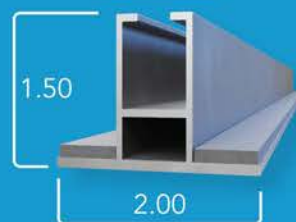
A 2" structural ceiling grid designed and manufactured for a variety of cleanroom and controlled environment applications. Trusted by industry professionals for over 10 years, the system's key components arrive fully assembled for time saving installation.

The Advantage

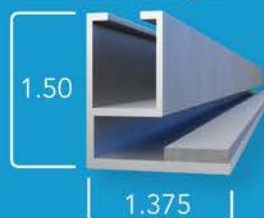
Designed for the installer, the pre-assembled Alignment Strip spaces the layout in a standard 2' x 4' grid for you, removing the need to constantly measure and confirm spacing for Main and Cross Tees.

- Aluminum 6061-T6
- Clear Anodized Finish
- Factory-applied Gasket
- Rod-hung Suspension
- Non-progressive Design
- Seismic Rated
- 100% Filter Capacity

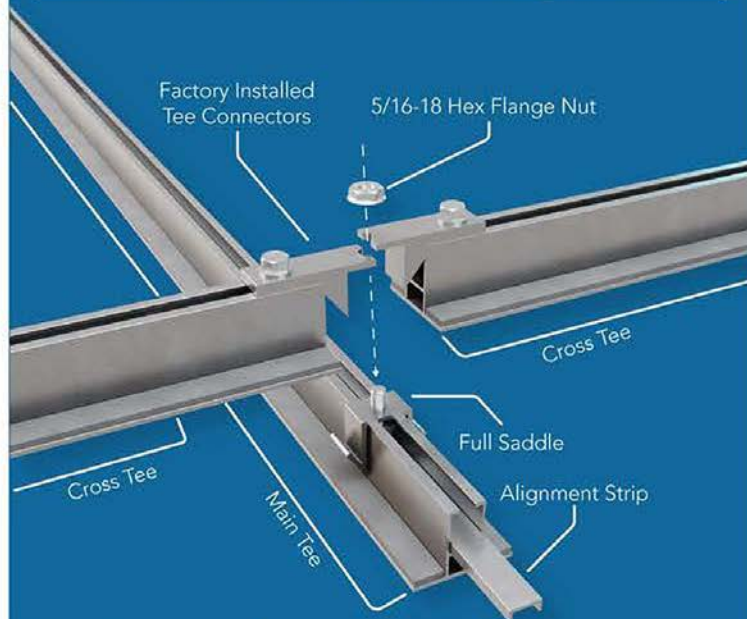
Tee Profile



Wall Angle



Quick Connect System



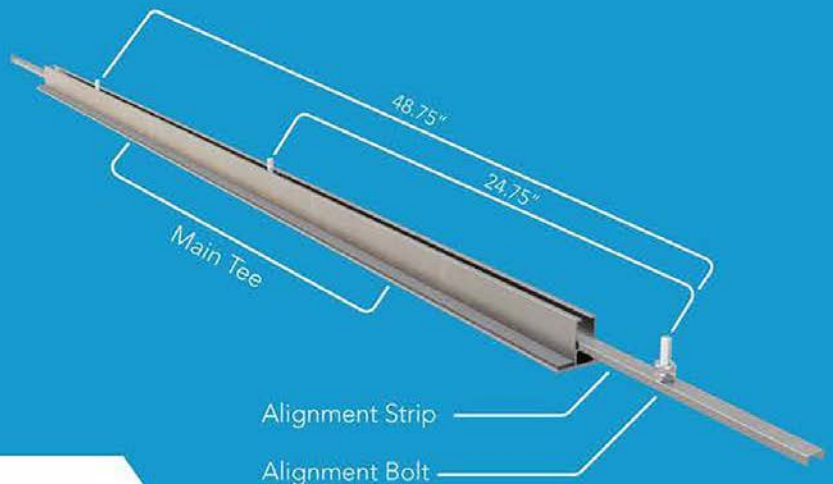
The Slider and Connectors are designed so the system draws Tees flush, eliminating gaps between Cross and Main Tees.

The Quick Connect System allows for seamless Tee installation.

The Alignment Strip

The Alignment Strip is assembled in our factory for a 2' x 4' ceiling configuration.

The Alignment Strip rests inside the system extrusions, providing pre-measured spacing for the Main and Cross Tees saving you valuable installation time.



Video Installation Instructions

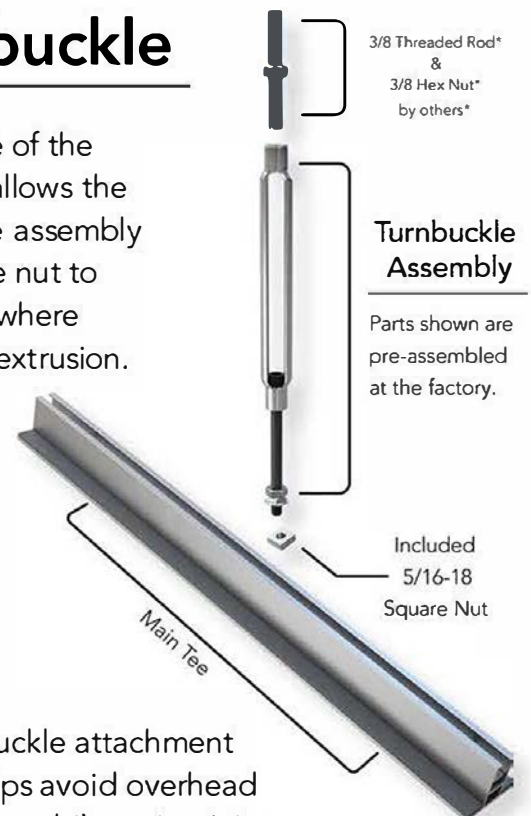


Loading Properties

Deflection Ratio	L/360	L/180	L/360	L/180
Hanger Spacing	49.5"	49.5"	24.75"	24.75"
Max Allowable Deflection	.1375"	.275"	.068"	.1375"
Max Mid Span Point Load	#60	#120	#240	#480
Max Deflection for Uniform Load	#96	#192	#384	#768

Turnbuckle

The profile of the Main Tee allows the Turnbuckle assembly and square nut to attach anywhere along the extrusion.



The Turnbuckle attachment system helps avoid overhead obstructions while maintaining drop rods on approximate 4 ft. centers

USG DONN® BRAND CE™ ACOUSTICAL SUSPENSION SYSTEM

USG Donn® Brand CE™
Acoustical Suspension System/
USG Clean Room™ Acoustical
Panels with ClimaPlus™
Performance-Class 100

TO ORDER SAMPLES, GO TO USG.COM OR CGCINC.COM

STANDARD COLORS



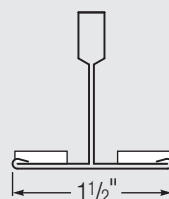
Flat White
050

POWDER-COATED FINISH

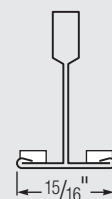


Powder
White 3767

PROFILE

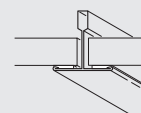


USG Donn® Brand



USG Donn® Brand

EDGE DETAIL



Square Edge

FEATURES AND BENEFITS

- Grid system with factory-applied white, closed-cell foam gaskets for controlled environments.
- Min. G30 hot-dipped galvanized body provides corrosion protection.
- Supports Clean Room HEPA filters and lights.
- ICC-ES evaluated for building code compliance and seismic installations (ICC-ESR-1222).
- Capable of withstanding cleaning and/or disinfecting chemicals as tested in accordance with ASTM D402.

APPLICATIONS

- Clean rooms
- Hospitals
- Food processing areas
- Healthcare facilities
- Certified to meet ISO 14644-1 Class 5 (Fed. Standard 209E Class 100)

USG DONN® BRAND CE™
ACOUSTICAL SUSPENSION SYSTEM

ORDER SAMPLES/LITERATURE
USG: samplitt@usg.com
fax: 888 874-2348 | usg.com
CGC: contact Sales Representative

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AND LEED REPORT TOOL
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cgcdesignstudio.com

TECHNICAL SERVICES
800 USG.4YOU (874-4968)

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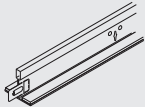
YEAR LIMITED SYSTEM WARRANTY
• No Visible Sag
• Mold/Mildew Protection

HRC

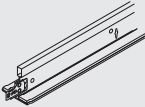
HIGH RECYCLED CONTENT

1-1/2" TEE SYSTEM²

Main Tee

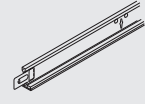


Cross Tee 1-1/2"

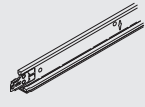


15/16" TEE SYSTEM

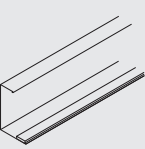
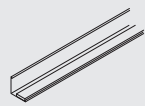
Main Tee



Cross Tee 1-1/2"



MOLDING^{4,5,7}



ASTM Class	Length	Height	Item No.	Fire Rating	Color	Seismic Design Category		Rated Load ^{1,2,3}		
						IBC	ICC-ES Evaluated Installation	4' Hanger Spacing	5' Hanger Spacing	6' Hanger Spacing
Heavy Duty	12'	1-1/2" 38 mm	DXWCE26 	Class A	Flat White	A-F	7/8" Molding ACM7 Clip	16 lb./LF	7.3 lb./LF	4.9 lb./LF
	2'	1-1/2" 38 mm	DXWCE224	Class A	Flat White	—	—	36 lb./LF		
	4'	1-1/2" 38 mm	DXWCE424	Class A	Flat White	—	—	13 lb./LF		
Intermediate Duty	12'	1.64" 42 mm	DXCE24	Class A	Flat White	A-C	7/8" Molding ACM7 Clip	12 lb./LF	6.1 lb./LF	3.6 lb./LF
	Heavy Duty	12'	1.64" 42 mm	DXCE26	Class A	A-F	7/8" Molding ACM7 Clip	16 lb./LF	7.3 lb./LF	4.9 lb./LF
	2'	1-1/2" 38 mm	DXCE224	Class A	Flat White					
	4'	1-1/2" 38 mm	DXCE424	Class A	Flat White					
Wall Angle	Length	Item No.		Color		Hold-Down Clips ⁶				
	12'	M7CE 		Flat White						
	10'	US28CE		Flat White						

High Recycled Content
Classified as containing greater than 50% total recycled content. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

PHYSICAL DATA/
FOOTNOTES

Product literature and samples
Data sheet: AC3129
DXCE sample: 207901

Material
Min. G30 hot-dipped galvanized steel body and cap. Baked-on polyester paint or powder-coated finish.

Installation
Must be installed in compliance with ASTM C636, ASTM E580, CISCA and standard industry practices, within all applicable code requirements. Class 5 (Fed. Standard 209E Class 100) installations require hold-down clips and US28CE molding. Install a L15 hold-down clip within 3 in. of each panel corner. For a 2' x 4' system install an additional L15 hold-down clip centered on the 4' side. Border panels shall have a C-8 hold-down clip within 3 in. of each panel corner. For a 2' x 4' system install an additional C-8 hold-down clip centered on the 4' side. Alternative assemblies and installation methods may be utilized when approved by the authority having jurisdiction.

Online tools
usgdesignstudio.com or cgcdesignstudio.com

Limitations
Interior applications only. The gasket face contains a protective strip that must be removed prior to panel installation. The standard gasket is not recommended for installations with metal panels. If metal panels are desired, a special gasket suitable for metal panels may be applied to the USG Donn® Brand CE™ Acoustical Suspension System through special order.

ICC Evaluation Service, LLC Report Compliance
For areas under ICC jurisdiction, see ICC-ES Evaluation Report ESR-1222 for allowable values and conditions of use. Reports are subject to reexamination, revision and possible cancellation. Refer to usg.com for most current version.

LA Research Report - RR 25764
Refer to usg.com for most current version.

ASTM Load Compliance
Classified as Light, Intermediate or Heavy Duty when tested in accordance with ASTM C635.

Healthcare facilities
– Capable of withstanding cleaning and/or disinfecting chemicals as tested in accordance with ASTM D402-93.

Testing
Tested in accordance with Federal Standard 209E.

Notes

1. Load test data shows uniform load in lb./LF based on simple span tests in accordance with ASTM C635 deflection limit on L/360.
2. When required, lay-in light fixtures used in Clean Room ceiling assemblies shall be certified for Clean Room applications.
3. HEPA filters must be supported at all four corners of grid module.
4. For more information on moldings, see Perimeter Interface selector.
5. Panels must be field-cut to size at the perimeter.
6. US28CE molding and L15 and C-8 hold-down clips required for Clean Room ISO Class 5 (Fed. Standard 209E Class 100) applications.
7. Metric sizes available by RTQ.

Notice
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550 West Adams Street
Chicago, IL 60661

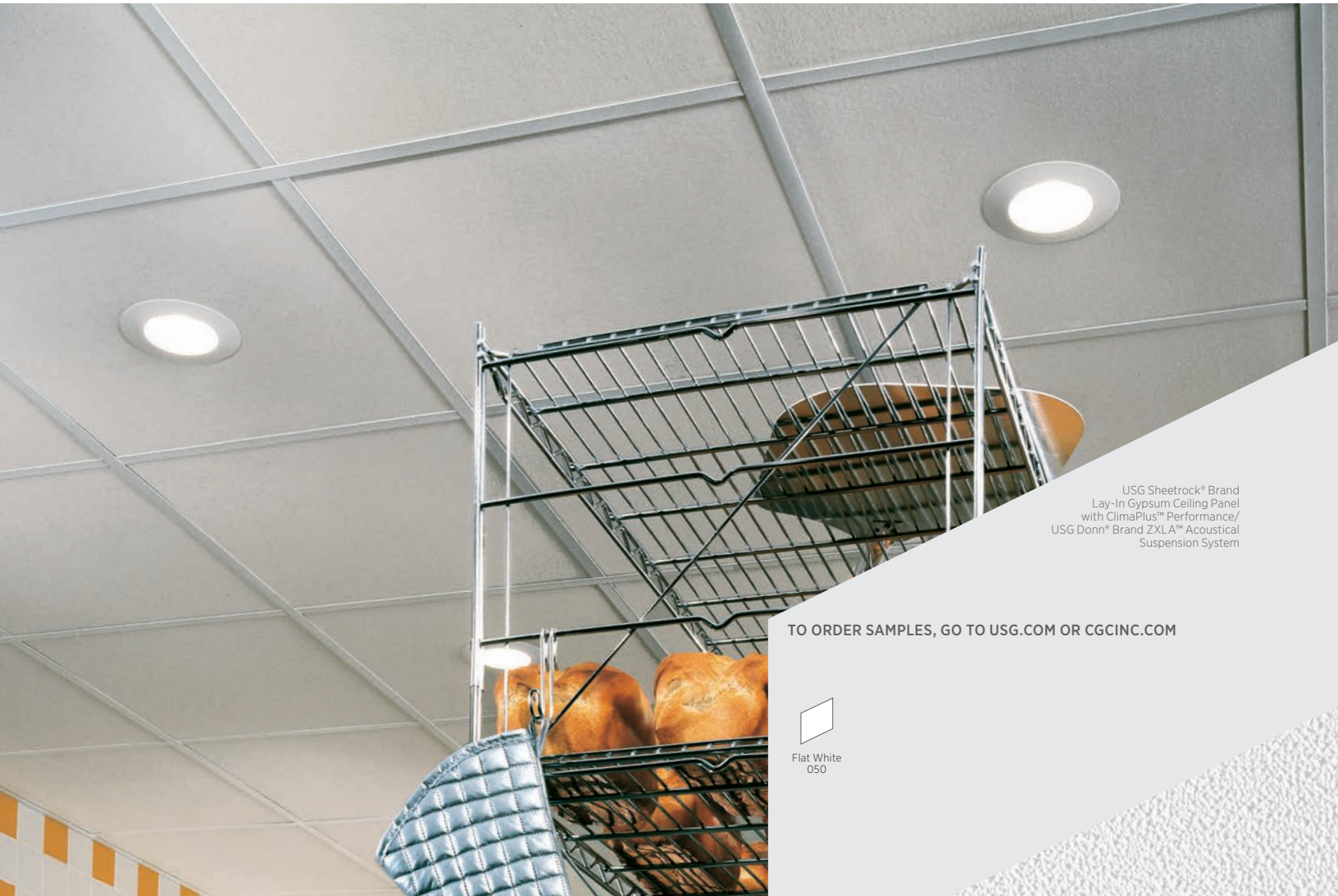
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Safety First! Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.



USG SHEETROCK® BRAND LAY-IN GYPSUM CEILING PANELS

CLIMAPLUS™ PERFORMANCE



USG Sheetrock® Brand
Lay-In Gypsum Ceiling Panel
with ClimaPlus™ Performance/
USG Donn® Brand ZXL™ Acoustical
Suspension System

TO ORDER SAMPLES, GO TO USG.COM OR CGCINC.COM



Flat White
050

FEATURES AND BENEFITS

- USG Clean Room™ panels have a vinyl-laminated face with sealed back and edges for use in Clean Room environments up to Class 100/ISO 5.
- Washable and scrubbable finish—impact and scratch resistant.
- USDA Certified Biobased Product.⁷
- Panels meet USDA/FSIS requirements for food processing areas.
- ClimaPlus™ 30-year limited system warranty against visible sag, mold and mildew.

APPLICATIONS

- Kitchens and food preparation areas
- Restrooms and utility areas
- Locker rooms
- Parking garages
- Exterior protected soffits

SUBSTRATE

- Gypsum panel

Smooth-Textured Panel - Vinyl

USG SHEETROCK® BRAND LAY-IN GYPSUM CEILING PANELS

CLIMAPLUS™ PERFORMANCE

ORDER SAMPLES/LITERATURE
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PRODUCT CERTIFIED
FOR LOW CHEMICAL
EMISSIONS:
ULCOM/GG
UL 2818

30 YEAR LIMITED SYSTEM
WARRANTY
• No Visible Sag
• Mold/Mildew Protection

10 YEAR AVAILABILITY
3270

HRC HIGH RECYCLED
CONTENT



USG SHEETROCK® BRAND LAY-IN CEILING PANEL

USG SHEETROCK® BRAND LAY-IN CEILING PANEL CLEAN ROOM™ 5

GRID PROFILE OPTIONS

PHYSICAL DATA/ FOOTNOTES

UL Classified

Edge	Panel Size	Fire Rating ²	Item No.	NRC ⁴	CAC Min.	LR ³	Color	Abuse Resistant	Grid Options	VOC Emissions	Recycled Content ¹	Panel Cost
SQ	2'x2'x1/2"		3260	-	35	0.77	White		A, B, C, D	Low	80%	\$
	2'x4'x1/2"		3270	-	40	0.77	White		A, B, C, D	Low	80%	\$
SQ	2'x4'x1/2"		3200	-	40	0.77	White		A, B, C, D	Low	80%	\$\$

Low Emissions (VOC)

Third party (GREENGUARD Gold) certified for low-emitting performance, meets California Department of Public Health's (CDPH) Standard Method v1.1 - 2010 (CA Section 01350). 'Certificates of Compliance' for Low VOC Emissions are available on usg.com and at productguide.ulenvironment.com.

High Recycled Content

Classified as containing greater than 50% total recycled content. Total recycled content is based on product composition of postconsumer and preconsumer (postindustrial) recycled content per FTC guidelines.

Firecode®

Abuse Resistant

A USG DX®/DXL™	B USG DXLA™	C USG ZXLA™	D ⁶ USG CE™

Product literature
Data sheet: SC1820

ASTM E1264 classification
Type XX, Pattern G

ASTM E84 and CAN/ULC S102
surface-burning characteristics
Class A
Flame spread: 25 or less
Smoke developed: 50 or less

UL Type
FC-CB

Weight
1/2" = 2.00 lb./sq. ft.

Online tools
usgdesignstudio.com or cgcdesignstudio.com

Thermal resistance
1/2" = R-0.45

Maximum backloading
See *USG 30-Year Limited System Warranty Commercial Applications* (SC2102).

Maintenance
Can be cleaned easily with a damp sponge. Use mild detergent and water—do not use acetate, ammonia or high concentration of chlorine, bromide or other harsh chemicals.

Application considerations
Product is directional. Install with all manufactured edges parallel and in the same direction.

Notes

- For details, see LEED report tool at usgdesignstudio.com or cgcdesignstudio.com.
- Fire-rated items: see UL design details.
- LR values are shown as averages.
- NRC rating is 0.10. USG does not consider a ceiling panel to be acoustically rated if NRC is less than 0.50.
- Field-cut edges of USG Clean Room™ panels must be sealed with white latex paint.
- Clean Room-rated applications require a suspension system with gasketed tee flanges such as USG Donn® Brand CE™.
- This product has achieved both BioPreferred initiatives: Federal Procurement Preference and Certified Product Labeling. See the complete listing of all USG ceiling panels on biopreferred.gov website.

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Chicago, IL 60661

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Safety First! Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.





HEPA Filtration



Pharmaseal® Ducted Ceiling Module

All-Welded, Pressure Tested, Roomside HEPA Module



Unique components allow quick access and fast filter change and certification using one service person



Universal tool-less filter holding clamps, filter retaining clips and quick disconnects along with a hinged grille facilitate easy one person unit service.

The Camfil Pharmaseal ceiling module provides cleanroom level air filtration for pharmaceutical or biotechnology facilities as well as any other facility where clean space is a manufacturing or health-related requirement. Its unique roomside replaceable filter design minimizes downtime and ensures repeatable room air cleanliness following filter service. The Camfil Pharmaseal:

- Is constructed of 0.063" aluminum with welded seams on the roomside to eliminate leak paths and ensure structural rigidity. It is also available constructed of fully-welded 16-gauge stainless steel. Each unit is pressure tested to 3.00" w.g.
- Is designed to be installed into a T-bar or plaster ceiling. A flush mounted model is available for installation into a solid ceiling.
- May be ordered with a guillotine, radial bow tie, or 100% shut-off isolation damper for decontamination applications.
- Includes an all metal air aerosol distribution system with a quick disconnect roomside port for uniform dispersion across the entire face of the filter.
- Includes a raised-rib inlet collar for easy connection to a flexible HVAC air duct supply. It includes a 12" round inlet for connection to air supply on full size modules and a 10" round inlet connection on half size modules. The Pharmaseal may be selected with top inlet or side inlet.
- Hood height may be 9", 12-1/4" or 18" based upon selected hood construction materials of 0.063" aluminum, 16-gauge or 304 stainless steel.
- Includes a hinged, flush-mounted face grille with quick release 1/4-turn fasteners for unit service. The grille is concealed and optimized to promote uniform airflow.
- Includes a quick disconnect static pressure port for evaluating filter pressure drop or sampling of the upstream aerosol concentration during filter scan testing. This allows fast easy service from the roomside for filter change, airflow adjustment and filter scan testing.
- Accepts Camfil Megalam gel seal filters in depths of 53 mm, 70 mm or 100 mm that may be selected for optimum airflow and/or energy savings. A gasket seal filter may be applied as an option. Filters, ordered separately, may be selected from Camfil Pharma Megalam Panel Product Sheet.
- Filters are available in efficiencies from 95% at 0.3 micron (H13) to 99.9995% (U15) at most penetrating particle size.

Camfil's flexible fabrication capabilities can supply the Pharmaseal with virtually any option to address any cleanroom requirement.

Camfil Pharmaseal HEPA Ducted Ceiling Module

The Pharmaseal is a fully customizable module that can include significant features specific to your application. To customize your Pharmaseal please seek the assistance of your Camfil representative. Common options include specialized dampers, face grille or trim variations, alternate materials of construction, air inlet location (top or side), housing support methods and siesmic secure components.

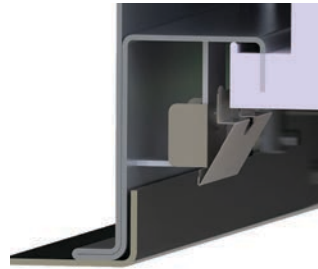
See Pharma Megalam Panels product sheet for multiple filter selections for efficiency and multiple filter depth selection for energy savings.

Permanent Trim

Designed for application in to a T-bar ceiling, the Pharmaseal may be also be ordered with removable trim. For negative pressure rooms, please contact factory.

Gel-Penetrating Knife-Edge

The Pharmaseal includes a gel-penetrating knife-edge that affects a positive seal between the housing and the filter. The corner joints of knife-edge junctures are continuously welded to eliminate leak paths. The controlled depth knife-edge design ensures that filter will not bottom out in the track eliminating metal to metal contact and the most common location for potential bypass.

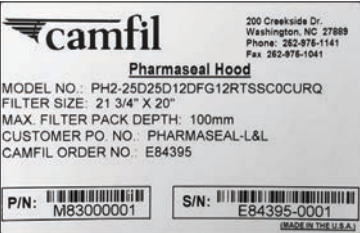


Spring Loaded Filter Guide and Filter Retainer Clip

An auto-centering, spring loaded filter guide ensures that the HEPA filter fits properly to the gel-sealing knife-edge of the housing. The filter snaps securely into place creating a uniform gel penetration and leak free filter perimeter seal.

Quick Grille Fasteners

Quick access grille fasteners require no tools to access the Pharmaseal for servicing. Maintenance can be performed by a single serviceperson.



Full Product Detail on Unit Labels

Serial numbers are assigned to each hood after leak testing. This allows testing traceability.

Secure Connection to HVAC System

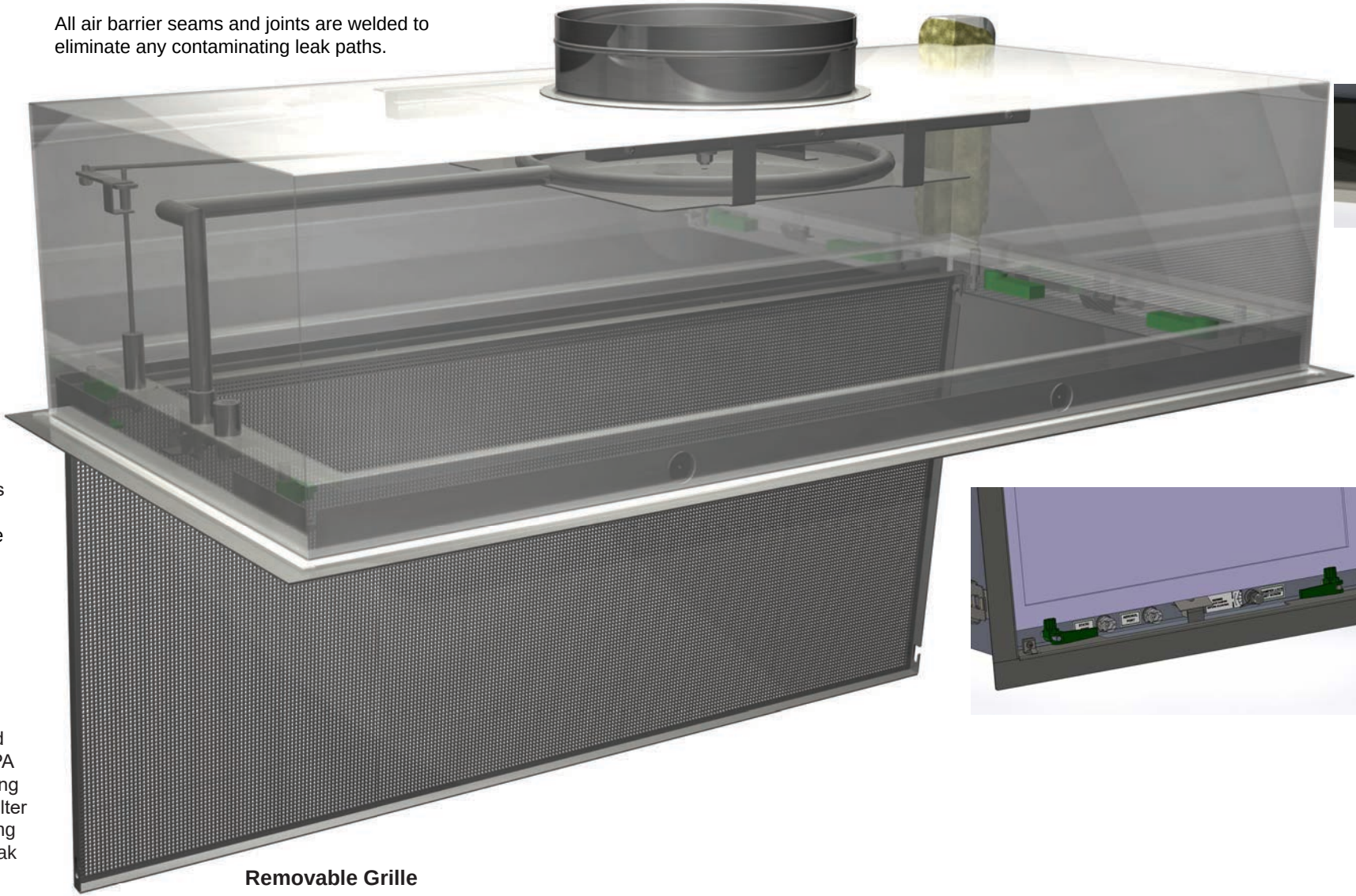
Duct connection collar is ribbed to ensure a secure flexible duct connection. It is also available with duct grips to prevent flexible duct blowoff.

Completely Weld Sealed to Prevent Leaks

All air barrier seams and joints are welded to eliminate any contaminating leak paths.

Universal Support Brackets

The Pharmaseal comes standard with universal support brackets that allow accurate filter leveling and securely support the module during operation. The hood may be suspended with wires, rods, or you can compress or clamp the hood to ceiling substrate.



Removable Grille

The Pharmaseal comes with a hinged removable grille constructed of stainless steel. The grille ensures protection of the filter and internal housing components and has a 40% open area face screen with a 2B finish. The grille has solid border with no sharp edges.



A Cleanseal access card is provided on orders of 50 units or more.

Lifetime Warranty

The Pharmaseal carries a lifetime warranty to the original purchaser against leaks or manufacturers defects.

Camfil Pharmaseal HEPA Ducted Ceiling Module

Uniform Aerosol Injection Ring and Dispersion Plate

An Integrated aerosol injection ring distributes testing aerosol throughout the housing.

A distribution plate below the injection ring, ensures uniform dispersion across the entire filter area to allow for accurate filter scan testing.



Continuous Hinge

A continuous grille hinge ensure permanent frame alignment and even distribution of grille weight along the entire length of the housing.



Tool-Less Filter Clamps

No tools are needed to remove the filter from the module. Four tool-less clamps securely hold the filter in place and easily release for filter service.

Damper Adjustment & Service Ports

A labeled damper mechanism is mechanically fastened to the hood, allowing adjustment of air across the filter from 0 to 100% depending on damper type selection. The damper has a position indicators to assist with room rebalancing. Percentage of isolation damper open position is shown on an easy to read gauge from the roomside.

A labeled quick disconnect aerosol injection port is standard for uniform aerosol distribution throughout the housing and convenient, expedient unit testing.

A labeled quick disconnect static pressure port for measuring the pressure drop across the installed filter is standard.

Each of the above housing penetrations are sealed to prevent leaks to the filter gel seal assembly.

This combination of features allows filter service, filter certification and system analysis from the roomside by one person.

Optional External Insulation

Pharmaseal modules are available with either external foil-back insulation or closed-cell elastomer insulation. Unit may be insulated on the top, sides, or both.

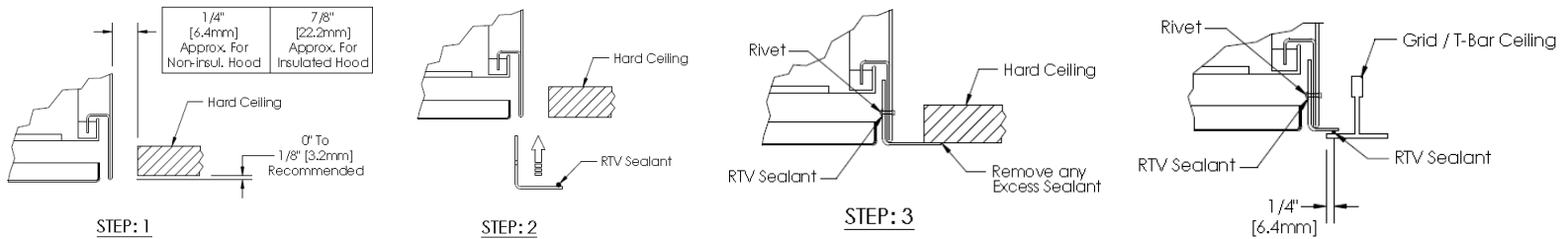
Some graphics may be artistic representation, see sales drawing from Camfil for complete detail.



Pharmaseal® Ducted Ceiling Module

All-Welded, Pressure Tested, Roomside HEPA Module

Multiple roomside trim options are available, such as negative pressure room applications. For further information please contact factory for assistance. Drawings are not to scale.



Standard Pharmaseals include a guillotine damper where airflow can be regulated between 10% and 98%. A radial blade bow tie damper or a 100% shut-off isolation damper are also available.



Guillotine Damper - This damper facilitates room balancing and airflow control. It is easily adjusted using the 1/4-turn rotary mechanism attached to a robust mechanical linkage and heavy-duty blades. The damper assembly is welded to the hood body to increase rigidity and eliminates "binding" of damper blades common in pop-riveted units.



Radial Bow tie Damper - Facilitates accurate airflow modulation and control using a linkage that is tight and vibration free. It has low torque operation through the entire range of adjustment. This damper is riveted to the Pharmaseal housing.



Isolation Damper - This damper facilitates complete isolation of housing allowing for change out of filters without risk of contamination to the cleanroom. It is designed to reduce production downtime during filter change and room decontamination. The damper is adjustable from fully open to fully closed in 15 revolutions (approximate). It can eliminate the need for full room decontamination during filter replacement depending on the application. The damper has a fluid seal channel that mates with a knife edge in the hood. Positive stops on the damper adjustment mechanism eliminate twisting of the stainless steel flexible cable, providing high-cycle life. Cable failure is greatly reduced. The damper includes a fully-welded inlet collar.



For detailed specifications please consult your local Camfil Distributor, Representative, Washington NC factory or refer to [Pharmaseal DCM](#). Camfil has a policy of uninterrupted research, development and product improvement. We reserve the right to change designs and specifications without notice.

Camfil | 1 North Corporate Drive, Riverdale, NJ 07457 | Tel: (973) 616-7300

www.camfil.com

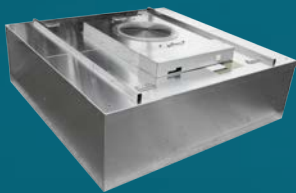
More Than 50 Years of Cleanroom Solutions Built for You

Since 1966, ENVIRCO®, a brand of Johnson Controls Inc., has been the leading innovator in cleanroom air filtration technology. The innovation began with the development of the first fan filter units (FFUs) that were produced for the first generation of cleanrooms.

Today, ENVIRCO's MAC 10® FFU product line remains as the leading HEPA/ULPA filtration solution for a whole range of manufacturing industries such as pharmaceuticals, semiconductors, nanotechnology, aviation technology, and university and scientific research.

Cleanroom Products

■ **Fan Filter Units:** The MAC 10 line of fan filter units (FFUs) are ideal air filtration solutions for the worldwide cleanroom market. The FFU design (fan, motor, and filtration system in a single unit) draws air in from a motor assembly and through the filtration system, then exhausts it across the filter face, supplying particle-free, laminar airflow to the room. The MAC 10 line of FFUs offer low energy consumption, low sound levels, and a low profile.



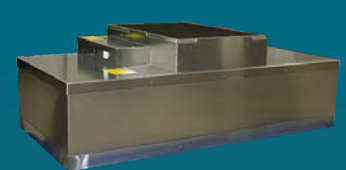
MAC 10 LEDC 4x4: The Largest
ECM Motor, High Airflow, Backward Curve, Universal Control Card (UCC)



MAC 10 LEDC: The Energy Saver
ECM Motor, High Airflow, Backward Curve, UCC/IR Control Options



MAC 10 IQ: The Constant
ECM Motor, Constant Airflow, Forward Curve, UCC/IR Control Options



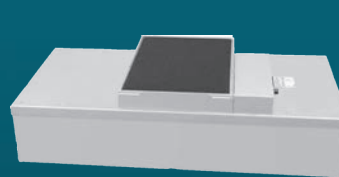
MAC 10 IQ LAF: The Low Flow
ECM Motor, Low Airflow, Forward Curve, UCC/IR Control Options



MAC 10 LEAC: The High Flow
AC Motor, High Airflow, Backward Curve, 3-Speed Switch



MAC 10 LEAC2: The Newest
AC Motor, Standard Airflow, Backward Curve, Variable Speed Switch



MAC 10 Original: The First
AC Motor, Standard Airflow, Forward Curve, Multiple Control Options



MAC 10 RFAC: The Reverse Flow
AC Motor, Standard Airflow, Backward Curve, Variable Speed Switch

■ **Control Systems:** ENVIRCO offers a complete family of control solutions providing machine intelligence to monitor and control cleanroom environments of all sizes - from small to very large.



■ **MAC-T Ceiling Grid System:** ENVIRCO's cleanroom ceiling grid solution, a 2" extruded aluminum system with gasket seal, is fabricated using heavy duty, durable superior materials - providing both a structural grid system and zinc alloy die-castings.



Hospital & Healthcare Products

■ **Hospi-Gard®:** ENVIRCO's Hospi-Gard line offers a variety of airborne infection control products for patient rooms and clinics. The IsoClean® and AirCeil® HEPA air filtration systems create low-cost, negative pressure isolation rooms to help contain and minimize the spread of airborne viruses and diseases.



Pharmaceutical & Medical Device Products

■ **Unimodule M2:** The M2 is a vertical, self-contained, product-protection unit that provides HEPA-filtered air to critical work environments in a positive-pressure laminar flow pattern. The M2 has a modular design with an isolated work table.



■ **Unimodule METD:** The METD is designed for operations involving toxic or noxious fumes that can be potentially harmful for workers. A rear plenum and workstation exhaust slots remove exhaust fumes from within the cabinet. The open front features vertical airflow for personnel protection, while the HEPA filter ensures product protection.



Laboratory & Research Products

■ **Table Top Horizontal Flow Clean Bench (TT):** The bench or table-mountable TT provides an ISO Class 5 product-protection environment using an aerosol-challenged HEPA filter.



■ **EnviraLab Sterility Module (ESM):** The self-contained ESM clean bench features a modular and unique vertical and horizontal airflow pattern that sweeps around obstructions, minimizes reverse turbulence, and maximizes cleansing within the critical work area. The ESM workstation provides an ISO Class 5 product-protection environment using an aerosol-challenged HEPA filter.



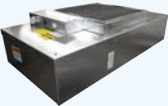
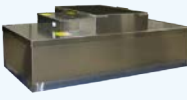
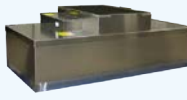
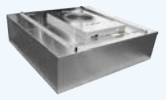
■ **Laminar Flow Horizontal Flow Bench (LF):** The freestanding LF unit features a unique separate plenum and table design. Positive pressure laminar airflow provides product protection within the work area.



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info@envirco.com | www.envirco.com

 **ENVIRCO**
Innovators in clean air technology

■ Model Feature Comparison

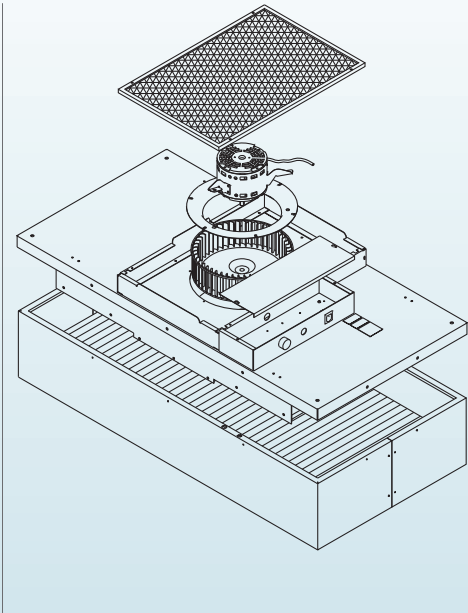
MODEL	Original AC	LEAC	LEAC2	IQ	IQ LAF	LEDC	LEDC 4x4
							
	THE FIRST	THE HIGH FLOW	THE NEWEST	THE CONSTANT	THE LOW FLOW	THE ENERGY SAVER	THE LARGEST
Size	2x4, 2x3, 2x3.5, 2x2	2x4	2x4, 2x3, 2x2	2x4, 2x3, 2x3.5, 2x2	2x4, 2x3, 2x3.5, 2x2	2x4, 2x3, 2x3.5, 2x2	4x4
Motor Type	AC	AC	AC	ECM	ECM	ECM	ECM
Motor Feature	Standard Airflow	High Airflow	Standard Airflow	Constant CFM / RPM Feedback	Torque Programming / RPM Feedback	High Airflow / RPM Feedback	High Airflow / RPM Feedback
Blower Type	Forward Curve	Backward Curve	Backward Curve	Forward Curve	Forward Curve	Backward Curve	Backward Curve
Standard Control Option (* See Notes)	3 Speed Switch, SSSC*, Modbus (ENAC)	3 Speed Switch	Variable Speed Switch	UCC, IR*	UCC, IR*	UCC, IR*	UCC*
Voltage	115/60Hz, 208-240/50-60Hz, 277/60Hz	115/60Hz, 208-240/50-60Hz, 277/60Hz	115/60Hz, 208-240/50-60Hz, 277/60Hz	115/60Hz, 208-240/50-60Hz, 277/60Hz	115/60Hz, 208-240/50-60Hz, 277/60Hz	115/60Hz, 208-240/50-60Hz, 277/60Hz	115/60Hz, 208-240/50-60Hz, 277/60Hz
Sound	Dependent on Airflow / External Static Pressure	Dependent on Airflow / External Static Pressure	Dependent on Airflow / External Static Pressure	Dependent on Airflow / External Static Pressure	Low	Dependent on Airflow / External Static Pressure	Dependent on Airflow / External Static Pressure
Velocity	90 FPM	90 FPM or Higher	90 FPM	90 FPM	90 FPM	90 FPM or Higher	90 FPM or Higher
Low Airflow	n/a	n/a	n/a	n/a	Yes	n/a	n/a
Power Consumption	Highest	Low	Low	Low	Low	Lowest	Lowest
VAV Box Design	Recommended	Recommended	Recommended	Not Recommended	Recommended	Recommended	Recommended
BMS Communications	Yes	No	Yes	Yes	Yes	Yes	Yes
Cabinet Styles (* See Notes)	Standard/RSR/RSRE (see back)	Standard/RSR/RSRE (see back)	Standard, RSRE-All* (see back)	Standard/RSR/RSRE/RSRC (see back)	Standard/RSR/RSRE/RSRC (see back)	Standard/RSR/RSRE/RSRC (see back)	Standard/RSR/RSRE (see back)
Diffuser Options	Aluminum/SST	Aluminum/SST	Aluminum/SST	Aluminum/SST	Aluminum/SST	Aluminum/SST	Aluminum/SST
Painted Option	British White	British White	British White	British White	British White	British White	British White
Sheet Rock Adapters	Stainless Steel/White Painted Steel	Stainless Steel/White Painted Steel	White Painted Steel	Stainless Steel/White Painted Steel	Stainless Steel/White Painted Steel	Stainless Steel/White Painted Steel	N/A
Grid Size	1 ½" or 2" Standard as required	1 ½" or 2" Standard as required	1 ½" or 2" Standard as required	1 ½" or 2" Standard as required	1 ½" or 2" Standard as required	1 ½" or 2" Standard as required	1 ½" or 2" Standard as required
Duct Collars	10" and 12"	10", 12", 14"	10", 12", 14"	10" and 12"	10" and 12"	10", 12", 14"	N/A
Pre-Filter	Standard Foam	Standard Foam/ 2" Pleated	Standard Foam/Optional 2" Pleated	Standard Foam	Standard Foam	Standard Foam/Optional 2" Pleated	Finger Guard
Filter	HEPA/ULPA/Other	HEPA/ULPA/Other	HEPA/ULPA/Other	HEPA/ULPA/Other	HEPA/ULPA/Other	HEPA/ULPA/Other	HEPA/ULPA/Other

* Notes:

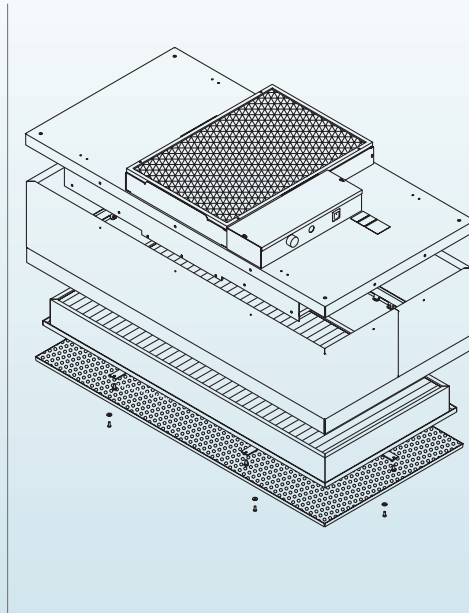
- SSSC refers to Solid State Speed Control.
- UCC refers to Universal Control Card for MODBUS RTU network, 0-10VDC analog signal, or manual potentiometer.
- Modbus RTU (ENAC) Control Card.
- IR refers to Infrared Control.
- ECM refers to Electrically Commutated Motor.
- All Roomside Removable (RSR) units have the RSRE feature of Filter and Motor Blower Removable from Rooms.

■ Diagrams

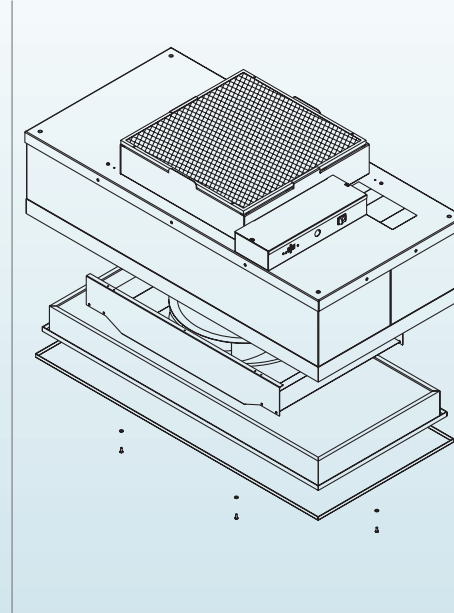
For more information on the MAC 10[®] Series of Fan Filter Units, contact your local representative or simply visit our website at www.envirco.com.



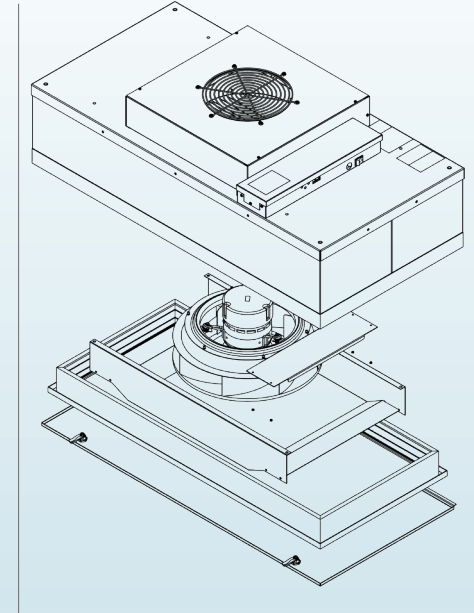
MAC 10[®] Standard Exploded View



MAC 10[®] RSR Exploded View



MAC 10[®] RSRE Exploded View



MAC 10[®] RSRC Exploded View

■ Configuration

Available Sizes: 2x2 , 2x3, 2x3.5, 2x4, and 4x4

PRODUCT DATA SHEET

■ MAC 10® LEDC Fan Filter Introduction

A Second Generation FFU

The MAC 10® LEDC features the most control options and the most versatile control system available on the market today, while topping the industry in energy efficiency. The MAC 10 LEDC comes standard with the filter integral with the unit housing. Roomsides replaceable filters, motor/blower, and now controls are available.

Typical Applications

The MAC 10® LEDC FFUs are primarily used in critical environments requiring clean air solutions. These include cleanrooms, pharmaceutical compounding, semiconductor and microelectronic manufacturing, and healthcare facilities.

A Green Product Solution

The MAC 10® LEDC comes equipped with an electronically commutated (EC) motor with internal microprocessor that offers high performance and delivers long motor life with energy consumption rates as low as 90W @ 90 fpm. Utilizing ENVIRCO's experience in FFU development, the LEDC also features low sound levels of 52 dBA.

The MAC 10® LEDC FFU can help provide opportunities to earn LEED® points with its many energy-saving features.

Note: LEED (Leadership in Energy and Environmental Design) is the rating system of US Green Building Council by which building designs are certified.

Multiple Housing Styles

The MAC 10® LEDC comes in four different style configurations to fit the needs of the clean space.

STD - Standard Filter: filter replaced from above ceiling

RSR - Roomsides Removable Filter: filter replaced from below ceiling

RSRE - Roomsides Removable Motor and Filter: filter and motor replaced from below ceiling

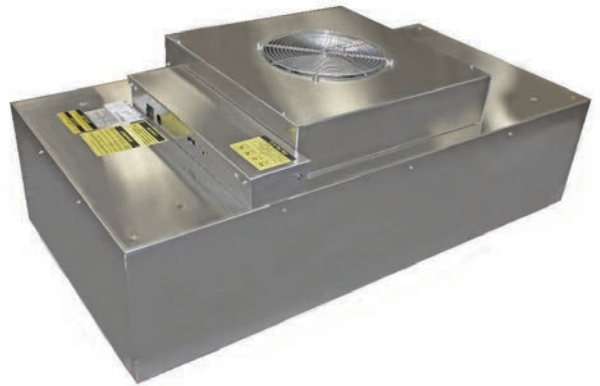
RSRC - Roomsides Removable Motor, Filter, and Control: filter, motor, and control card replaced from below ceiling

■ Standard Features

- Universal Control Card
 - Network speed control, MODBUS RTU
 - Manual speed control, on-board potentiometer
 - Analog speed control, remote 0-10V
- Electronically Commutated (EC) brushless motor, torque programmed
- HEPA filter: 99.99% efficient @ 0.3 micron, 53mm pleat depth
- 1.0 in. wg (200 Pa) of external static capability
- Backward-inclined centrifugal fan (excludes 2x2)
- Mill finished aluminum exterior
- Walkable plenum (excluding prefilter), rated to 250 lbs.
- Washable MERV 4 pre-filter (STD, RSR/E only)
- Finger guard pre-filter standard on RSRC
- Roomsides 3/8" challenge ports for convenient HEPA filter testing (excluding STD)
- Available in 2x2, 2x3, and 2x4 sizes
- cUL listed (115V, 208-240V, 277V) with standard UL 900 filter, file number E152685 (UL507)
- Manufactured to IEST recommended practices

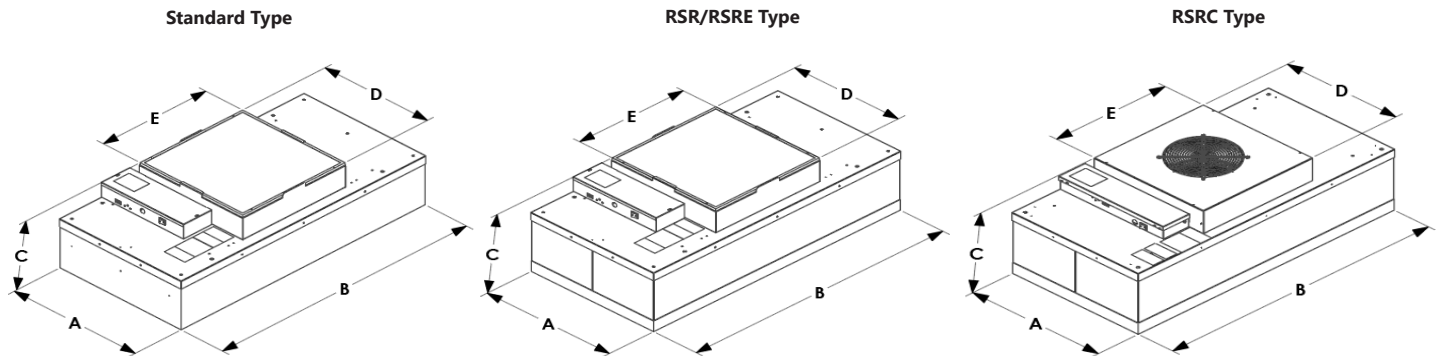
■ Optional Features

- Ducted inlet connection (shipped loose)
 - 8" (203 mm)
 - 10" (254 mm)
 - 12" (305 mm)
 - 14" (356 mm)
- Powder coat white paint or stainless steel housing
- CE certified on 230V units
- Filter Efficiencies: HEPA 99.995% or ULPA 99.9995% at MPPS
- Other filter options: PTFE, Energuard, 70mm, 100mm
- 3/4" knife edge: permits easy placement in gel track ceiling grid system (available on RSR, RSRE, and RSRC units only)
- Quarter turn latch screen (standard on RSRC)
- Indicator light feedback: Unit running and/or filter change indicator
- Continuous filter pressure monitoring
- Infrared Control option
- MERV 8 pre-filter available (shipped loose)
- Surface mount adapters available (shipped loose)
- 1" Insulation option
- Custom sizes available
- IBC and OSHPD Certification (OSP-0634-10), additional hardware required



PRODUCT DATA SHEET

■ MAC 10® LEDC Dimensions & Performance



Nominal Unit Size	Active Filter Face Area (Sq. Ft.)	Min. CFM	Max. CFM	Watts @ Max. CFM	dBA @ Max CFM	CFM @ 90 FPM	Watts @ 90 FPM	Sound dBA @ 90 FPM	Unit Weight	Dimensions AxBxCxDxE (mm)
2x4 LEDC Standard	7.2	200	950	250	66	650	90	52	66	23.63" x 47.63" x 14.32" x 20" x 20" (600 x 1200 x 364 x 508 x 508)
2x3 LEDC Standard	5.3	160	650	150	55	470	65	47	52	23.63" x 35.63" x 14.32" x 20" x 20" (600 x 905 x 364 x 508 x 508)
2x2* LEDC Standard	3.5	160	410	145	50	315	85	46	41	23.63" x 23.63" x 14.32" x 23.25" x 16" (600 x 905 x 364 x 591 x 406)
2x4 LEDC RSR/RSRE	5.3	200	850	240	62	477	65	47	71	23.63" x 47.63" x 16.42" x 20" x 20" (600 x 1210 x 417 x 508 x 508)
2x3 LEDC RSR/RSRE	3.8	160	650	150	51	340	45	43	54	23.63" x 35.63" x 16.42" x 20" x 20" (600 x 905 x 417 x 508 x 508)
2x2* LEDC RSR/RSRE	2.3	140	350	130	50	210	50	46	44	23.63" x 23.63" x 16.42" x 23.25" x 16" (600 x 600 x 417 x 591 x 406)
2x4 LEDC RSRC	5.3	200	850	240	62	477	65	47	71	23.63" x 47.63" x 15.94" x 20" x 20" (600 x 1210 x 405 x 508 x 508)
2x3 LEDC RSRC	3.8	160	650	150	51	340	45	43	54	23.63" x 35.63" x 15.94" x 20" x 20" (600 x 905 x 405 x 508 x 508)
2x2* LEDC RSRC	2.3	140	350	130	50	210	50	46	44	23.63" x 23.63" x 15.94" x 23.25" x 14" (600 x 600 x 405 x 591 x 356)

* All 2x2 units will be built with a forward curve fan.

Notes:

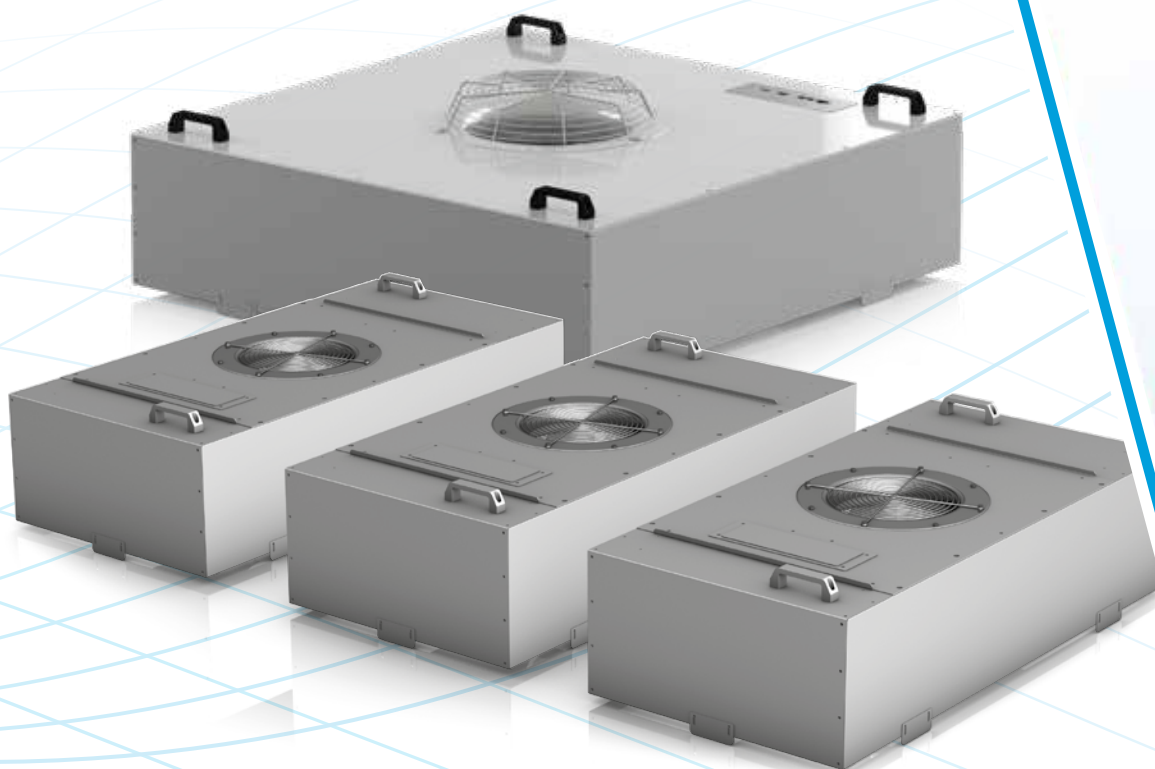
Performance tested in accordance with the (ANSI/AMCA 210-07), (ANSI/ASHRAE 51-07) test standards for Certified Aerodynamic Performance Rating. Max CFM rating based on free air volumes @ high speed motor setting. 90 fpm values based on active filter face area. BTU = Watts x 3.413

MAC 10® LEDC Electrical Info:

MAC 10® LEDC 115V, 50/60HZ 1 Phase = 2.9 F.L.A., 208-240V 50/60HZ 1 Phase = 1.6 F.L.A., 277V 60 HZ 1 Phase = 1.4 F.L.A

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 ENVIRCO® reserves the right to revise or modify products and/or specifications without notice.



Fan Filter Units

Efficient solutions for clean rooms

Fan Filter Units (FFU)

The future has begun – you need to build it in.

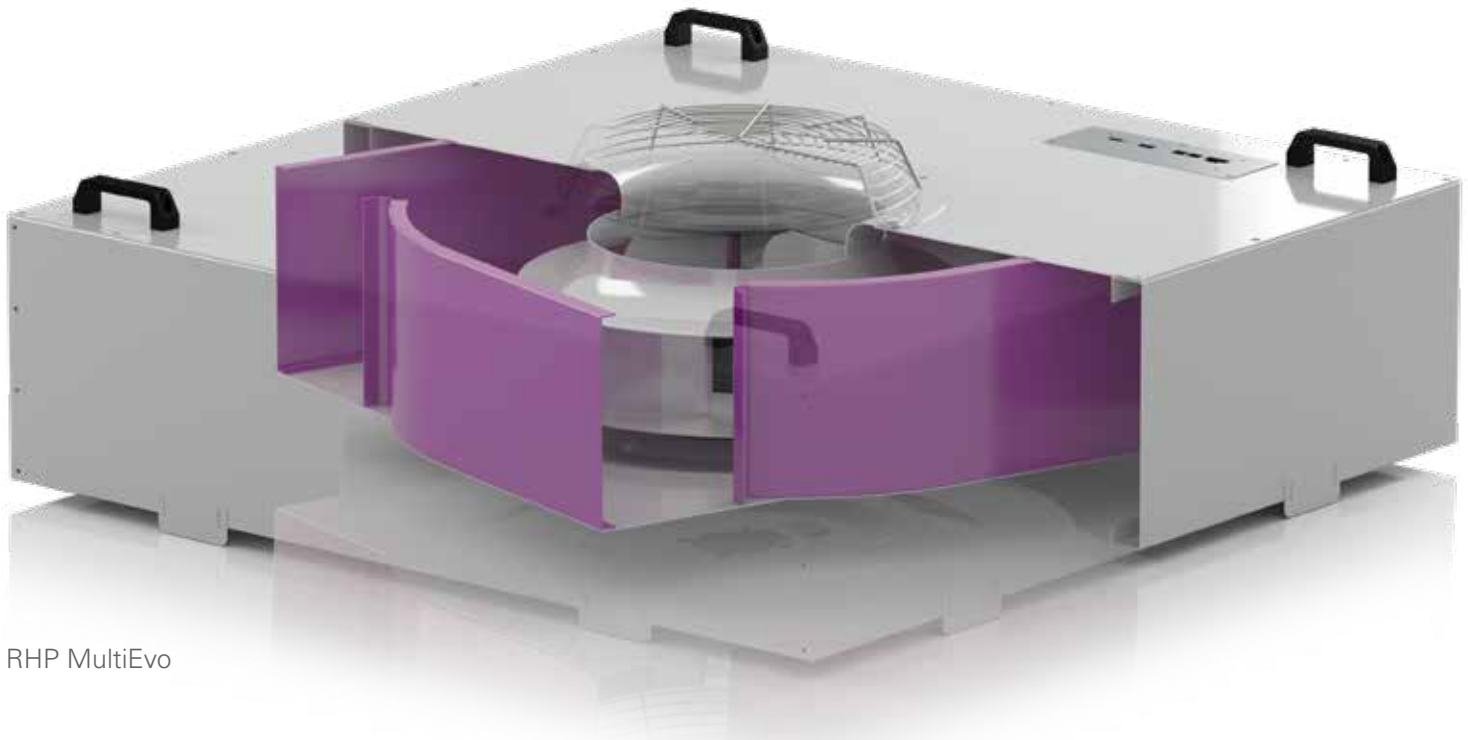
We have designed and developed our FFU precisely so that they match the requirements in clean rooms perfectly.

The “heart” of the FFU is the motor impeller unit. All components, such as, for example, inlet nozzles, impellers, motors and the corresponding commutation units to control the motor are adapted to each other as precisely as possible – and work together in perfect interaction in an exemplary manner.

And another important aspect: Tailored solutions for the control and monitoring of the FFU networks ensure ease of use.

Nicotra Gebhardt FFU's are available:

- as standard or customer-specific versions
- for standard and customer-specific ceiling grids
- for different filter and grid sizes
- as top load or bottom load version
- for fluid or dry seal systems
- for different volume flows and pressure losses
- with minimal vibration and noise emissions
- with a flush-mount external rotor motor
- Change in rotational speed using BUS or control voltage
- for different control systems



RHP MultiEvo

Simple handling: Controlling and monitoring of your FFU networks

The core element of the system solutions we developed are the control centres for parameterisation and monitoring of your FFU networks on the basis of various RS485 interfaces (G-bus/Modbus RTU).

We can optionally offer you three different components for actuation according to requirements:

- Handheld FANCommander 100 for actuation of up to 100 FFUs.
- Mini control centre FANCommander 200 for actuation of up to 200 FFUs.
- PC control centre for actuation of up to 500 FFUs per Ethernet RS485 gateway.

RHP MultiEvo Technology

As simple as it is ingenious: The new RHP MultiEvo technology houses new, unique outlet guide systems with spiral geometries. Designed for perfect interaction, with the impeller, motor, and integrated electronic components all adapted to each other, the RHP with MultiEvo technology exceeds the energy savings of any other traditional EC filter fan unit, for example.



The practical advantages of MultiEvo technology:

- **New technology:** Aerodynamic air guides optimise flow conditions
- **Excellent energy savings:** Over 60% efficiency thanks to the interaction of the best components
- **Optimised performance range:** Considerable increase to pressure for the same maximum speed and power requirements than a standard FFU without MultiEvo technology
- **Considerably quieter:** Noise levels up to 4 dB lower than a standard FFU without MultiEvo technology
- **Air distribution:** Maintained high level of uniformity

* Up to 14% more efficient than standard FFU without MultiEvo technology.

Brushless-DC-Motor (EC)

- High level of efficiency across a large rotational speed range
- BUS compatible
- Regardless of the mains frequency
- Integrated rotational speed control
- Flexible when the location of installation changes
- Excellent efficiency through permanent magnets
- High torque across a large rotational speed range
- High performance factor (> 0.9)
- Low harmonised distortion of the mains power through PFC
- Compact control device



Numerous customers across the world trust in our experience and expertise

- Research institutes
- Composites industry
- Precision optical industry
- Health and Research
- Research and measuring technology
- Pharmaceutical industry
- Electronics industry
- Semiconductor industry



The slim FFU

The clever combination of different standard sizes guarantees that any building shape can be catered for - whilst ensuring the highest possible level of energy efficiency.

RHP Slim FFU

- Flat and space-saving
- Easy to operate



Use of standard sizes to adapt to special building requirements

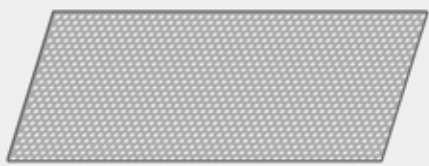
Type of device	Standard dimensions in mm	feet	Output in kW max.	Power consumption in A (max.)	Voltage in V	Frequency in Hz	Rotational speed max.	Volume flow at 0.35 m/s m³/h	Volume flow at 0.45 m/s m³/h	Type
RHP 0606-222-EC03-A	572 x 572	-	0.26	1.10	230	50	1850	453	583	non UL
RHP 0609-222-EC03-A	572 x 872	-	0.26	1.10	230	50	1850	680	875	non UL
RHP 0612-331-EC04-A	572 x 1172	-	0.33	1.45	230	50	1750	907	1166	non UL
RHP 0612-335-EC00-SL	572 x 1172	-	0.34	1.50	230	50	1700	907	1166	non UL
RHP 0909-335-EC00-A	872 x 872	-	0.34	1.50	230	50	1700	1020	1312	non UL
RHP 0912-231-EC01-A	872 x 1172	-	0.365	1.60	230	50	1350	1360	1749	non UL
RHP 1212-240-EC00-A	1172 x 1172	-	0.37	1.62	230	50	1070	1814	2333	non UL
RHP 1212-240-EC00-ME	1172 x 1172	-	0.37	1.64	230	50	1070	1814	2333	non UL
RHP 0606-222-EC90-A	-	2" x 2"	0,26	0,91	277	60	1850	453	583	UL
RHP 0609-222-EC90-A	-	2" x 3"	0,26	0,91	277	60	1850	680	875	UL
RHP 0612-331-EC90-A	-	2" x 4"	0,33	1,20	277	60	1750	907	1166	UL
RHP 0612-335-EC90-SL	-	2" x 4"	0,34	1,25	277	60	1700	907	1166	UL
RHP 0909-335-EC90-A	-	3" x 3"	0,34	1,25	277	60	1700	1020	1312	UL
RHP 0912-231-EC90-A	-	3" x 4"	0,36	1,33	277	60	1350	1360	1749	UL
RHP 1212-240-EC90-A	-	4" x 4"	0,32	1,16	277	60	1010	1814	2333	UL

General accessories , extensive and flexible

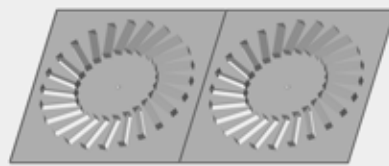
The FFU becomes a system once the necessary accessories are added. In the standard system, an extensive range of accessories is available and these will be delivered or fitted, in accordance with your requirements.



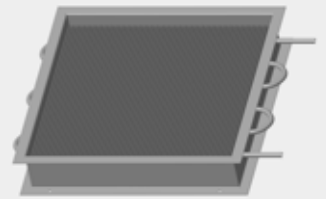
Prefilter



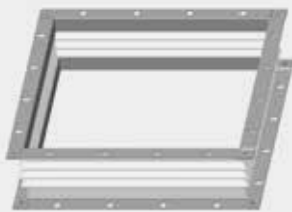
Baffle plate with holes



Swirl diffuser



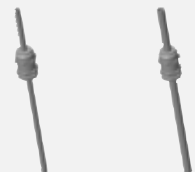
Heat exchanger



Connecting pieces, square



Connecting flange, square



Measuring connectors



Connecting pieces, round



Connecting flange, round



Suspension bracket

Ceiling grid



Fan Filter Units (FFU)

Motor controller and control system



FANCommander 200 (ECE 03-0200-5E-MG)

Stationary mini control centre for the control and monitoring of up to 200 FFUs.

Modbus based systems

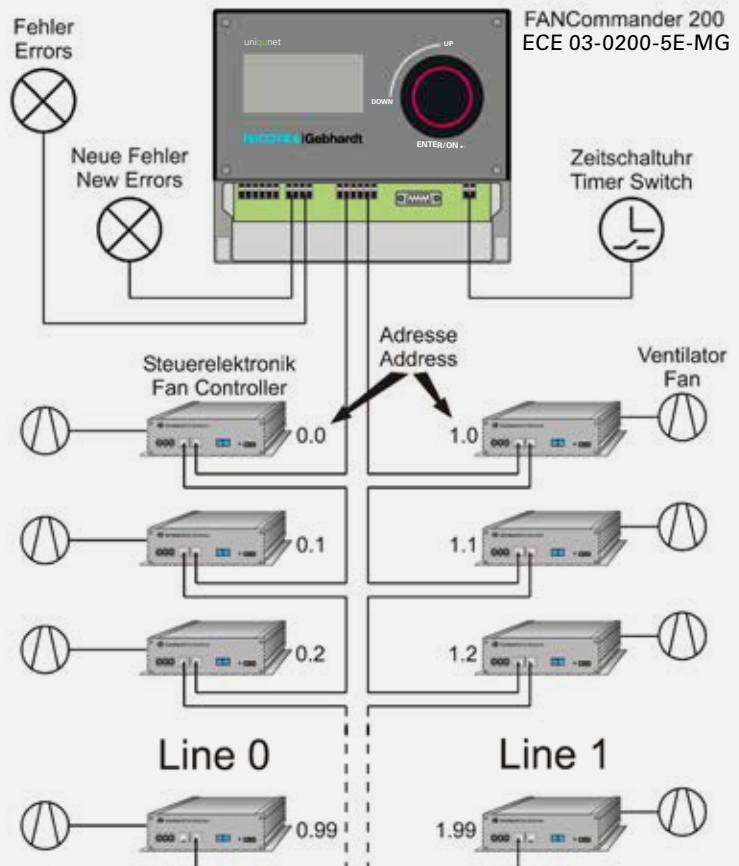
- Low system costs
- Easy, quick commissioning on site
- Rapid reaction to multiple commands
- Rapid response to multiple commands
- Complete project engineering and programming in the design phase
- Minimum effort to replace components
- Through standardised interface (RTU) easy integration into the customer's network is possible

LONWORKS based systems

- Rapid reaction to individual commands
- Rapid reaction to individual faults
- FFU calibration from the clean room
- Hand service tool
- Free network topology
- Digital input modules available
- Temperature sensors available
- Expandable system

Analogue

- Analogue interface available (0-5V, 0-10V, n_{min} , n_{max} , fault contact)



Compare the systems with one another

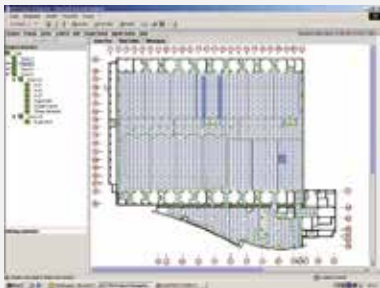
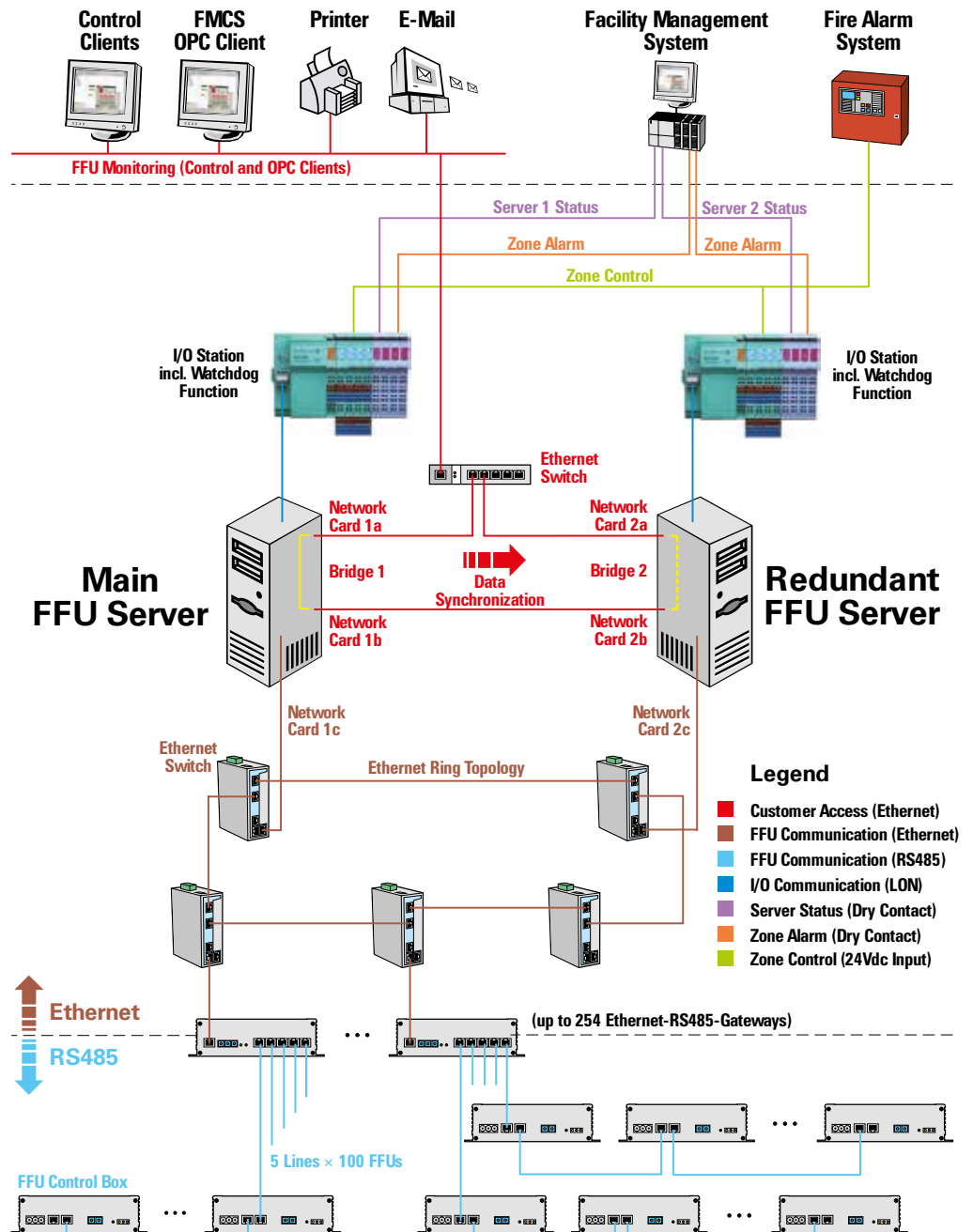
System features	Modbus RTU	LONWORKS	ANALOGUE
Hardware			
FFU Server PC	+	+	
User Client, local or remote through Ethernet	+	+	
Several clients	+	+	
Network topology	Line topology	Free topology	
Fieldbus	RS485	FTT-10A	
Physical repeater/ Ethernet Gateway	5 lines	2 or 3 way	
Nodes per segment	100	60	
Maximum number of FFUs in the network	127000	32000	
Network termination	not required	+	
Communication			
Communication principle	Master-Slave	Multi-Master	0-10V signal
Addressing	Hardware	Neuron - ID	

Topology overview

Regardless of whether it's Modbus, a Modbus integration based on Gbus or a combination of both, we will support the network topology you need, taking the requirements into account.

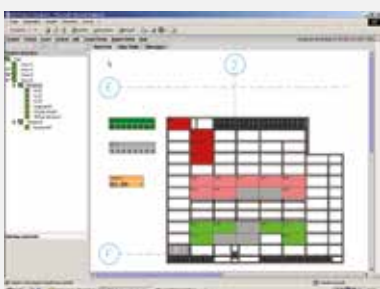
This figure shows the recommended complete FFU Modbus control network topology. The field bus uses Modbus technology in ring topology for the Ethernet part and line topology for the RS485 part.

The Modbus is structured with Gateways with a redundant Ethernet backbone and several FFU lines. Further I/O modules are available for the server connection. The FFU server can be delivered with a redundant server in Hot-standby configuration.



User interfaces:

Example of a background image with a large number of FFUs

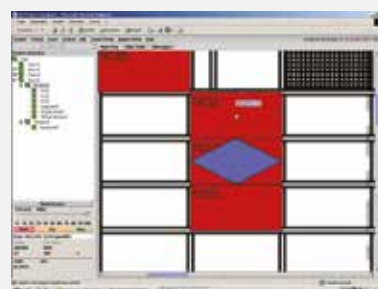


User interface overview with:

- Main level with background image
- Icons for FFUs, digital input and temperature sensor
- Navigation tree

Compatibility of the software using WIN10 Professional 64 Bit

- Ethernet, IP network, HTTP protocol, HTML/XML, Internet Browser (Microsoft® Internet Explorer®*)
- Registering the run time for each FFU for preventative filter maintenance
- Remote maintenance and configuration using internet connection
- Freely-programmable automatic timer for automatic FFU control (reduction or increase of rotational speed for individual FFUs or groups)
- Event logging (log file for status and changes)



Zoom view with:

- A selected FFU
- Navigation tree
- Control panel
- Status panel

FFU

FAN FILTER UNIT

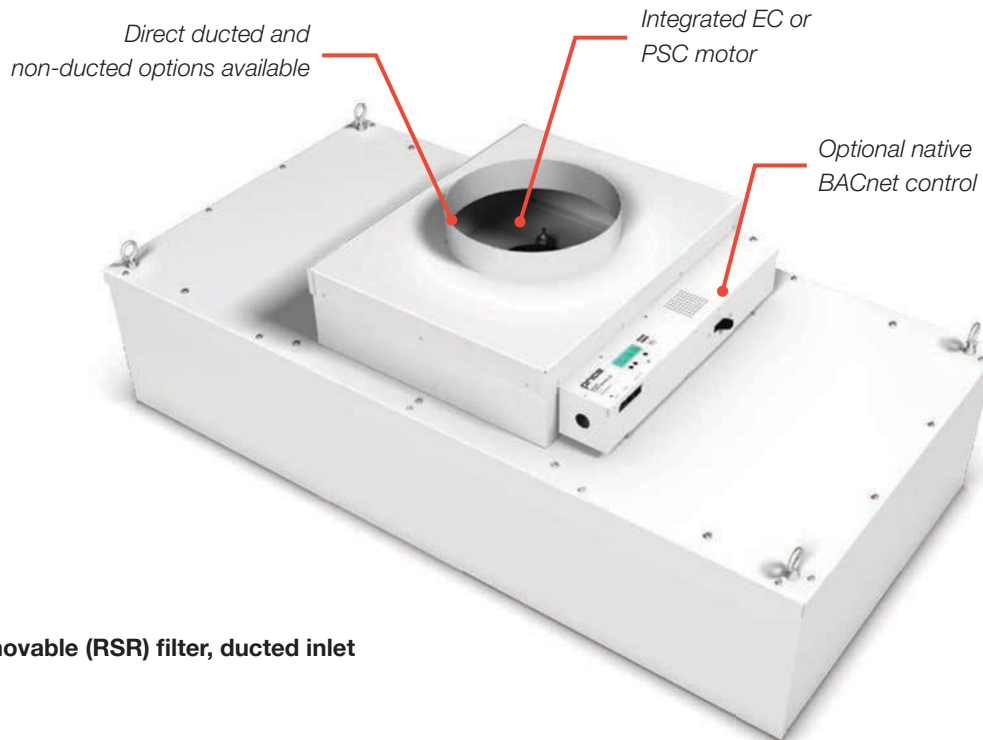


price | **CRITICAL**
ENVIRONMENTS

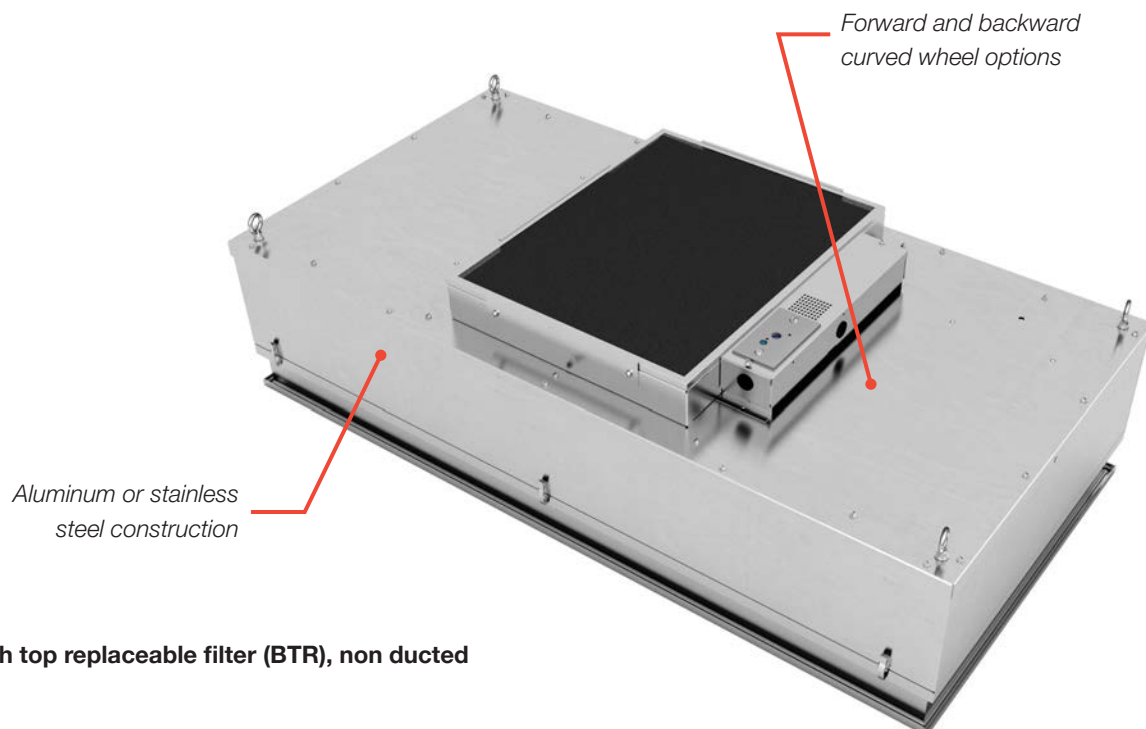
FFU

Fan Filter Unit

Price Fan Filter Units (FFU) are the most energy efficient line of fan filter units (fan filter modules) on the market today. Designed specifically for use in cleanrooms, pharmacies, pharmaceutical manufacturing facilities and laboratories, the FFU delivers high volumes of HEPA filtered airflow (for 99.99% removal of particulate) at low sound levels while reducing energy consumption by 15 to 50% versus comparable products.



Room-side Removable (RSR) filter, ducted inlet



Bench top replaceable filter (BTR), non ducted

HIGH ENERGY EFFICIENCY

- + Industry leading energy efficiency means lower operating costs, potentially saving thousands of dollars in electricity each year.
- + Energy consumption as low as 60 Watts at 90 fpm for a 24 in. x 48 in. module.

HIGH AIRFLOW CAPACITY

- + Fewer units required to meet airflow demand means lower cost.
- + Active filter area is maximized with the Bench Top Replaceable (BTR) filter, with 24 in. x 48 in. units able to achieve up to 960 CFM.

VERSATILE MOTOR PROGRAMS

- + Factory programmed EC motors means no-hassle startup and commissioning.
- + **Constant Torque Program** – The motor operates at a constant torque, and is unaffected by change in upstream static pressure. This option should be used with an upstream, pressure-independent terminal unit.
- + **Constant Flow Program** – The motor adjusts to maintain airflow rate as the filter loads over time. This option is ideal for non-ducted applications.

SEISMIC CERTIFICATION PREAPPROVAL

- + Optional HCAI special seismic certification preapproval as per OSP-0302-10 on supply flow fan filter units.

EXHAUST AND REVERSE FLOW APPLICATIONS

- + Optional reverse flow construction draws contaminated room air through the filter and exhausts the air to the outside or returns it to the space.

TYPICAL APPLICATIONS

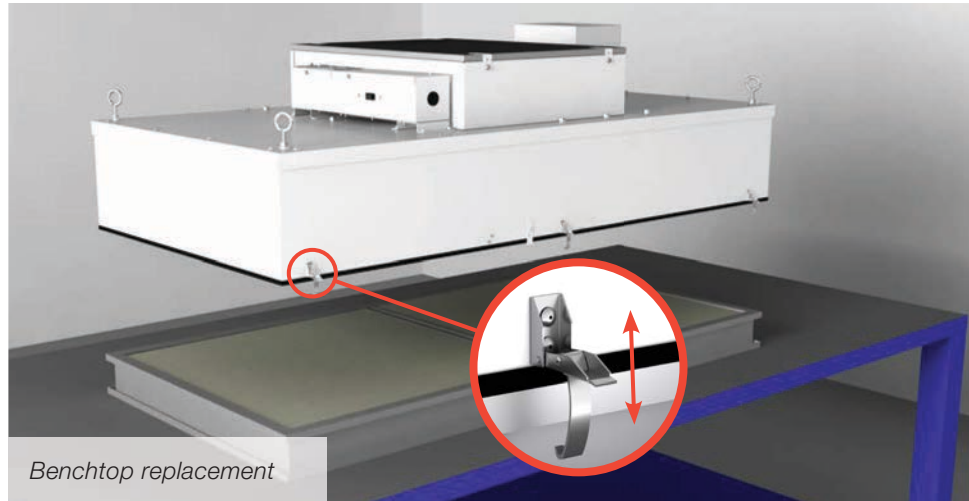
Fan Filter Units are used in critical applications such as healthcare, pharmaceutical compounding or microelectronics manufacturing. The high efficiency motor is designed to overcome the static pressure of the integrated filter, making FFUs ideal for retrofit applications where the air handler is not able to provide the required static pressure.

CONSTRUCTION

- + Application
 - Supply
 - Reverse Flow
- + Size
 - 24 in. x 24 in.
 - 24 in. x 36 in.
 - 24 in. x 48 in.
- + Material
 - Aluminum
 - Stainless steel
- + Filter
 - Room-side removable (RSR)
 - Bench top replaceable (BTR)
- + Options
 - Aerosol injection port (INJ)
 - Face-mounted LED indicator
 - Integrated LED lighting (UFFU)
 - Room-side accessible controls (R+TC)

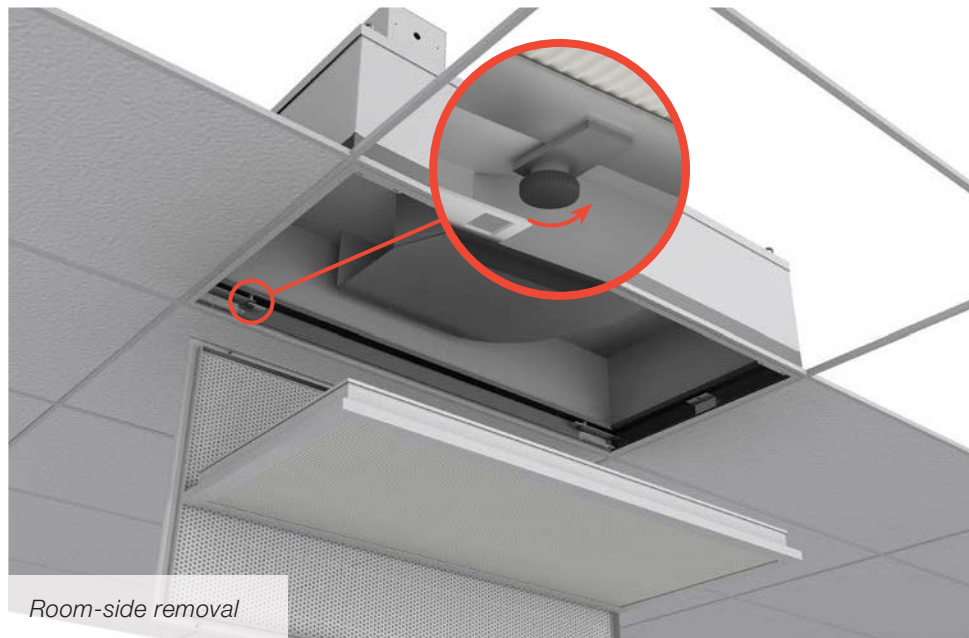
BENCH TOP REPLACEABLE (BTR) FILTER

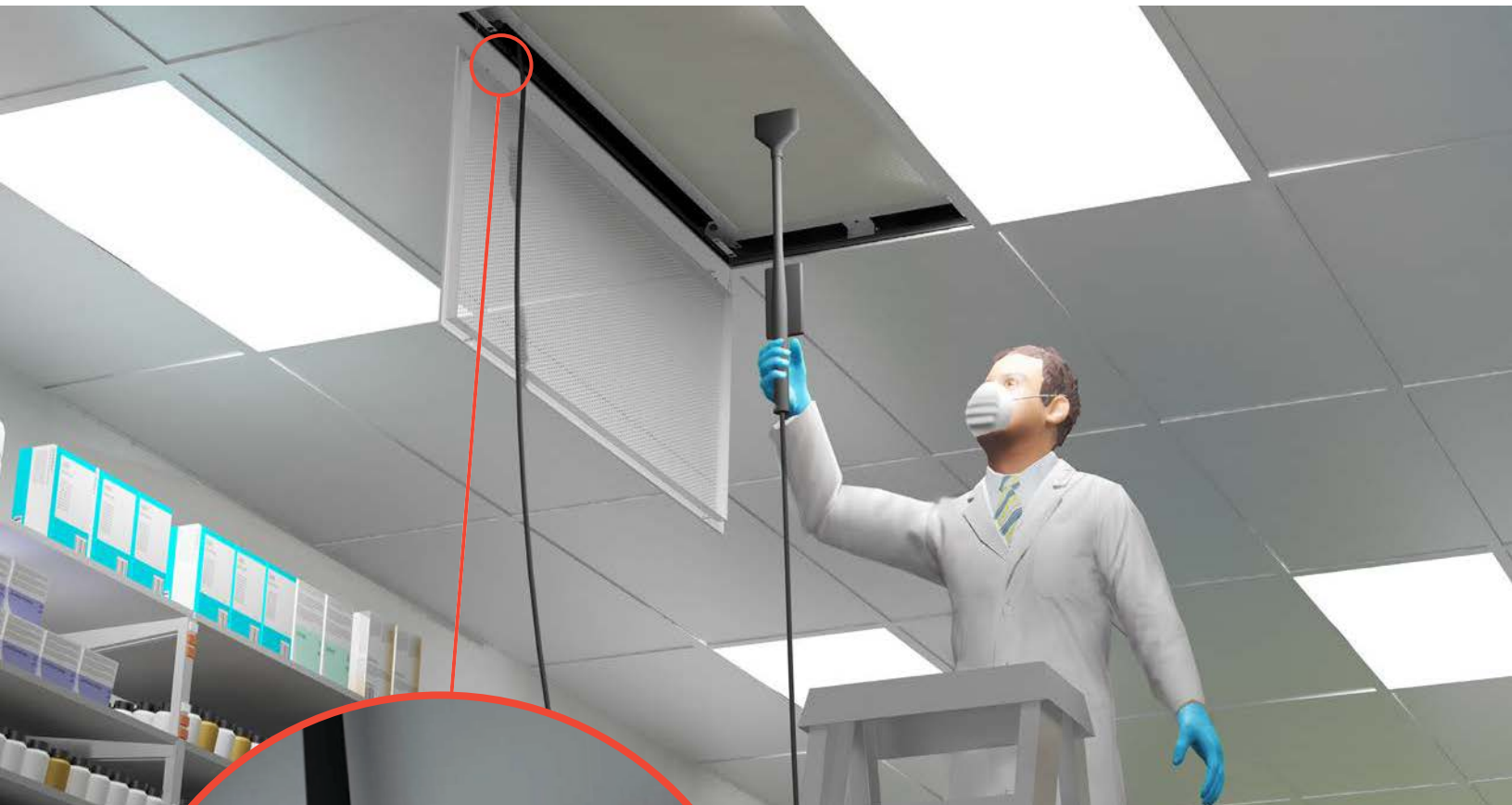
- + Maximizes active filter face area to allow for the highest airflow capacity.
- + Less pressure drop and energy consumption compared to RSR filter.
- + Filter replacement requires removal of the unit from the ceiling.



ROOM-SIDE REMOVABLE (RSR) FILTER

- + Quickly and easily remove the filter from the Room-side with the RSR option.
- + Integrated knife edge and gel track filters allow for tool free installation and replacement.
- + The RSR filter option also features a room-side removable motor/blower assembly.





QUICK AND EASY COMMISSIONING VIA AEROSOL CHALLENGE

- + Ensure proper HEPA filter and unit operation with the room-side Aerosol Injection Port (INJ).
- + INJ permits easy injection of aerosol challenge through the barbed test port for 1/2 in. inner diameter tubing. By dispersing aerosol above the HEPA filter, the filter can then be scanned for leaks during commissioning or after filter replacement.
- + A static pressure port is provided to measure pressure drop across the filter and to sample upstream aerosol concentrations during commissioning.

ULTRAFFU (UFFU): INTEGRATED LED LIGHTING

Optional integrated lighting transforms a standard FFU with room-side replaceable filter into a combination high performance LED light fixture and Fan Filter Unit by incorporating hospital-grade LED lighting inside each individual FFU module.

Reduced Ceiling Congestion

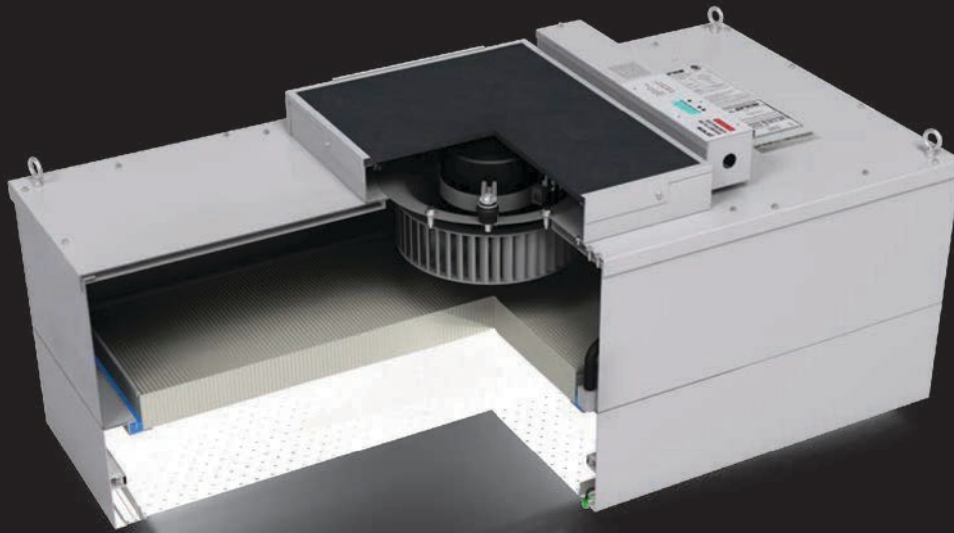
- + Ideal for high cleanliness cleanrooms that require a significant portion of the ceiling to consist of fan filter units, integrated LED lighting conserves valuable ceiling space by eliminating the need for traditional light fixtures.

Optimized Equipment Layout

- + Integrated LED lighting allows both airflow and the light source to be located directly above the work station to optimize visibility and provide a contaminant free work area.

Improved Visibility

- + The large light-emitting surface of each UltraFFU provides even lighting with a low luminous intensity to reduce glare on monitors and other reflective surfaces.
- + Various lighting color temperatures and flexible dimming control can accommodate the unique requirements of modern laboratories, microelectronics manufacturing facilities, and other critical spaces.



High Efficiency 100+
lm/W LED



L80 > 60,000 hours



Dimmable



IP67 Sealed LED

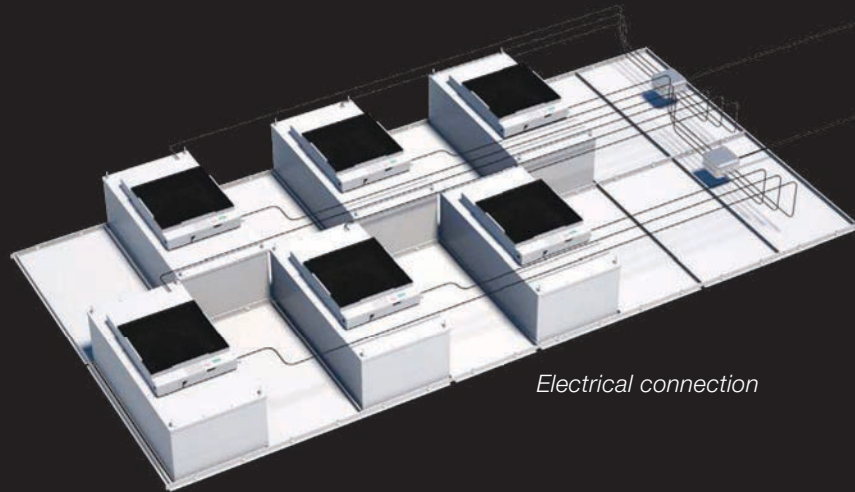


90+ CRI

The UFFU is available with many of our standard FFU options, however it is not available with the following: Bench top replaceable filter, PSC motor, exhaust/reverse flow, stainless steel construction, room-side accessible controls, and seismic pre-approval.

Simple Installation & Maintenance

- + Easy installation is realized as the LED lights and driver are factory installed and wired. Only two electrical connections are required, one at the LED driver and one at the control box.
- + Integrated LED lighting is a sealed, IP67 rated fixture that effectively seals out debris and liquids.
- + High quality LED lights have a long lifespan, rated at 80% original brightness for 60,000 hours. If required, individual LED strips are tool-free replaceable with quick-connect wiring.



Electrical connection



FFU with integrated lighting installed

Code Compliance & Listings

NFPA 90A-2018 Installation of Air Conditioning and Ventilating Systems

ASHRAE 170-2017 Ventilation of Healthcare Facilities

UL1598 Air-Handling Luminaries

UL 2043 Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces

UL2108 Low Voltage Lighting System

UL8750 Light Emitting Diode (LED) Equipment for Use in Lighting Products

UL1310 Class 2 Power Units

UL94 Flammability of Plastic Materials for Parts in Devices and Appliances

IP67 rated Ingress Protection Against Dust and Liquids

The UFFU is available with many of our standard FFU options, however it is not available with the following: Bench top replaceable filter, PSC motor, exhaust/reverse flow, stainless steel construction, room-side accessible controls, and seismic pre-approval.

ROOM-SIDE FILTER AND MOTOR STATUS INDICATION

An optional face-mounted color LED alerts the user when the filter is loaded and due for replacement, or if the motor is not operating properly. A green LED indicates normal operation, a yellow LED indicates a loaded filter and a red LED indicates an issue with the motor.



SPEED CONTROLLERS

Speed controllers are a necessary component of fan filter units, providing precise control over the speed of the motor and the resultant airflow. Multiple speed controller options allow the user to select the best fit for each project.

PSC Speed Controller (PSCSC)

- + Provides variable speed control of permanent split capacitor (PSC) motors.
- + Airflow adjustments are made with the on-board dial that is fully adjustable from minimum to maximum speed, providing increased functionality over a three-speed switch.



Standard ECM Speed Controller (ECMSC)

- + This low voltage speed controller offers either full manual control using the on-board dial or building automation system (BAS) control of a high-efficiency EC motor.
- + Easily change from manual to BAS control by applying the BAS 0-10 VDC signal to the speed controller.



Wall Mounted ECM Speed Controller (WMSC)

- + With simple daisy chain wiring, the Wall Mounted Speed Controller (ordered separately) controls FFUs with ECMSC or BFC controllers.
- + Using an analog 0-10 VDC signal, the WMSC is designed to control up to 30 units.





Price is a member of
BACnet International

BACNET FLOW CONTROLLER

The BACnet Flow Controller (BFC) offers seamless integration with BACnet building networks for unmatched control and visibility of fan filter unit performance. Used in conjunction with EC motor technology, these native BACnet controllers facilitate adjustment and/or monitoring of parameters including CFM output and filter status.

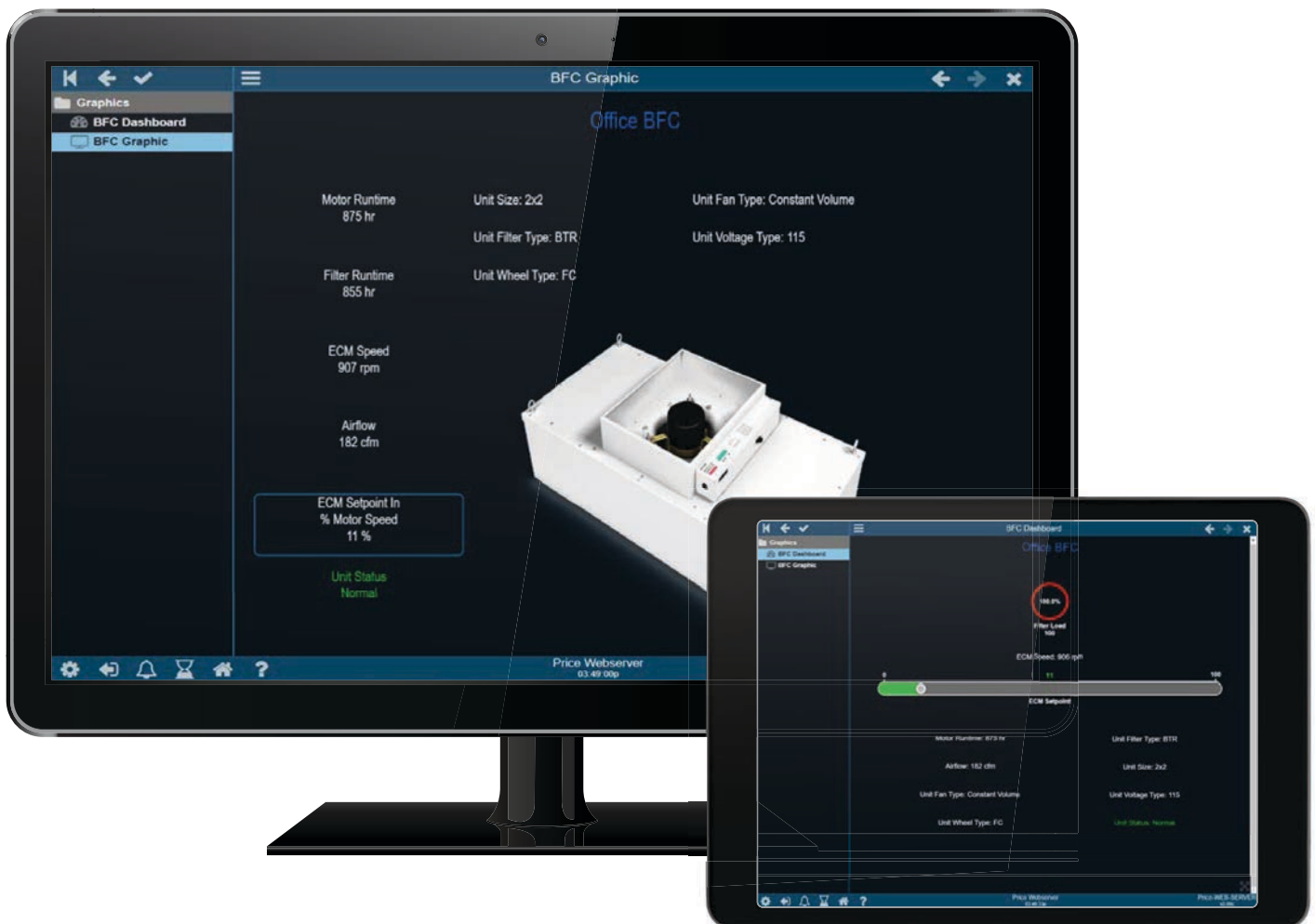
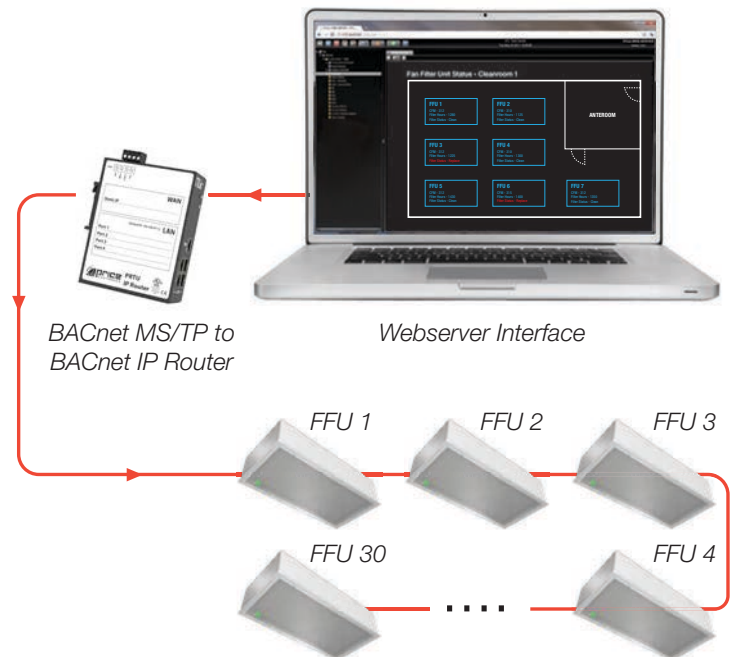
Key Features

- + Native BACnet MS/TP
- + Backlit LCD display
- + Several network points for control, monitoring or trending:
 - CFM output
 - Motor RPM and status
 - Motor hours
 - Filter status and pressure drop
 - Filter hours

WEBSERVER INTEGRATION

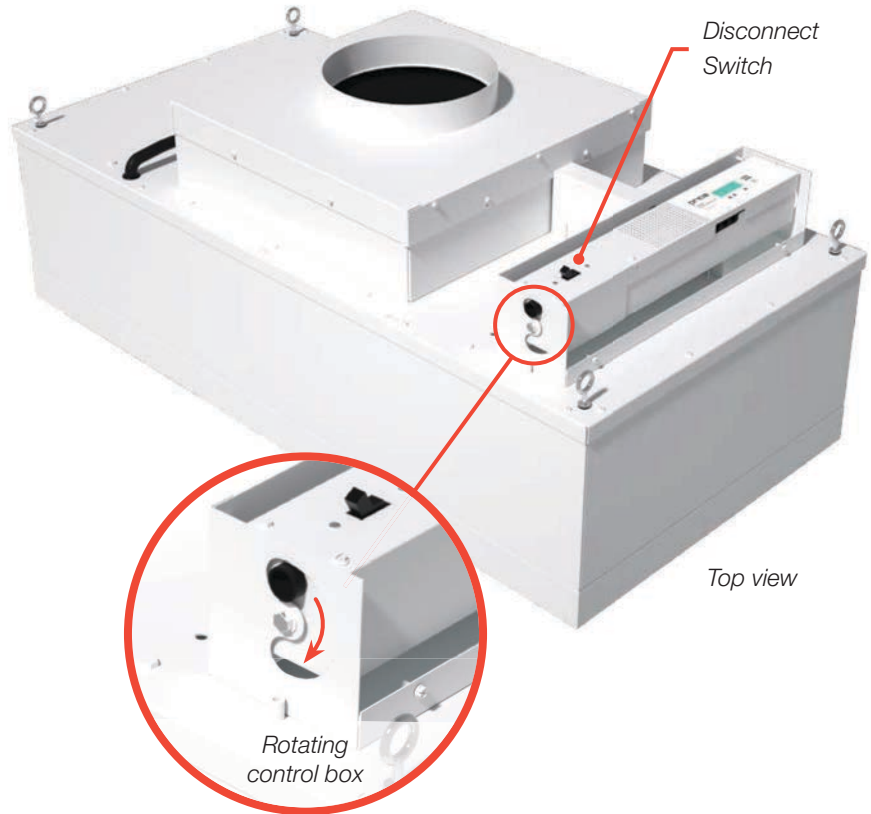
Accessing your system via the internet allows worldwide access to the building for fast and easy monitoring and troubleshooting. The Webserver allows the user to view all status variables such as filter status, CFM, etc. for every fan filter unit on the network, as well as change any setpoints directly from a PC.

The Webserver comes with a pre-loaded graphic showing the status of each fan filter unit. Custom graphics and interfaces are available to show room layouts or airflow readouts for all units on one screen.



ROOM-SIDE ACCESSIBLE CONTROLS

- + The room-side accessible controls option features a rotating control box that allows access to the controls from both the top of the unit and from the room-side.
- + To access the control box from the room-side remove the diffuser face, HEPA filter, and gasketed controls cover located inside the plenum.
- + A disconnect switch is located on the face of the control box, and is easily accessible regardless of control box orientation.
- + Optional room-side accessible controls are available with all speed controllers including the PSCSC, ECMSC, and BFC.



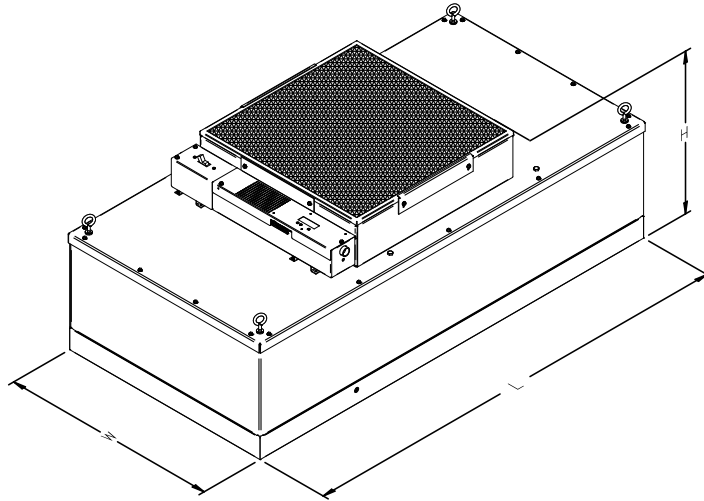
Room-side view



Remove HEPA filter access to controls

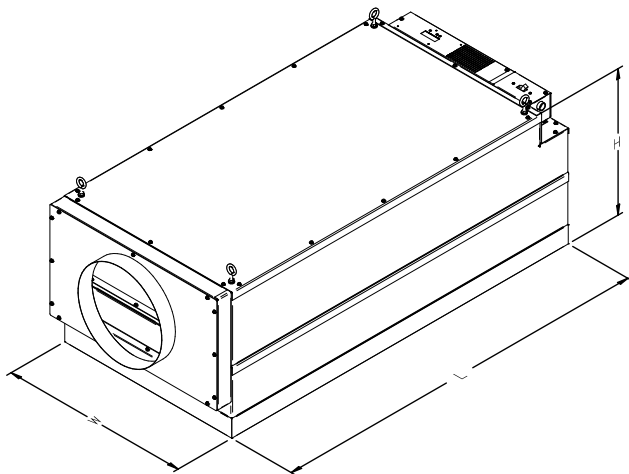
DIMENSIONAL DATA

Supply FFU/UFFU with RSR Filter



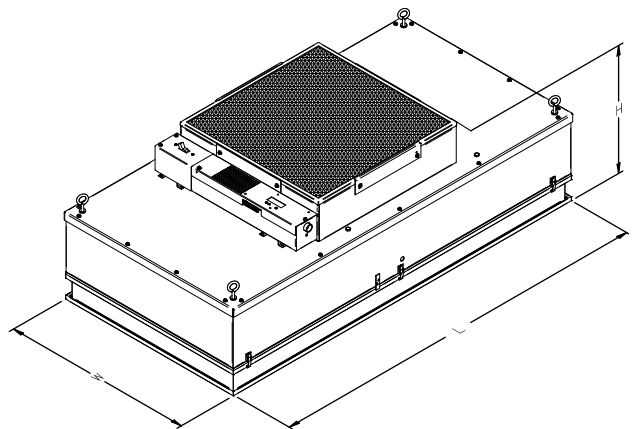
Unit Size	L (in.)	W (in.)	H (in.)					
			Standard			Integrated Lighting (UFFU)		
			Ducted no PF	Non-Ducted w/ Pre-Filter	Ducted w/ Pre-Filter	Ducted no PF	Non-Ducted w/ Pre-Filter	Ducted w/ Pre-Filter
24 in. x 24 in.	23.625	23.625	17.350	18.300	18.800	21.500	22.450	22.950
24 in. x 36 in.	35.625	23.625	17.350	18.300	18.800	21.500	22.450	22.950
24 in. x 48 in.	47.625	23.625	17.350	18.300	18.800	21.500	22.450	22.950

Reverse Flow FFU with RSR Filter



Unit Size	L (in.)	W (in.)	H (in.)
24 in. x 24 in.	23.625	23.625	20.500
24 in. x 48 in.	47.625	23.625	18.000

Supply FFU with BTR Filter



Unit Size	L (in.)	W (in.)	Ducted no PF	Non-Ducted w/ Pre-Filter	Ducted w/ Pre-Filter
24 in. x 24 in.	23.625	23.625	15.425	16.375	16.875
24 in. x 36 in.	35.625	23.625	15.425	16.375	16.875
24 in. x 48 in.	47.625	23.625	15.425	16.375	16.875

PERFORMANCE DATA

Supply

Unit Size	Filter	Motor - Fan	Active Filter Area (sq. ft.)	Max CFM	Watts at Max CFM	CFM at 90 FPM	Watts at 90 FPM	Sound (dBA) at 90 FPM	Weight (lbs.)
24 in. x 48 in.	BTR	ECM - BC	6.9	960	220	625	80	56	68
		ECM - FC	6.9	830	210	625	110	53	66
		PSC - BC	6.9	770	210	625	150	55	68
		PSC - FC	6.9	770	350	625	280	53	66
	RSR	ECM - BC	5.3	750	140	480	60	53	76
		ECM - FC	5.3	750	210	480	80	52	74
		PSC - BC	5.3	750	215	480	160	54	76
		PSC - FC	5.3	750	395	480	295	52	74
24 in. x 36 in.	BTR	ECM - BC	5.1	690	150	460	60	54	56
		ECM - FC	5.1	690	190	460	75	49	54
		PSC - BC	5.1	690	210	460	150	54	56
		PSC - FC	5.1	690	340	460	230	51	54
	RSR	ECM - BC	3.8	540	110	345	50	53	64
		ECM - FC	3.8	540	150	345	65	50	62
		PSC - BC	3.8	540	175	345	150	51	64
		PSC - FC	3.8	540	320	345	230	49	62
24 in. x 24 in.	BTR	ECM - FC	3.3	440	150	300	65	48	45
		PSC - FC	3.3	440	240	300	155	48	45
	RSR	ECM - FC	2.3	300	125	210	65	48	53
		PSC - FC	2.3	300	180	210	125	52	53

Integrated Lighting

Unit Size	Filter	Motor - Fan	Active Filter Area (sq. ft.)	Max cfm	Watts at Max cfm	cfm at 90 fpm	Watts at 90 fpm	Sound (dBA) at 90 fpm	Weight (lbs.)
24 in. x 48 in.	RSR	ECM - BC	5.3	750	165	480	65	54	106
		ECM - FC	5.3	750	230	480	80	50	104
24 in. x 36 in.		ECM - BC	3.8	540	130	345	55	53	96
		ECM - FC	3.8	540	170	345	65	50	94
24 in. x 24 in.		ECM - FC	2.3	300	140	210	70	46	74

Performance Notes:

- Units are tested in accordance with IEST RP-CC002.2, Recommended Practice for Unidirectional Flow Clean-Air Devices.
- Sound levels were measured with unit installed in a T-Bar ceiling, with gasket, in a standard room. Sound levels in dBA were measured at a distance of 30 inches from the filter face, with the unit set to produce 90 fpm average face velocity. (Note that data is for a clean filter only. If fan speed is increased to compensate for filter loading the noise level will increase.)
- For electrical circuit sizing, consult the "max amps" shown on the submittal for each product configuration and voltage.
- All data is based on a unit with a clean HEPA filter.
- 90 fpm values are based on active filter area.
- Heat Gain: BTUh = Watts x 3.413

Reverse Flow

Unit Size	Filter	Motor - Fan	Active Filter Area (sq. ft.)	Max CFM	Watts at Max CFM	CFM at 90 FPM	Watts at 90 FPM	Sound (dBA) at 90 FPM	Weight (lbs.)
24 in. x 48 in.	RSR	ECM - FC	5.3	750	185	480	75	54	74
		PSC - FC	5.3	750	430	480	315	58	74
24 in x 24 in.		ECM - FC	2.3	300	120	210	65	50	58
		PSC - FC	2.3	300	185	210	130	52	58

Performance Notes:

1. Units are tested in accordance with IEST RP-CC002.2, Recommended Practice for Unidirectional Flow Clean-Air Devices.
2. Sound levels were measured with unit installed in a T-Bar ceiling, with gasket, in a standard room. Sound levels in dBA were measured at a distance of 30 inches from the filter face, with the unit set to produce 90 fpm average face velocity. (Note that data is for a clean filter only. If fan speed is increased to compensate for filter loading the noise level will increase.)
3. For electrical circuit sizing, consult the "max amps" shown on the submittal for each product configuration and voltage.
4. All data is based on a unit with a clean HEPA filter.
5. 90 fpm values are based on active filter area.
6. Heat Gain: BTUh = Watts x 3.413

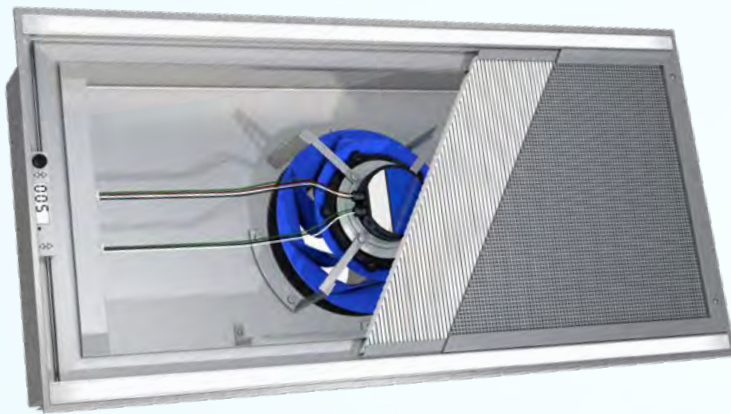


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Air Filtration and Distribution Products for Critical Environments



Criti-Clean™ Ultra Fan Filter Unit



Native BACnet now available!

BTL-certified control boards ensure all ECM motor outputs are available for data transmittal to the BMS – with no gateway or external device needed.

Criti-Clean Ultra is a fan-powered laminar flow HEPA filter diffuser that continually produces a non-aspirating, low velocity, uniformly distributed, downward moving "piston" of HEPA-filtered air. This unit offers several industry-leading features, including:

- Best output of up to 1200 CFM (48"x24" unit)
- Lowest plenum height of just 13.7"
- Room-side CFM display and adjustment
- Backward inclined fan unit that modulates as filter loads
- Largest diameter port of 1/2"
- Ability to ship 400 units in 6 weeks

The FFU can be installed into existing ceiling grid systems, or into plaster/hard ceilings using our innovative surface mount clamps. Built-in LED light strips can be added to eliminate the need for hanging light fixtures. Reverse-flow units are also available to create negative pressure environments.

ADDITIONAL STANDARD FEATURES

- Energy efficiency (only 42 watts at 90 FPM velocity/450 CFM)
- Quiet performance (48"x24" unit at 90 FPM: 51 dBA)
- Computer controlled, variable speed EC motor (120V, 208/204V or 277V)
- Room-side access to HEPA filter
- Can change from constant flow to constant torque in the field to correct design issues quickly
- All type 304 stainless steel construction
- HEPA filter (99.99% @ 0.3 microns)
- All welded plenum
- Available Sizes: 48"x24", 36"x24" and 24"x24"

OPTIONAL FEATURES

- ULPA filter (99.9995% @ 0.12 microns)
- Sensor that measures CFM in real time
- Continuous filter monitoring
- Filter overload indicator light
- Challenge/pressure ports
- Networking control for multiple units
- Built-in LED lights, tunable from 2500-6700 lumens
- Aluminum construction for reduced costs

NOTE: For output levels over 850 CFM, we offer high-flow filter options to avoid bleed through.



Ceiling Diffusers

SSLFHFD – Laminar Flow HEPA Filter Diffuser



The SSLFHFD uses the well-proven vertical air mass “laminar flow” technology, producing a non-aspirating, low velocity, uniformly distributed downward moving “piston” of conditioned air. The units accommodate a gel seal HEPA or ULPA filter, which can be easily removed and replaced from the face of the unit. Available in Standard Capacity (SC), Medium Capacity (MC) and High Capacity (HC).

- Type 304 stainless steel construction
- #4 satin polished finish
- SC: 13% perforated face – 3/32" diameter holes on 60° 1/4" staggered centers
- MC: 23% perforated face – 3/32" diameter holes on 60° 3/16" staggered centers
- HC: 33% perforated face – 3/16" diameter holes on 60° 5/16" staggered centers

SSLF – Laminar Flow Diffuser



The SSLF uses the same laminar flow technology as the SSLFHFD, but without the added HEPA filter. The units may be used individually, or as in the case of hospital operating rooms, several may be linked together to produce one large combined laminar mass. Available in Standard Capacity (SC), Medium Capacity (MC) and High Capacity (HC).

- Type 304 stainless steel construction
- #4 satin polished finish
- SC: 13% perforated face – 3/32" diameter holes on 60° 1/4" staggered centers
- MC: 23% perforated face – 3/32" diameter holes on 60° 3/16" staggered centers
- HC: 33% perforated face – 3/16" diameter holes on 60° 5/16" staggered centers

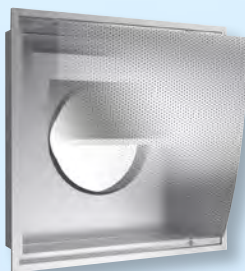
FRD-HEPA – Flat Radial Pattern HEPA Diffuser



The FRD diffuser with HEPA Filter is specially designed with internal baffles and a pressure plate to produce a radial air pattern that allows large volumes of air to be supplied at low level velocities. The FRD-2 model introduces air in a semi-cylindrical 180° radial flow pattern, flushing a room with large volumes of clean conditioned air, while still allowing low room air velocities. The FRD-1 model introduces air in a 90° radial flow pattern for perimeter applications.

- Type 304 stainless steel construction
- #4 satin polished finish
- Unique, architecturally appealing flat face design
- 51% perforated face – 3/16" diameter holes on 60° 1/4" staggered centers
- Easily removable face secured by 1/4-turn fasteners and safety cables

HRDP – Hinged Radial Diffuser



The HRDP diffuser features a unique design of solid baffles in an intrusive perforated face to provide large volumes of air with low initial face velocities. The HRDP-2 model introduces air in a semi-cylindrical 180° radial flow pattern, flushing a room with large volumes of clean conditioned air, while still allowing low room air velocities. The HRDP-1 model introduces air in a 90° radial flow pattern for perimeter applications.

- Type 304 stainless steel construction
- #4 satin polished finish
- Unique, architecturally appealing curved design
- 13% perforated face – 3/32" diameter holes on 60° 1/4" staggered centers
- Hinged face secured by 1/4 turn fasteners, allowing easy access for cleaning



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Controls

Overview

AirCare Automation's **Zephyr 4** – Field Configure Monitoring Console intelligently MONITORS and CONTROLS clean room and facility environments. The console provides communication (MODBUS-RTU platform), system monitoring (and FFU control) in one easy-to-use package.

The **Zephyr 4** console supports cleanroom monitoring up to 16 rooms – with ability to add FFU control for up to a total of 200 FFU addresses. Plug-and Play, the Console is field configurable to match your facility layout needs

The **Zephyr 4** Console is supplied in a White Steel enclosure (ACPNL08 with SMPS) to easily wall mount. Ethernet Access provides remote access to the console, e-mail alarm notification and data-log download for the sensor readings.

OPTION – BMS Exchange (MODBUS TCP, OPC or BACNET)

OPTION – FFU Control for up to 16 rooms (200 FFU)

OPTION – Digital I/O for FFU set-back, shut-down



Specifications for Touchscreen Console

Power Supply

- Input Voltage: 24 VDC
- Max Current Consumption: 500mA@24V

Display Screen

- TFT, LCD Display, White LED backlit
- Viewing Area: 7.0"
- Display resolution: 800 x 480 pixels

Keyboard

- Virtual Keyboard when Data entry needed.

Communication

One Isolated RS485 Serial Port (PORT 1)

- Voltage limits -7 to +12VDC differential maximum
- Baud rate: 9600
- Supports up to 6 Sensor Modules & 100 FFU addresses
- Cable type: Twisted pair (cat5e)

Functions/ Features

- **Monitor Diff. Pressure, Temp, RH**
- **Set Hi/Lo alarm limits**
- **Adjust read-out to match certifier measurements**
- **16 rooms**
- **Data-Log of results**
- **E-mail Alarm notification**
- Menu driven configuration options
- 3 levels of user control: View, User and Master

Environment

- Panel mounted console
- Operational temperature: 0 to 50°C (32 to 122°F)
- Storage temperature: -20 to 60°C (-4 to 140°F)
- Relative Humidity (RH): 5% to 95% (non-condensing)

Enclosure (ACPNL10 - 18 x 18 x 6 inches)

Formed and spot welded from 16-gauge steel.

Formed steel covers - slotted quarter turn latch.

Full swing door using butt hinges.

Through holes in back for wall mounting.

Bonding stud is provided on the door and a grounding stud is provided on the box.

Includes 14-gauge steel inner panel.

UL-50 Type 1 CSA Type 1

NEMA Type 1 IEC 60529, IP20

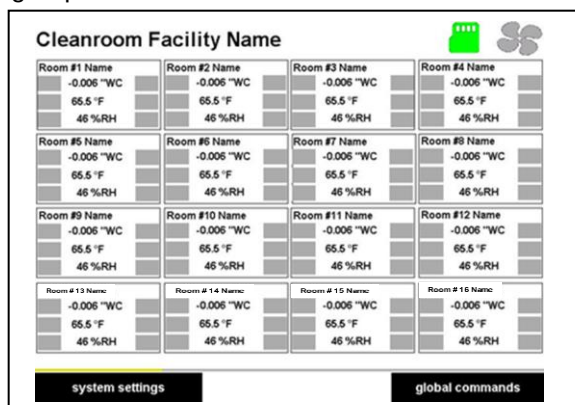


enclosure (ACPNL10)

EXAMPLE SCREENS

Main screen/Facility Control

The main screen shows the assigned groups (in this example 16 rooms) with measured P, T, RH. Each group has identified number of fans and identified



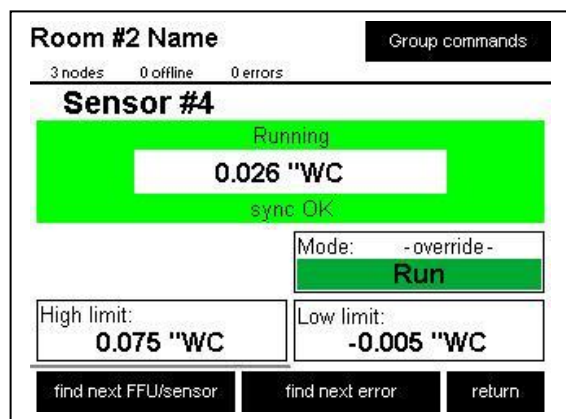
Cleanroom Facility Name

Room #1 Name -0.006 "WC 65.5 °F 46 %RH	Room #2 Name -0.006 "WC 65.5 °F 46 %RH	Room #3 Name -0.006 "WC 65.5 °F 46 %RH	Room #4 Name -0.006 "WC 65.5 °F 46 %RH
Room #5 Name -0.006 "WC 65.5 °F 46 %RH	Room #6 Name -0.006 "WC 65.5 °F 46 %RH	Room #7 Name -0.006 "WC 65.5 °F 46 %RH	Room #8 Name -0.006 "WC 65.5 °F 46 %RH
Room #9 Name -0.006 "WC 65.5 °F 46 %RH	Room #10 Name -0.006 "WC 65.5 °F 46 %RH	Room #11 Name -0.006 "WC 65.5 °F 46 %RH	Room #12 Name -0.006 "WC 65.5 °F 46 %RH
Room #13 Name -0.006 "WC 65.5 °F 46 %RH	Room #14 Name -0.006 "WC 65.5 °F 46 %RH	Room #15 Name -0.006 "WC 65.5 °F 46 %RH	Room #16 Name -0.006 "WC 65.5 °F 46 %RH

system settings global commands

SENSOR SCREENS

Pressure, Temperature and Relative Humidity Screens provide individual sensor access .. providing high/low limit control and allowing sensors to be turned on/off.



Room #2 Name Group commands

3 nodes 0 offline 0 errors

Sensor #4

Running

0.026 "WC

sync OK

Mode: -override-
Run

High limit: 0.075 "WC Low limit: -0.005 "WC

find next FFU/sensor find next error return

Fan/unit group control

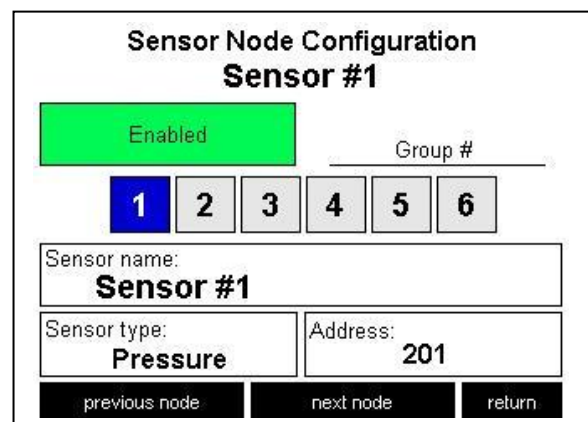
With FFU control added, the 16 rooms have room identification noting the number of fans in the room and error notification for the room. Tapping on the room gets you to the individual Fan information.



Room #1 Name 3 nodes 0 errors	Room #2 Name 3 nodes 0 errors	Room #3 Name 3 nodes 0 errors	Room #4 Name 3 nodes 0 errors
Room #5 Name 3 nodes 0 errors	Room #6 Name 3 nodes 0 errors	Room #7 Name 3 nodes 0 errors	Room #8 Name 3 nodes 0 errors
Room #9 Name 3 nodes 0 errors	Room #10 Name 3 nodes 0 errors	Room #11 Name 3 nodes 0 errors	Room #12 Name 3 nodes 0 errors
Room #13 Name 3 nodes 0 errors	Room #14 Name 3 nodes 0 errors	Room #15 Name 3 nodes 0 errors	Room #16 Name 3 nodes 0 errors

Sensor Node Set-Up

Sensor Nodes are easily set-up and assigned to rooms. DSM units are preassigned MODBUS addresses to easily assign up to the 12 rooms designated



Sensor Node Configuration

Sensor #1

Enabled

Group #

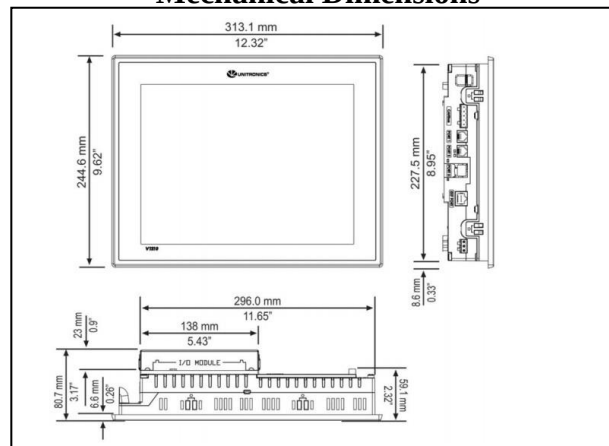
1 2 3 4 5 6

Sensor name: **Sensor #1**

Sensor type: **Pressure** Address: **201**

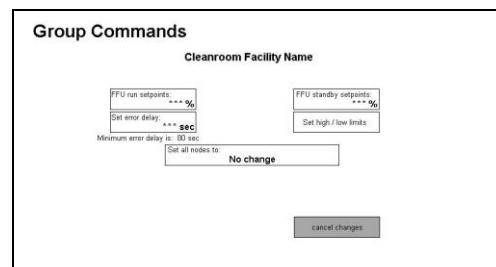
previous node next node return

Mechanical Dimensions



Fan/unit Global Commands

FFU set-up is easy and trouble free. Set-up screens, global commands, hi/low limits.



Group Commands

Cleanroom Facility Name

FFU run setpoints: --- % FFU standby setpoints: --- %

Set error delay: --- sec Set high/low limits

Minimum error delay is 10 sec

Set all nodes to: **No change**

cancel changes



MANUAL – INSTALLATION

Web Server

PRTU-Front-End Series

v300 – Issue Date: 09/01/22 - 020023-009

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WEB SERVER

PRODUCT OVERVIEW

Safety Precautions

Short circuit or incorrect wiring may permanently damage the controls or other equipment. Ensure proper wiring practices are followed. If a control failure could lead to personal and/or property damage, the installer must add safety/interlock devices to protect against these events.

Introduction

The Price Web Server is a complete BACnet front-end solution for small to medium sized networks. The Price Web Server hosts all web pages containing graphics and BACnet points reported by the system controllers.

The Price Web Server is accessed from any computer or smart device (tablet or mobile phone) on the local network using a web browser. Remote access is possible from across the globe with the use of Port Forwarding on the computer network.

Contained within the webserver are pre-loaded templates with graphics and points lists for the popular Price controls. Changes to the graphics or the creation of new custom graphics are supported from within the web interface.

Price Web Server can be ordered as PRTU-Front-End, which contains all of the parts required to network all of the controls, connect them to the web server, and then interface them to the building LAN system at a single point.

Price Web Server Features

Features of the Web Server include:

- Accessibility from any web browser on a laptop, smart phone, or tablet.
- Animated graphics
- Pre-loaded templates for Price controls
- Drag and drop setup, no programming required
- Multiple simultaneous users
- Support for Email alerts based on user-defined conditions

WEB SERVER

PRODUCT OVERVIEW

Package/Component Identification

Web-Master

Each PRTU ships with the following items:

This package contains all the components required for the Web Server graphics, the parts to connect to a single PRTU (Price Rooftop Unit Controller) system, and those required to connect the system to the building computer network.

Components:

250000-920 - Price Web Server

1. PRTU-WEB
2. NETC2 cable
(to connect to PRTU-IP-RTR)
3. DIN rail
4. USB drive with manual and setup videos
5. Price Electronics flat head screwdriver (0.1" tip)
6. NETC12 cable

250000-931 - PRTU Bacnet Router

1. PRTU-BAC-RTR
2. NETC2 cable
(to connect to PRTU-IP-RTR)
3. DIN rail

250000-932 - PRTU IP Router

1. PRTU-IP-RTR
2. NETC12 cable
(laptop setup connection)
3. DIN rail

250000-920 - PRICE WEB SERVER ▼



1. PRTU-WEB



2. NETC2 CABLE



3. DIN RAIL



4. USB DRIVE



5. PRICE ELECTRONICS FLAT HEAD SCREWDRIVER



6. NETC12 CABLE

250000-931 - PRTU BACNET ROUTER ▼



1. PRTU-BAC-RTR



2. NETC2 CABLE



3. DIN RAIL

250000-932 - PRTU IP ROUTER ▼



1. PRTU-IP-RTR



2. NETC12 CABLE



3. DIN RAIL

WEB SERVER

PRODUCT OVERVIEW

Package/Component Identification

Web Additional

The WEB-ADDITIONAL package is used to connect additional PRTU systems to the WEB-MASTER system.

Components:

250000-931 - PRTU Bacnet Router

1. PRTU-BAC-RTR
2. NETC2 cable
(to connect to PRTU-IP-RTR)
3. DIN Rail

PRTU IP Switch

The IP-SWITCH is required if there are more than 3 PRTU systems being connected to the Web Server. This component is used to expand the “LAN” port on the IP-RTR, allowing a further 3 PRTU systems to be connected. See the example layout section of this manual for further detail.

Examples:

- 1-3 PRTU Systems:
No IP Switch required
- 4-6 PRTU Systems:
Qty: 1 IP Switch required
- 7-9 PRTU Systems:
Qty: 2 IP Switch required

Components:

250000-933 - PRTU IP Switch

1. PRTU-IP-SWITCH
2. NETC2 cable
(to connect to PRTU-IP-RTR)
3. DIN rail

Please ensure you have all components before proceeding. Inspect components for shipping damage. Do not install components that appear damaged. Contact your local PRICE Sales Rep for quick ship replacements.

As always, for the latest information and video please visit priceindustries.com.

250000-931 - PRTU BACNET ROUTER ▼



1. PRTU-BAC-RTR



2. NETC2 CABLE



3. DIN RAIL

250000-933 - PRTU IP SWITCH ▼



1. PRTU-IP-SWITCH



2. NETC2 CABLE



3. DIN RAIL

WEB SERVER

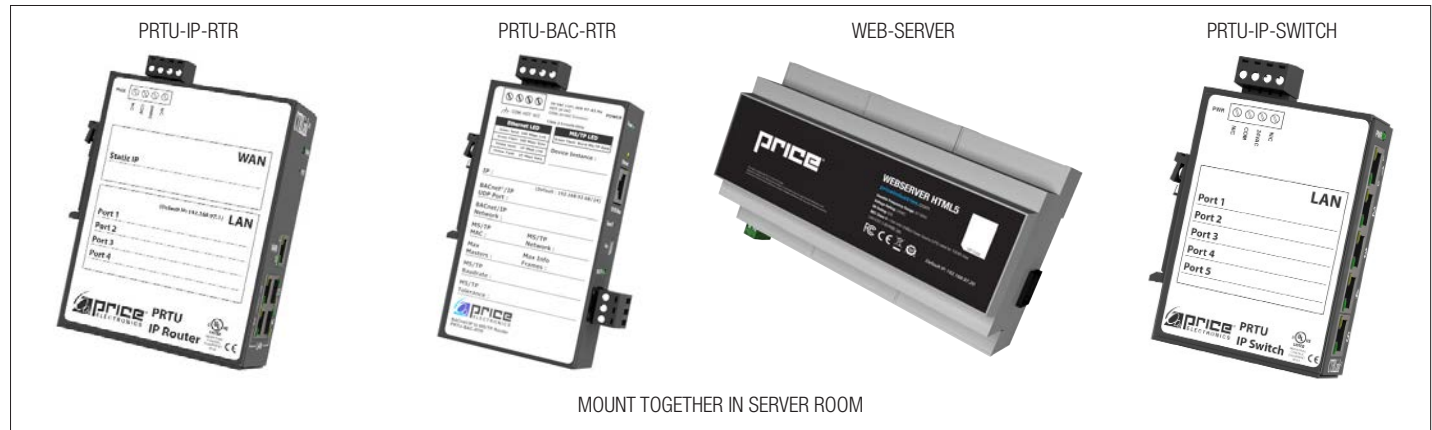
INSTALLATION & MOUNTING INSTRUCTIONS

Location

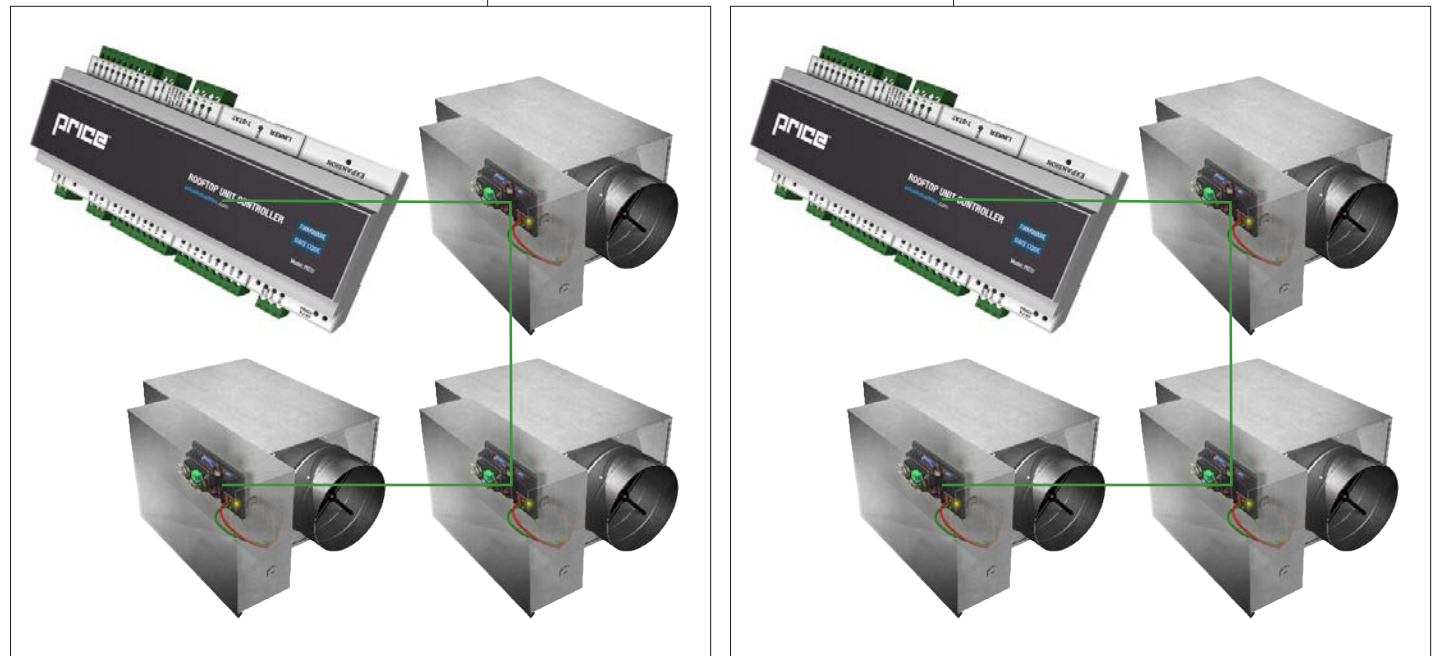
The PRTU-Front-End components should be mounted in an accessible location close to a network connection. Price suggests mounting these components in the network or server room.

The WEB-SERVER, PRTU-IP-RTR, PRTU-BAC-RTR, and PRTU-IP-SWITCH (if applicable) should all be mounted together.

MOUNTING DETAILS ▼



LONG-DISTANCE MS/TP CONNECTION
(SEE WIRING SECTION)



MOUNT PRTU / ZONE CONTROLLERS IN THEIR ZONES



Doors

Sliding Door

ASSA ABLOY SL500 Clean Room

ASSA ABLOY
Entrance Systems

Experience a safer
and more open world

Increasing convenience in
clean rooms ... automatically



Precision Engineered for Clean Rooms

Automatic doors are an essential ingredient in a clean room environment. They separate space, provide privacy, improve access and allow for the safe transport of delicate and expensive products and equipment.

ASSA ABLOY Entrance Systems is pleased to offer the ASSA ABLOY SL500 Clean Room sliding door package. Built on the proven platform of the powerful ASSA ABLOY SL500 sliding door, it provides a reliable package that is tested and rated for use in ISO 3 (class 1) clean rooms.

Technical data subject to change without notice



An Array of Features to Suit Your Needs

The ASSA ABLOY SL500 Clean Room slider is equipped with 45 degree sloped $\frac{1}{4}$ " glass stops and non-shedding weather stripping. It features the powerful performance of the ASSA ABLOY SL500 operator, including 20% faster opening times, low energy consumption and tandem carriage wheels for improved stability and performance.

The ASSA ABLOY SL500 Clean Room package is suitable for both new construction and retrofit applications in overhead concealed and surface mount configurations. Whether single slide or bi-part, full breakout or fixed sidelite, the ASSA ABLOY SL500 Clean Room slider is adaptable and configurable to the unique needs of your requirements.

One partner for all your entrance needs

Architects & specifications services

From planning and design to construction and delivery, ASSA ABLOY Entrance Systems supports you in meeting the requirements of your project

Local Service

Our fast and convenient service is supported by highly trained professional technicians who offer extensive knowledge and expertise.

Products for today and the future

Automatic doors welcome visitors, guide traffic, and help create touchless access. With our range of sliding, swing, ICU and revolving doors, we offer many ways to provide convenience, secure entrances and meet accessibility standards.



ASSA ABLOY SL500 Clean Room Features

- Approved for ISO3 (Class 1) environments
- Full breakout
- Fixed sidelite
- 20% faster opening
- Overhead concealed
- Surface mount
- Low energy consumption
- Flush header design
- Dual tandem carriage wheels for superior performance
- Sleek tapered header design
- Seamless integration
- 4" anti-riser derailment guides
- Separate time delays for sensors and key access

High speed door

ASSA ABLOY HS9030GAT

ASSA ABLOY
Entrance Systems

Experience a safer
and more open world



Compact airtight high speed door for cleanroom applications

The ASSA ABLOY HS9030GAT is a compact, airtight door with integrated motor for inside environments, like cleanrooms. The main features of the ASSA ABLOY HS9030GAT are:

- Medium-sized, max. 4000 x 4000 mm
- Airtight/Cleanroom applications
- Air permeability, Class 4
- Space saving design
- Inside usage
- Stainless steel 304, option galvanised steel construction
- Gravity drive system
- Opening speed up to 2,7 m/s

With its modern corrosion resistant composite cover design and integrated motor, the ASSA ABLOY HS9030GAT is the most space-efficient model in the market. The door offers perfect sealing thanks to a unique continuous curtain sealing within the side columns. Exceptional reliability and smooth operation is ensured by a frequency converter driven motor with soft start and stop functionality.

The reliable and versatile control unit ensures precise door set up and diagnostics and is enclosed in a robust steel control box. A customer friendly clear display gives a wide range of information like an easy to read cycle counter.

Break-away and Automatic Reset system

ASSA ABLOY high speed doors are equipped with a break-away and automatic reset system. The curtain reintroduces itself after a crash to reduce downtime and maintenance.

Completely safe

Features that make our doors completely safe.

- The soft bottom profile has no rigid parts, it gives way should an obstruction be in the line of closing.
- If the door is hit, the fabric curtain absorbs the impact and releases itself from its side guides without causing damage or being damaged itself.

Windows and vision panels

To increase the admission of daylight and visibility, the door curtain can be equipped with windows or vision panels. Windows have fixed sizes and are located on a pre-defined grid. A vision panel is always located on the full width of the door curtain.

Technical Data

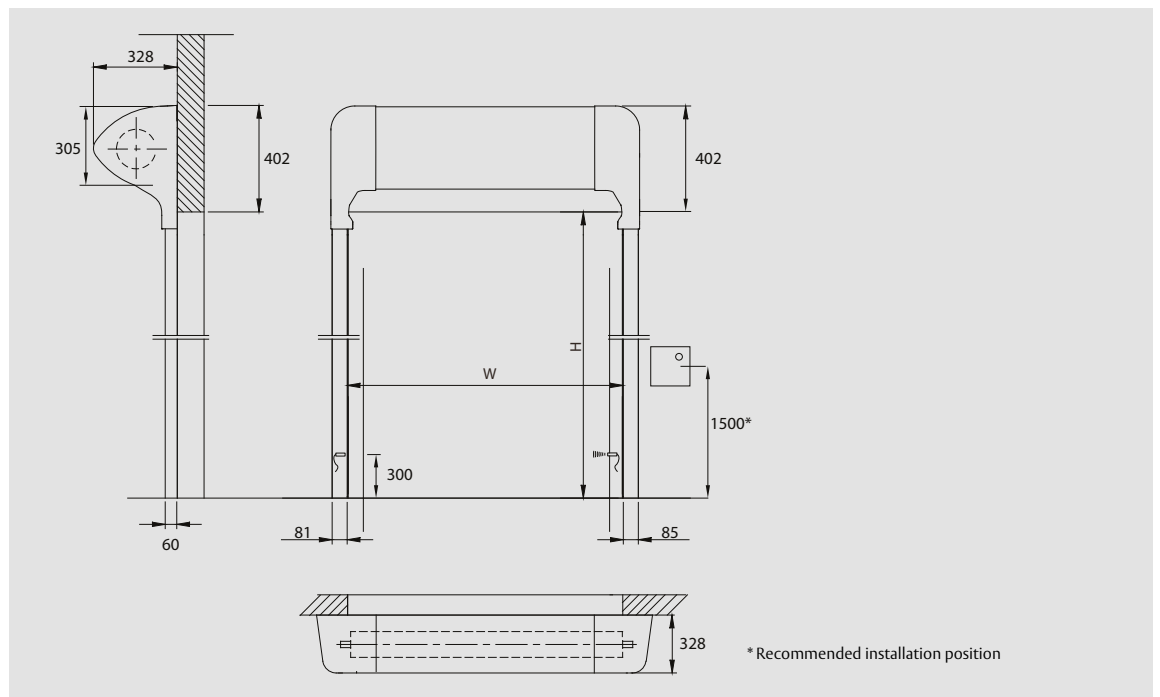
Min size (W x H)	1000 x 2000 mm
Max size (W x H) ¹	4000 x 4000 mm
Operating speed ²	opening: up to 2,7 m/s closing: 0,5 m/s
Wind load resistance, EN 12424	class 1 (300 N/m ²) maximum wind load while closing 50 N/m ²
Water penetration, EN 12425	class 3 (>50 N/m ²)
Air permeability, EN 12426	class 4, overpressure class 3, underpressure
Thermal transmittance	6,02 W/(m ² K)
Performance Test	1.000.000 cycles
Air Cleanliness, ISO 14644-1	class 6



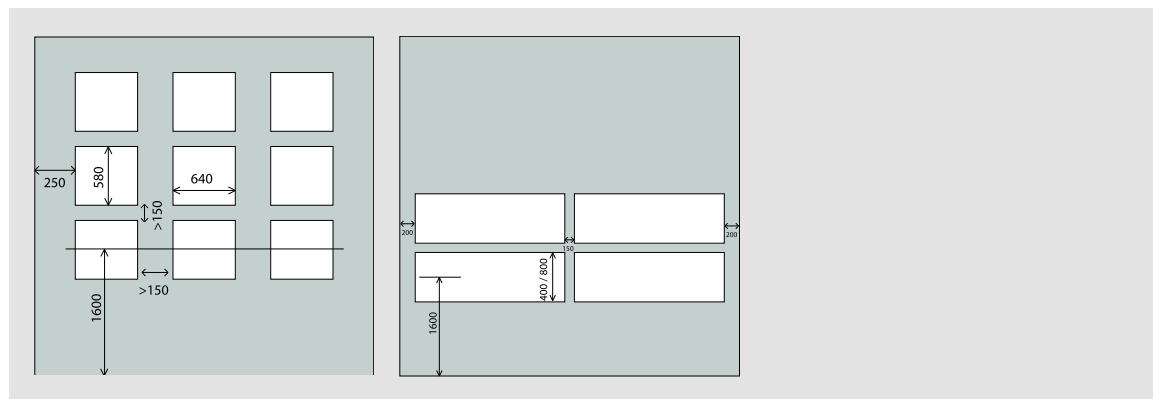
Fraunhofer
TESTED[®]
DEVICE
ASSA ABLOY
HS9030GAT
Report No. EN 1712-982

1) Other sizes available on request 2) Depending on door size

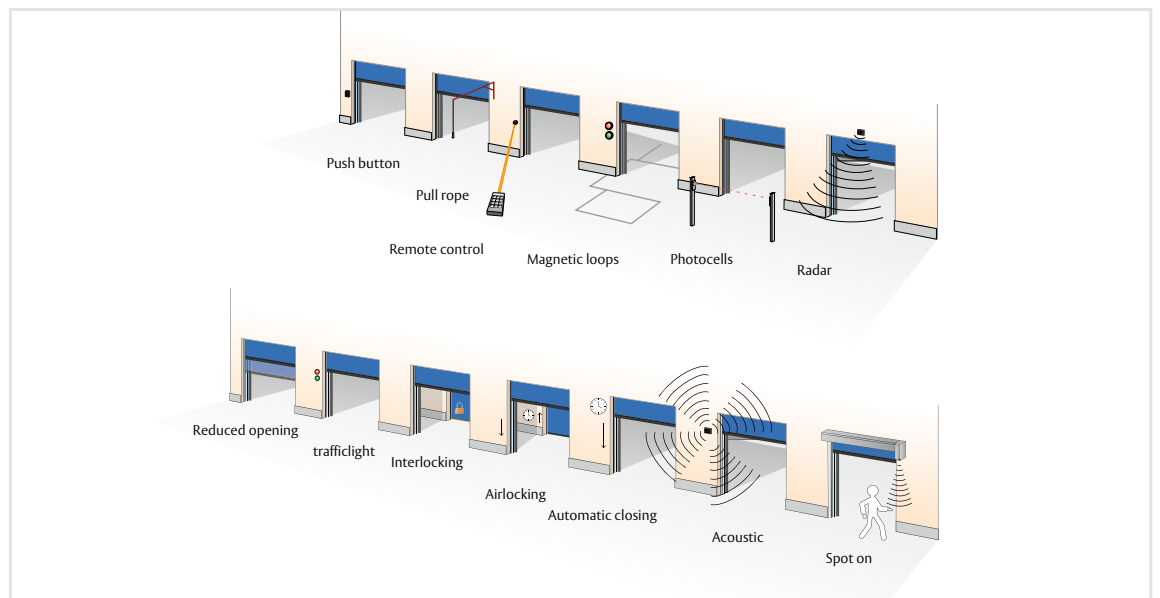
Dimensional specifications



Windows and Vision panels



Options access and automation



Standard available colors

 Signal yellow RAL 1003	 Ultramarine blue RAL 5002	 Anthracite grey RAL 7016	 Jet black RAL 9005
 Pure orange RAL 2004	 Gentian blue RAL 5010	 Light grey RAL 7035	 White RAL 9010
 Flame red RAL 3000	 Moss green RAL 6005	 Traffic grey B RAL 7043	 On request
			 Other colors

Product Data Sheet

Speed-Commander™ 1400 SEL¹⁹ Clean-Master 20 Pa

Flexible High Speed Door with Enhanced Environmental Control



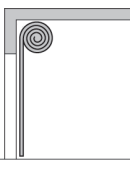
HÖRMANN

Features



Speed-Commander™ 1400 SEL¹⁹ Clean-Master 20 Pa high speed flexible door in blue with vision panel and aluminum bottom bar (standard).

- Smart Start™ NXT, NEMA 4X programmable control box available with 304 stainless steel enclosure.
- Speed: Up to 80"/sec. open, 30"/sec. close.
- Extruded Aluminum Bottom Profile, offered standard.
- Optional 304 Stainless Steel components.
- Space saving 6" Wide x 3 1/2" Projection compact side frames with dual vinyl seals.
- Features non-contact light grid protection.
- Tough, 2-ply reinforced puncture resistant Commander™ fabric curtain panels.
- 1 Standard full-width clear PVC vision area.
- Panel Colors: White, Yellow, Orange, Red, Blue, Gray.
- Curtain reinforced with full-length aluminum panel connectors, light-weight spring steel wind bars (optional).
- Best-in-class 5 & 2 year warranty.

Technical Data		Remark	
Speed-Commander™ 1400 SEL¹⁹ Clean-Master 20 Pa Flexible, high performance overhead rapid coiling door with enhancements for sensitive environmental control.		Specify High Performance Doors in Section 08 33 30.13 'Overhead Rapid Coiling Doors' Find CSI format documents available at MasterSpec®, SpecLink, and Hormann.us®	
Application		Interior	Hood required for low clearance doors
Speed	Opening	Closing	Variable speed based on opening height
	Up to 80"/sec.	Up to 30"/sec.	
Control Box		Smart Start™ NXT (11 5/8" W x 15 3/4" H x 8 1/2" D)	Standard, NEMA Type 4X rated SmartControl M2M activation optional
Roll-up Technology		Hollow-core steel roll tube with precision-welded axles	Standard Galv. (optional Stainless Steel)
Door Construction 	Size Range	Min. 4'-0" up-to 10'-0" wide Min. 4'-0" up-to 10'-0" high	Standard
	Guide Track Profile	6" x 3 1/2"	(W x D)
	Roll Tube Diameter	6 1/4"	6" for 304 stainless steel
	Solid Panel(s) Height	47 1/4" High, 1/8" Thick	--
	Vision Panel(s) Height	36" High, 1/8" Thick	Begins at 52" above finished floor
	Required Headroom	17 1/4" min.	Headroom to increase with optional hood
Overhead Coiling			
Drive Mechanism		Direct-drive operator keyed to Roll Tube	--
Counterbalance System		Not Required	--
Braking		Control box activated 24V DC brake	Standard
Cycleability / Maintenance		High Cycleability Inspect at 6 mo. intervals	Consult factory for details
Safety Features		Integrated in-line light grid, hand crank open/close	Optional Chain Hoist Available
Resistance to Wind Load (Interior Only)		Up to 1.60 psf; Wind Load Class 0; 25 mph	Per standard EN 12424, DASMA 108
Fire Resistance Rating		Non-rated, Non-conforming exit	Per 2012 IBC Section 1008
Warranty		5 & 2 years. Motor/gearbox and Panels (5), all other mech./elec. (2)	Standard
Materials and Finishes			
Guide Tracks & Covers		12-ga. HDG steel tracks	Zinc, Class G90 (Stainless Steel 304 optional)
Door Header Assembly, Roll Tube		5 mm Hot-dipped galvanized steel	Zinc, Class G90 (3 mm Stainless Steel 304 optional)
Weather Seals		Dual white vinyl jamb seals. Vinyl loop lintel seal.	Jamb: White / Lintel: Black
Panel Connectors		Clear Anodized Extruded Aluminum Profiles	Standard

Product Data Sheet (Continued)

Speed-Commander™ 1400 SEL¹⁹ Clean-Master 20 Pa

Flexible High Speed Door with Enhanced Environmental Control



Materials and Finishes (Continued)			Remark
Solid Door Panels: (Standard)	58 Oz. White Fabric with Aluminum Panel Connectors	White Abrasion resistant, 2-ply poly-reinforced "Commander™" PVC sheet, 1.4 mm Thick, 58 oz./yd ²	Optional Color Availability: Yellow, Orange, Red, Blue, Gray, (58 oz./yd ²)
Vision Door Panels: (Standard)	Full-Width Continuous	Abrasion resistant, transparent PVC sheet, 2.8 mm Thick	Color Availability: Clear
Bottom Bar		Clear Anodized Extruded Aluminum Profile	Optional Soft Edge Bottom Bar with spring steel reinforcing available.
Electric Door Operator		Cast aluminum	304 Stainless Steel optional
Control Panel		Standard: Baked-on polyester powder coat paint. Color RAL 7035 Light Gray	304 Stainless Steel optional
Hood and Motor Cover (optional)		14-ga. Hot-dipped galvanized steel	Zinc, Class G90 (16-ga. 304 Stainless Steel optional)
Energy Analysis			
Visible Transmittance (Tvis)		0.80%	Per calc ANSI/NFRC 200-2014 (Clear Vision Panels)
Acoustic Insulation		STC 35, R _w 35 dB	Per test EN 717-2, ASTM E90 (Without Visions)
LEED Credit		EAc2, MRc1, MRc3, IEQc2, IEQc4, INc1, RPc1	USGBC® LEED v4
Electrical			
Electric Door Operator (Motor)		2.0 HP GfA Elektromaten F15	NEMA Type 3 / IP54
Operating Voltage (Motor)		132vAC, 3 PH	From Control Box to Motor
Control Box		5 KW variable frequency drive rated for operating voltage	NEMA Type 4X / IP66, UL/CUL Listed
Standard Power Requirement (to Control Box)		230 vAC, 1 PH or 208vAC* - 575 vAC*, 3 PH, 60 Hz	*Buck-Boost Transformer may be req. at voltage limits
Full Load Amps		13.3 A	Operator
Disconnect		Fuse: 20 Amp, Class K	Service to Control Box. Supplied by Others

State-of-the-Art Integrated Safety

Speed-Commander™ 1400 SEL¹⁹ Clean Master 20 Pa High-Performance doors are ideal for tightly sealing doorways to prevent air movement, and fast opening speeds of 80 inches per second increasing protection from contamination between two areas.

Compact Design

Heavy-duty, low-profile side frames of just 6" wide x 3 1/2" projection enable the 1400 SEL¹⁹ Clean Master 20 Pa to fit easily into compact areas. Innovative SoftEdge gate technology avoids damage to the door while the patented self-repairing curtain design is able to re-align displaced panels into guide tracks eliminating downtime.

Optional Uninterrupted Power Supply

A special UPS emergency battery pack is an option that provides peace-of-mind in case of a power failure. If power is lost to the door, the UPS emergency battery pack (Non-UL) automatically opens the door once to allow personnel to quickly exit the area. This low maintenance design is free of springs, counterbalance systems and other high maintenance parts that are typically required for emergency opening. When the battery is low, an alarm sounds to signal time for a replacement. Replacing the battery is a simple process that takes just a few minutes. This option is only available with doors equipped with our 230 v / 1-phase control box.



Speed-Commander™ 1400 SEL¹⁹ Clean Master 20 Pa with in-line light curtain for occupant safety at the plane of the door opening.

Find us in
MasterSpec
a product of The American Institute of Architects

Our products are specified in
SpecLink
www.bsdspeclink.com



Hörmann Flexon, LLC | Starpointe Business Park | 117 Starpointe Boulevard | Burgettstown, PA 15021-9506
1-800-365-3667 | 724-385-9150 | Fax: 724-385-9151 | www.hormann.us | Email: info2@hormann.us

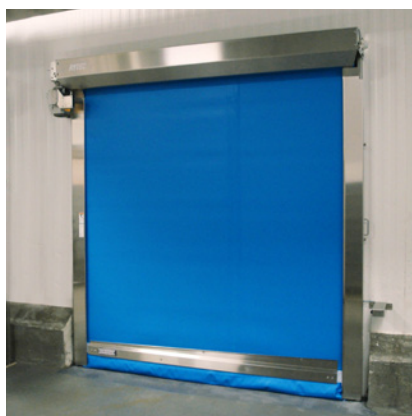


CLEAN-ROLL®

The Original USDA-Compliant High-Speed Roll-Up Door

The Clean-Roll® door is the only UL-listed high-speed roll-up door specifically designed to meet USDA, FDA, NSF and ISO standards. The stainless steel design allows complete wash-down with numerous sanitary features to virtually eliminate potential sites for bacteria manifestation.

The Clean-Roll door is perfect for applications requiring absolute cleanliness while providing low-maintenance and energy savings.



Shown with optional window

Sanitary Design

- Meets USDA hygienic standards for meat, poultry, dairy and seafood applications
- Designed to be spray washed with rotating hinged drip guard for cleaning
- Sloped gutter on bottom bar prevents dripping into pathway

Safety is Standard

- Dual photo eyes and bottom bar reversing edge provide enhanced safety

Energy Efficient

- High speed operation conserves energy and maintains constant climate control while helping to minimize infiltration of airborne pathogens

Takes a Hit

- Clean-Set™ Break-Away™ bottom bar resets in seconds

CLEAN-ROLL®

HIGH PERFORMANCE ROLL-UP DOOR



Food and
Beverage



Pharmaceutical

Size/Dimensions

- Up to 12'W x 12'H
- 22.5" headroom above lintel
- 16" head projection
- 5" side column projection
- 9" side clearance, non-drive side
- 13" side clearance, motor side
- Motor placement on right or left side

Travel Speed

- Opening speed up to 50 inches per second

Operation

- Variable speed AC drive provides soft acceleration and deceleration
- Independent opening and closing speeds provide flexibility to meet any application
- Food-grade wash-down motor

Engineered for Cleanability

- Constructed entirely of USDA/FDA-compliant materials
- Stainless steel piano hinges prevent excess fabric on drum when door is closed, reducing bacteria build-up
- Drum rotates 120° to allow complete cleaning of drum and fabric
- Hinged drip guard lifts for easy cleaning
- Gutter system including patented, sloped gutter on bottom bar prevents liquid contaminants from dripping into pathway



Hinged drip guard lifts up for easy cleaning



Electrical Controls

- System 4® controller housed in a NEMA 4X rated enclosure with factory set parameters
- Intelligent processor monitors and controls power consumption during operation
- Advanced self-diagnostics for troubleshooting

System 4 shown with optional rotary disconnect



Panel Design

- 2-ply USDA-compliant multifilament panel material
- Smooth surface for easy cleaning and wash-down

Stainless Steel Construction

- Low profile stainless steel side columns with removable covers
- Stainless steel roll drum with stainless piano hinge



Break-Away™ Bottom Bar

- Clean-Set™ Break-Away™ tabs and stainless steel bottom bar release in either direction without damaging the door if impacted
- Dual cutoff switches automatically shut off motor if bottom bar is impacted



Safety is Standard

- Dual thru-beam photo eyes
- Sensitivity-adjustable pneumatic reversing edge
- Ry-Wi® Wireless System

Warranty

- One-year limited warranty on mechanical and electrical components
- Three-year limited warranty on 2-ply USDA panel material



Options

- USDA/FDA-compliant door panel in blue or white
- Bolt-on stainless steel wind ribs
- Vulcanized vision window
- Counterweighted lift-assist system
- Automatic pneumatic Drip-Safe™ guard (drip-catch tray) moves under roll drum when door opens

Standard maximum sizes shown; larger sizes may be available upon request.

American Owned, American Made



◀ Watch All Rytec Testimonials

Specifications subject to change
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RytecDoors.com
888-GO-RYTEC

info@rytecdoors.com
P: 262.677.9046 F: 262.677.2058
One Cedar Parkway, PO Box 403
Jackson, WI 53037-0403

RYTEC

HIGH PERFORMANCE DOORS

STANLEY®

Clean Room 2000/3000/5000 Door Series

- CLASS 1 & CLASS 10 RATED
- MICROPROCESSOR CONTROLLED
- ADVANCED SENSOR OPTIONS
- CONTROLLED ENTRY



CONTAMINATION-CONTROLLED ACCESS FOR TODAY'S HIGHLY SENSITIVE TECHNOLOGICAL ENVIRONMENTS

Industry rated for biotechnology, pharmaceutical, aerospace, medical & dental devices, hospitals, industrial applications and more.

Class 1 and Class 10 rated sliding doors are designed and manufactured for conventional or modular construction.

Advanced motion & video sensors provide complete protection and contamination controlled entry into clean room areas and vestibules.

Microprocessor controller continually monitors door position and specially designed urethane wheels provide smooth, trouble-free operation.

Anti-riser wheels lock each door in its track while a fiberglass reinforced toothed drive belt prevents slippage and uneven closing.

5200 & 5300 Telescopic series opens 25% wider than two-panel and four-panel sliding door configurations.

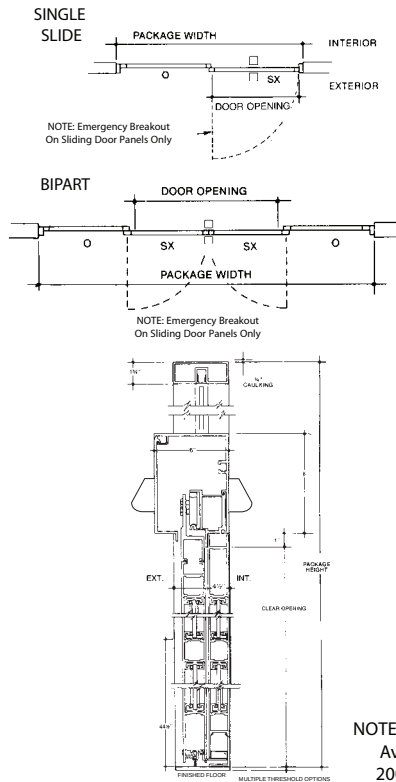
Full breakout package allows all panels to swing out and stack to the side for emergency egress.

Stanley Automatic Door Systems - the safest, most cost effective solutions available today.

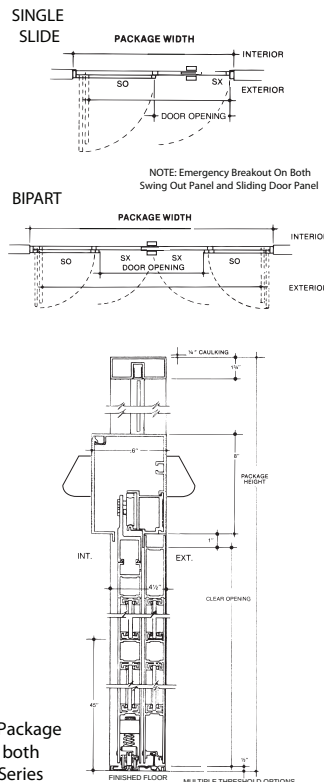
STANLEY® Clean Room

2000/3000 /5000 Door Series

2000 SERIES



3000 SERIES

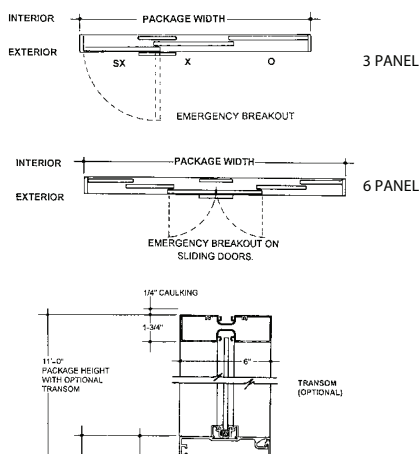


Door packages are custom manufactured to fit your job requirements. For sizes greater or smaller than typical, contact your authorized Stanley Access Technologies Sales Representative.

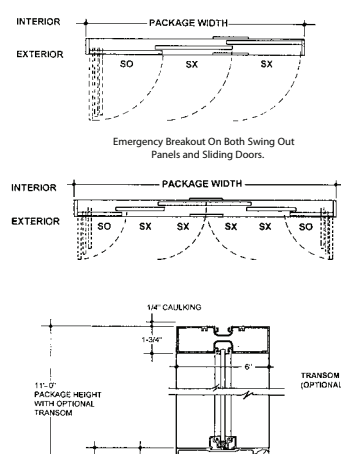
HEADER SIZE: 8" (203mm) high x 6" (152mm) deep
TYPICAL HEIGHT: 7'-8" (2.3m), clear door opening of 6'-11" (2.1m)
TYPICAL WIDTH: Single Slide: 7' to 9' (2.1m to 2.7m) clear door opening width of 35-1/2" to 47-1/2" (901mm to 1206mm) Bi-Part: 10' to 14' (3m to 4.2m), clear door opening width of 48" to 72" (1219mm to 1828mm)
TYPICAL DOOR/PANEL WEIGHT: up to 220 pounds each (100kg)
DRIVE SYSTEM: 1/4 HP DC motor, gear drive, toothed belt
CONTROLLER: microprocessor based, safety logic, watchdog LED
SENSORS: 2 for motion (switchable between uni-directional and bi-directional) and 1 Stan-Guard™ and doorway holding beam for safety. Stan-Vision™ Digital Video Cameras Optional. Mats, wallplates, radio control optional.
BREAKOUT: SX panel on the 2000 SX and SO panels on the 3000
POWER REQUIRED: 120 VAC, 5 amps min.
CODE COMPLIANCE: UL, cUL, ANSI A 156.10 UBC, BOCA, ICBO, NFPA 101, Class 1 Clean Room Rated



5200 SERIES



5300 SERIES



HEADER SIZE: 7" (177mm) high x 6" (152mm) deep
TYPICAL HEIGHT: 7'-8" (2.3m), clear door opening of 6'-11-7/8" (2.1m)
TYPICAL WIDTH: 3 panel: 6' (1.8m) to 12' (3.6m), clear door opening width of 35-5/8" (914mm) to 84-5/8" (2159mm)
 6 panel: 7' (2.1m) to 14' (4.2m), clear door opening width of 35-9/16" (902mm) to 91-9/16" (2324mm)
TYPICAL DOOR/PANEL WEIGHT: up to 150 pounds each (68kg)
DRIVE SYSTEM: 1/4 HP DC motor, gear drive, toothed belt
CONTROLLER: microprocessor based, safety logic, watchdog LED
SENSORS: Two Stanley SU-100 motion sensors one Stanley Stan-Guard presence sensor and doorway holding beams. Mats, wallplates, radio control optional.
BREAKOUT: lead panel (SX) on the 5200, all panels (SX, SX, SO) on the 5300
POWER REQUIRED: 120 VAC, 5 amps min.
CODE COMPLIANCE: UL, cUL, ANSI A 156.10, UBC, BOCA, ICBO, NFPA 101, Class 10 Clean Room Rated

STANLEY®
Security

Stanley Access Technologies

Customer Care: 1-800-7-ACCESS (1-800-722-2377)
<http://www.StanleyAccess.com>

Applications:

Cleanrooms

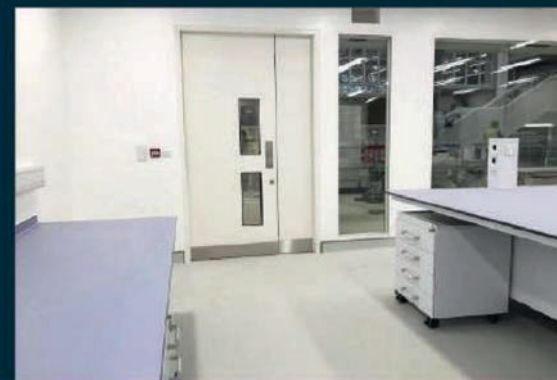
Pharmaceutical

Research Laboratories

API Manufacturing

Pharmaceutical Doors

Maximum Performance, Safety and Hygiene





over
45 Years
Experience
in Pharmaceutical Facilities

Your trusted partner for hygienic cleanroom doors

Dortek are market specialists; with over 45 years' experience in providing high performance door solutions to the world's leading pharmaceutical companies.

We understand the unique and stringent requirements of high hygiene environments. We understand air flows, work flows, contaminants and local regulations. We know what works and what doesn't. Our product portfolio offers a comprehensive single source for all doors, windows, frames, hardware and automations on a project.

Dortek is recognized throughout the markets we serve for its commitment to innovation, quality and customer care. Our clients trust our specialist expertise to find the right solution for every project and every door and to deliver that solution on time and to budget.



Complete access solutions and services from Dortek

- ✓ Full Project Management
- ✓ Design & Planning
- ✓ Customized Solutions
- ✓ Drawings & Scheduling
- ✓ Code & Regulations Compliance
- ✓ BIM Objects
- ✓ Specialist Manufacture
- ✓ Installation, Repairs & Servicing





- ✓ Bacteria resistant
- ✓ Fire resistant
- ✓ Water resistant
- ✓ Impact resistant

Dortek FRP Doors

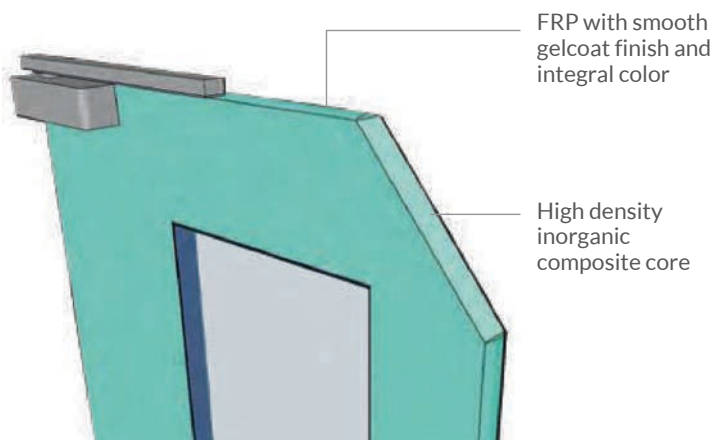
Engineered for hygiene, strength and longevity

FRP (fiberglass reinforced polyester) is an extremely tough, clean, water resistant material ideal for demanding environments where performance and hygiene are crucial.

Our doors are produced using a unique closed mold process, creating a strong, uniform product with no seams or joins on the door surface and no holes or crevices within.

Unlike alternatives, color is built into the door during the manufacturing process, ensuring that our doors will never require repainting or refinishing.

- Fully encapsulated seamless design
- Free from ledges, voids, holes and crevices
- Easy to clean and disinfect
- Fire, water and chemical proof
- Strong, stable, lightweight, low maintenance
- cGMP and FDA compliant
- Non shedding and will not rot, rust, warp or crack
- Naturally environmentally-friendly: long life expectancy.





DorteK FRP Doors

VS



Steel Doors

Reasons TO specify DorteK FRP

- ✓ Smooth, seamless, easy to clean construction. Does not harbor bacteria.
- ✓ Will not rot, rust, swell or warp. Completely sealed and impervious to the elements.
- ✓ Unaffected by moisture, disinfectants, chlorine and VHP (vaporised hydrogen peroxide).
- ✓ Choice of gel coat colors which are molded into the door. Never needs painting.
- ✓ 42% lighter than steel, making them much safer and easier to operate.
- ✓ Naturally friendly to the environment. Longevity, cleanliness, strength and stability. Low lifecycle costs.
- ✓ Can be guaranteed for up to 25 years against failure due to corrosion, swelling, rotting, delamination or expansion.

Resistant to water & chemicals. Will not corrode.

Extremely lightweight blade, minimal wear on hinges.



Reasons NOT to specify Steel

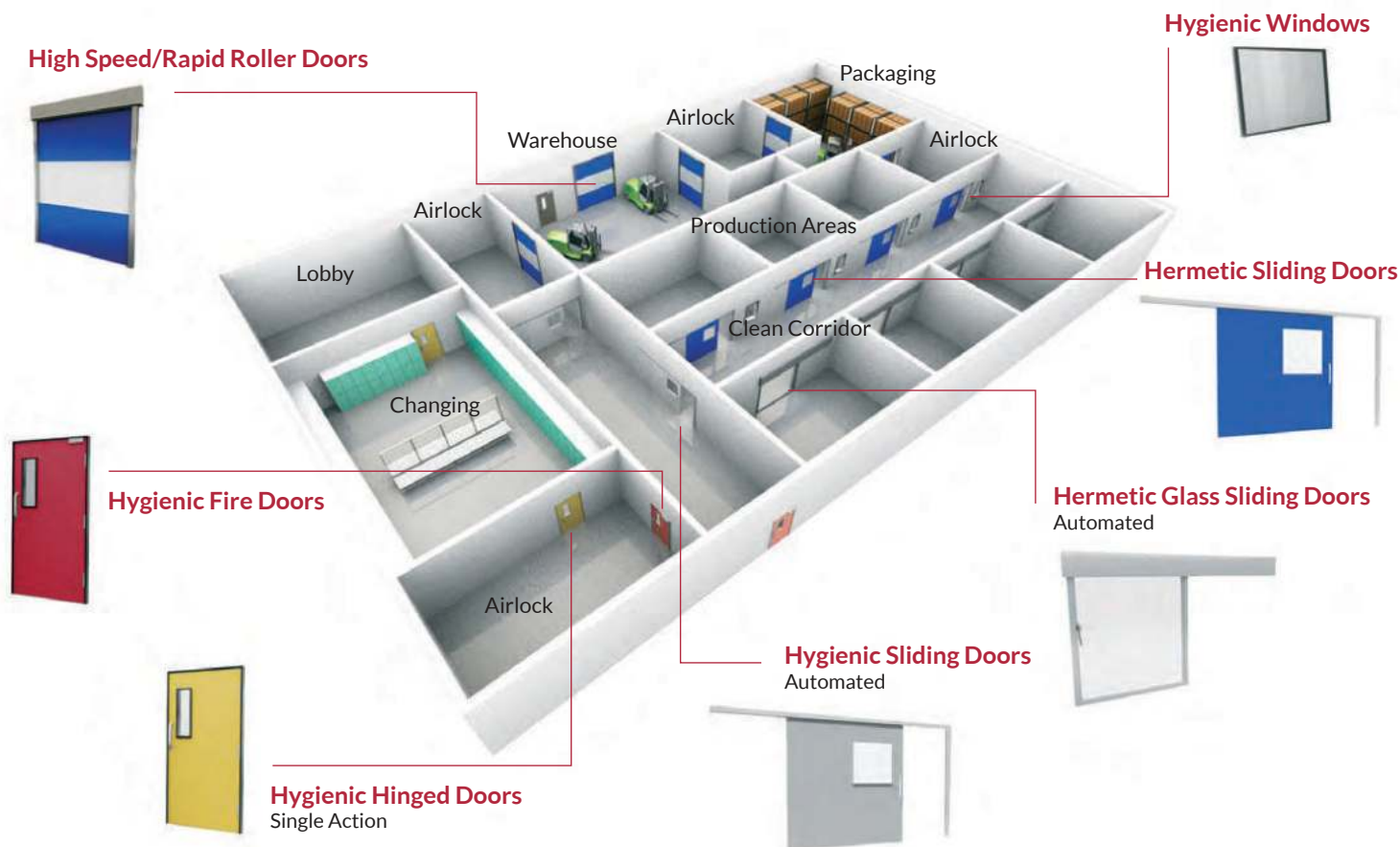
- ✗ Large seams, voids and crevices which are hard to clean and perfect breeding grounds for bacteria.
- ✗ Rusts from the inside out causing health and security hazards.
- ✗ Not waterproof and often oxidizes when exposed to regular cleaning regimes.
- ✗ Unhygienic painted surfaces which mark and dent easily and require continuous maintenance and upkeep.
- ✗ Heavy to operate. Needs expensive maintenance work & replacement due to excessive wear on hinges / closers.
- ✗ Continuous painting / replacement is harmful to the environment. 25 years could see up to 10 replacement doors.
- ✗ The standard warranty for a steel door is only 1 year & this does not cover failure due to corrosive environments.

Corrosion on door and frame.

Hinge failure due to weight. Unhygienic crevices & rusting.



Innovative solutions for a range of pharmaceutical applications



Door frame options

- FRP frame
- Fire rated FRP frame with patented concealed intumescent strip
- Various stainless steel frames
- Aluminum wrap-around frame for wall panel.

Wall system integration

Dortek offers a complete line of cleanroom doors and windows designed to integrate seamlessly into wall systems.



A complete range of door solutions for high performance clean environments

Dortek provide all the services and products that are needed to deliver a comprehensive solution. All Dortek doors can be supplied as complete door systems with the door leaf, frame, hardware, automations and vision panels to provide a fully-integrated system.



Hygienic Hinged Doors

Our hinged doors are ideally suited to areas requiring maximum hygiene, cleanability and durability. They are extremely strong and durable, yet light and easy to operate. Available as singles or pairs, single swing or double swing.



Hygienic Sliding Doors

Our sliding doors offer the same hygiene and safety features of our hinged doors, but with the added benefit of wider openings on a durable runner system. Available as single or bi-parting doors.



Hygienic Fire Doors

Tested for fire resistance to UL10-C standards, our fire doors combine safety without compromising the high standard of hygiene demanded in pharmaceutical facilities.



Hermetic Sealing Sliding Doors (available in Glass)

These doors are essential for areas where control of air leakage is required. The unique, patented track system has a 99% air tight seal helping to reduce cross contamination and expensive air handling costs. Doors are available in glass or with fire ratings and in single sliding or bi-parting.

Product Selection

Dortek hygienic doors are designed with safety, style and functionality in mind. Our doors are available in a range of standard or custom sizes, colors and configurations to suit your environment.

Installation & Servicing

All installations and service calls are carried out by our own fully trained engineers. Please contact us to find out more about our range of service contracts.



Transfer Hatches

Dortek transfer hatches efficiently move supplies and specimens in and out of clean areas. Constructed from either 304 or 316 grade steel and acrylic or stainless steel framed glass doors. Our range of pass through hatches have either electromagnetic or mechanically interlocked doors to prevent depressurization and minimize the risk of contamination.



Interlocking / Automated Doors

Our interlocking and automation systems are designed to provide safe, efficient and convenient access in controlled environments. Our systems can be connected to many types of activation devices from a basic push button to a fully-integrated building management system. Our range of manual and automated doors can be interlocked and systems can range from simple two-door interlocking to complex locking sequences.



Windows & Vision Panels

Dortek windows are double glazed with an ultra clean flush surface. Dortek vision panels can be integrated with our doors to offer enhanced privacy while lowering infection risk and eliminating cleaning costs. Our windows and vision panels can be offered with smartglass, lead, fire and laser protection.

More than you expected.

Gott's



Clean Guard Doors

Keep your wash down areas separated & sanitized.

When wash down procedures are required in your facility, choose Clean Guard.

Keep your clean areas separate & sanitized.

During wash down cycles in food processing facilities, production is halted and valuable time is lost. Clean Guard was **designed & manufactured with wash down procedures in mind**. This door delivers maximum up-time and productivity, protecting areas from overspray and contamination.

Wash down your facility with ease:

Minimize downtime and maximize productivity.

Clean Guard includes an IP66 wash down rated motor that can operate your door at 20" or 42"/sec. Our Intelligent Control System includes a VFD & PLC enclosed in a NEMA4X control panel.

Committed to keeping you safe.

To maximize safety in your facility, Clean Guard comes standard with our fully wash down capable IP67 photo eye safety sensor. Designed to detect if someone crosses the sensor, the photo eye will stop and reverse the door, ensuring your safety even in wash down applications

Keep water in and contaminants out.

Ensure your facility stays clean with our dual weather seals, a tight floor seal and brush seal at the header. This provides a full perimeter seal on your door preventing cross-contamination.



6' x 7' door with white vinyl and vision panel pictured.

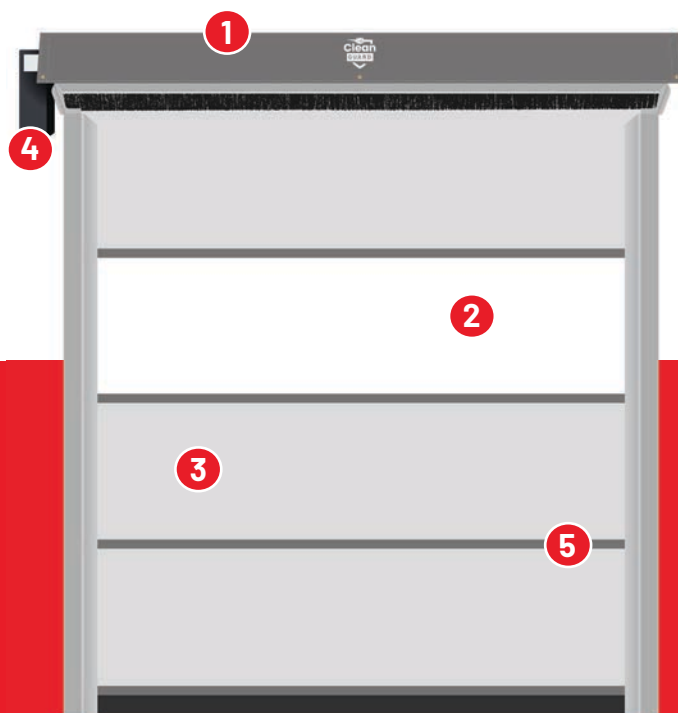


Built with non-corrosive materials:

Goff's Clean Guard comes with all non-corrosive material to take on your wash down areas. Our stainless steel components, fiberglass wind bars & chemical resistant PVC side guides protect your door against any rust or deterioration to ensure it stands the test of time.

With Goff's Clean Guard doors, we believe premium options should come standard.

That's why every Goff's High Performance Door Includes:



- 1. Full Width Roll Cover** provides environmental separation & prevents contaminants from gathering on the door's inner components.
- 2. Full-width window** increases safety & visibility at your facility to protect employees and provide easy awareness of wash down area activity.
- 3. Easy-to-replace** panels reduce cost of ownership, designed to be affordable and quickly shipped to minimize downtime.
- 4. Auto-close timer** included to minimize wasted energy and potential cross contamination, to keep spaces separated.
- 5. Fiberglass reinforced wind bars** won't take a set or kink if impacted, always returning to their original shape.



NEMA 4X Intelligent Control System with upgraded Smart Touch Screen features PLC & VFD for increased efficiency, safety, and reliability.



Corrosion-resistant materials, including stainless steel hardware and PVC side tracks, ensure longevity & cleanliness.



Standard IP67 photo eye safety sensor specifically designed for wash down applications included to maximize safety.



Dual weather seals help to effectively seal each side of the door to keep water in wash down area & contaminants out.



Pre-assembly by Goff's minimizes your installation time.

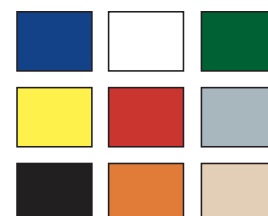


Auto reset feature keeps you up and running if door is impacted.

Vinyl Material Features:

Solid 18oz vinyl comes standard on Clean Guard with one standard vision panel. Optional additional colors are available in any preferred combination to work with your space.

18 oz Vinyl Color Options:



Goff's delivers more than you expected.

With over 30 years of experience, the Goff's team is committed to delivering the most reliable and innovative solutions to improve efficiency in your facility.

(800) 234-0337 | sales@goffscw.com

Best Warranty on the Market

Goff's offers an industry-leading warranty for Clean Guard Doors that covers everything bumper-to-bumper including parts & labor for 3 years from date of purchase. We also cover the direct-drive motor for 5 years from date of purchase.

Fastest Industry Lead Times

With the industry's fastest lead times, you can have your complete Clean Guard Door System installed and active to provide maximum efficiency at your facility in no time. This will minimize downtime & maximize productivity.

Customer Care & Tech Support

The Goff's customer care & tech support team is available to answer any questions you have about your Clean Guard Door, making sure you not only get the most out of your investment, but ensure it runs smoothly for years to come.

Maximize your clean space:

Achieve maximum production capability at your facility by separating your wash down area using Goff's Clean Curtains. Our curtains allow you to keep separate lines up and running while others go through wash down cycles, keeping your operation up to code while producing at optimal capacity and minimize downtime during required wash down periods. Our clean curtains with stainless steel track and hardware prevent corrosion and control any airborne contaminants to achieve maximum quality standards at each production line.



700 Hickory Street, Pewaukee, WI 53072

Phone: 800-234-0337 | Fax: 800-959-0170

goffsenderprises.com | sales@goffscw.com

goffs_CleanGuard_ProductBrochure_0422.indd | Revised 04.17.23 | 1827

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ISO-Clean™ Glider Cleanroom Door - Bi-Parting

The ISO-Clean Bi-Parting Glider improves on the technology of traditional cleanroom doors to deliver more value and low maintenance.

Our door sets the standard for excellence in the industry, offering superior durability, safety, and clean functionality that brings us to the forefront of the market.

Clean

With our advanced Smart Seal™ System, our door is designed with premium features as standard, aiding in environmental separation and control.

Safe

Innovative design and enhanced communication with our Safe Alert™ System.

Simple

Fewer moving parts and low maintenance.

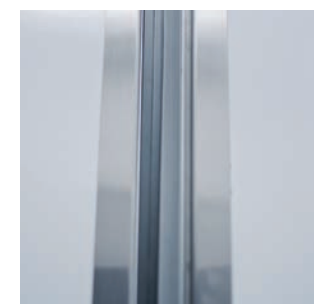


Smart, Connected Capabilities

Rite-Hite provides smart, connected capabilities as part of the Rite-Hite Extended Warranty. Facilities gain visibility into their doors productivity and maintenance, helping to increase safety through the Rite-Hite Digital Platform.



Safe Alert System



Smart Seal System

Specifications

Speed

Bi-parting:

Open – 39" (991 mm) per second

Close – 14" (356 mm) per second

Size

Bi-parting:

Minimum – 6'0" w x 7'0" h
(1829 mm x 2134 mm)

Maximum – Up to 10'0" w x 10'0" h
(3048 mm x 3048 mm)

Electrical requirements

120V/1ph (20 Amp Service Required)

Panel design

1.75" (45 mm) thick white fiberglass panel with stainless steel edge capping and insulated foam core. Flush vision panels and stainless steel 12" high kickplates come standard.

Wireless interlock

Wirelessly interlock comes standard and locks up to (15) Rite-Hite Doors without the expense and hassle of hard wiring.

Header assembly

Header track assembly is aluminum (optional fully stainless steel). Available with standard multipiece stainless steel header shroud, with bolted seams and endcaps, or optional fully single piece, stainless steel header shroud. Electronic solenoid lock is optional.

Graphic User Interface (GUI)

The industry's only 7" (178 mm) LCD touch screen interface, flush mounted, that displays real time door status, and provides increased safety by allowing an individual to simply access the control box settings without wearing the necessary PPE often required for accessing a live electrical panel.

Safety features

Safe Alert™ System provides communication of the door status (counting down time until door auto-closes, door will not open due to interlock, door in fault status, etc.). Safe Alert System display mounted integrally in header comes standard. Two (2) thru-beam photo eyes at 18" (457 mm) and 54" (1372 mm) from floor. Torque sensing reverses the door back open if contact with personnel or equipment while closing.

Standard warranty

One (1) year for drive system.

Two (2) year on panel, electrical and mechanical components parts.

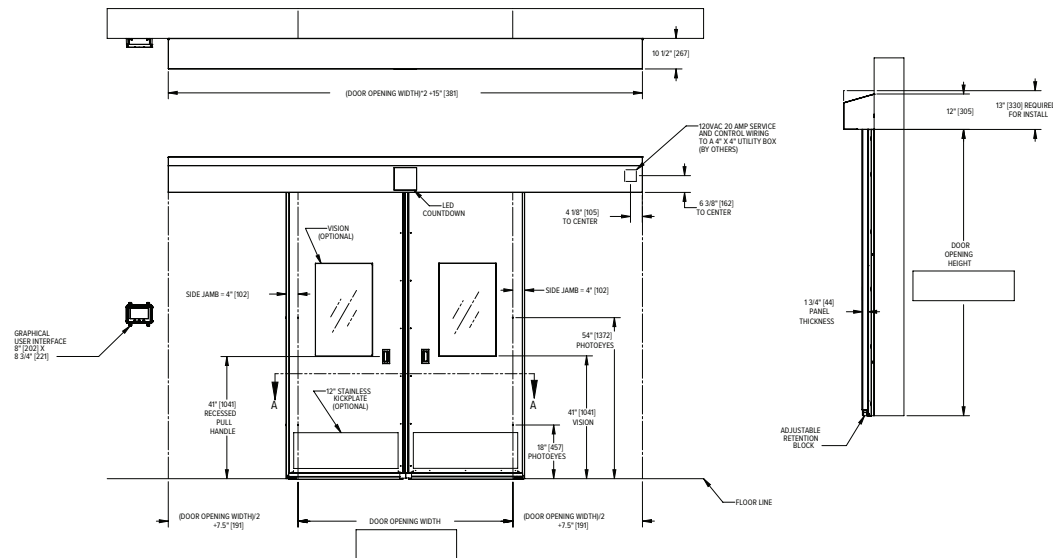
One (1) year labor.

Extended warranty

Two (2) year for drive system.

Three (3) year on panel, electrical and mechanical components parts.

Two (2) year labor.



RITEHITE
ALWAYS LOOKING AHEAD

D23ICGSS0823G1

Milwaukee, Wisconsin, USA

www.ritehite.com

P 414-355-2600 (800-456-0600)

F 414-355-9248

Rite-Hite®, ISO-Clean™ Glider, Smart Seal™, and Safe Alert™ are trademarks of the Rite-Hite Holding Corporation. Rite-Hite products may be covered by one or more U.S. Patents with other U.S. and foreign patents pending. Patent coverage: www.ritehite.com/patents. The information herein is provided as a general reference only regarding the use of the applicable products. The specifications stated here are subject to change. Manufactured by Rite-Hite Doors, Inc.

ISO-Clean™ Glider Cleanroom Door - Single Slide

The ISO-Clean Single Slide Glider improves on the technology of traditional cleanroom doors to deliver more value and low maintenance.

Our door sets the standard for excellence in the industry, offering superior durability, safety, and clean functionality that brings us to the forefront of the market.

Clean

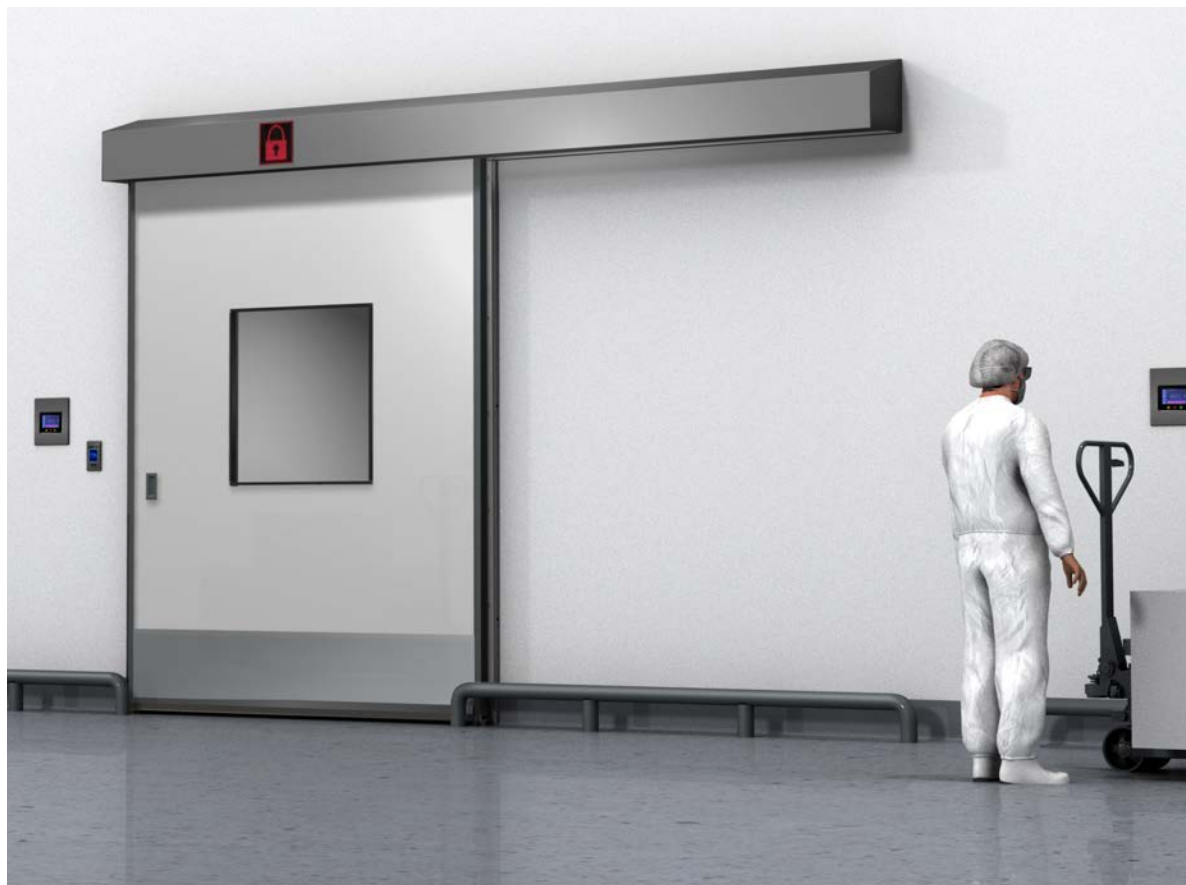
With our advanced Smart Seal™ System, our door is designed with premium features as standard, aiding in environmental separation and control.

Safe

Innovative design and enhanced communication with our Safe Alert™ System.

Simple

Fewer moving parts and low maintenance.



Smart, Connected Capabilities

Rite-Hite provides smart, connected capabilities as part of the Rite-Hite Extended Warranty. Facilities gain visibility into their doors productivity and maintenance, helping to increase safety through the Rite-Hite Digital Platform.



Safe Alert System



Smart Seal System

Specifications

Speed

Single:

Open – 25" (635 mm) per second

Close – 10" (254 mm) per second

Size

Single:

Minimum – 3'0" w x 7'0" h

(914 mm x 2134 mm)

Maximum – Up to 8'0" w x 10'0" h

(2348 mm x 3048 mm)

Electrical requirements

120V/1ph (20 Amp Service Required)

Panel design

1.75" (45 mm) thick white fiberglass panel with stainless steel edge capping and insulated foam core. Flush vision panels and stainless steel 12" high kickplates come standard.

Wireless interlock

Wireless interlock comes standard and locks up to (15) Rite-Hite Doors without the expense and hassle of hard wiring.

Header assembly

Header track assembly is aluminum (optional fully stainless steel). Available with standard multipiece stainless steel header shroud, with bolted seams and endcaps, or optional fully single piece, stainless steel header shroud. Electronic solenoid lock is optional.

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Standard warranty

One (1) year for drive system.

Two (2) year on panel, electrical and mechanical components parts.

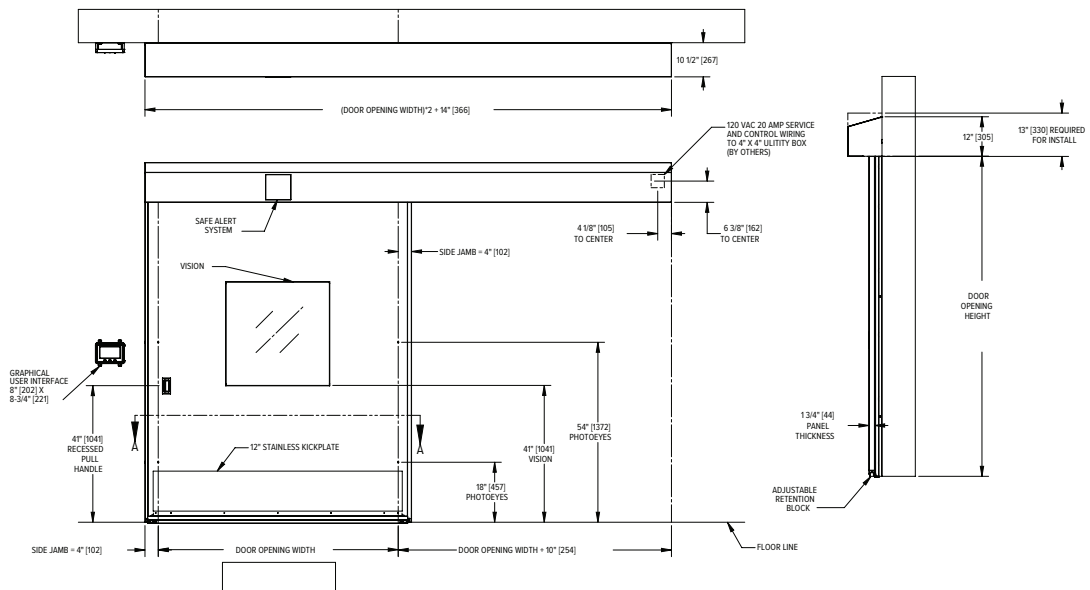
One (1) year labor.

Extended warranty

Two (2) year for drive system.

Three (3) year on panel, electrical and mechanical components parts.

Two (2) year labor.



RITEHITE
ALWAYS LOOKING AHEAD

D23ICGSSS0823G1

Milwaukee, Wisconsin, USA

www.ritehite.com

P 414-355-2600 (800-456-0600)

F 414-355-9248

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LiteSpeed® Cleanroom High Performance Doors

From the soft bottom edge and ultra tight seal, to the simple, low-maintenance design platform, the LiteSpeed Cleanroom has become the new standard for safe, clean, reliable performance for clean rooms.

An edge on safety

No hidden metal or plastic support. No buried electrical wiring. 100% fabric for a softer, safer cushion. And a higher degree of protection for product, personnel and equipment.

Wireless Interlocking available

Wirelessly interlock up to (15) Rite-Hite Doors without the expense and hassle of hard wiring.

TRUE Auto Re-feed™

For automatic re-feeds, on the fly, with no human interaction. Impacts won't impact production.

Strong, silent type

Powerful 1 HP motor and variable frequency drive system combine for class-leading speed and super-quiet performance.

The speed advantage starts with installation

Comes fully pre-wired and tested from the factory. Reduces electrical installation by up to two hours. We offer wireless interlocking for multiple doors.

Fewer moving parts

Less maintenance keeps downtime to a minimum. Less really is more.

Smaller footprint

Compact stainless steel side frames for a cleaner look. Ideal for installation in tighter spaces.

Tough PVC vinyl curtain

Completely heat sealed. Complies with FDA and GMP guidelines.

Reversing slack sensor

Reverses the door's travel when an obstruction is sensed.

Smart, Connected Capabilities

Rite-Hite provides smart, connected capabilities as part of the Rite-Hite Extended Warranty. Facilities gain visibility into their doors productivity and maintenance, helping to increase safety through the Rite-Hite Digital Platform.



Graphic User Interface (GUI)
Flush Mounted



LED Countdown



Soft Bottom Edge

Specifications

Speed

- » Peak speed up to 65" (1.65 m/sec) with standard variable-frequency drive
- » Closing speed 30" (0.76 m/sec)

Size

- » **Minimum:** 3'0" x 3'0" (914 mm x 914 mm)
- » **Maximum:** 12'0" x 12'0" (3657 mm x 3657 mm)

Curtain Material

- » 27 oz. vinyl, Standard Color: Blue – other colors Gray, White, & Red available upon request
- » 30 oz. urethane, Optional – available colors in Blue & Carbon

Side Frames

- » Stainless steel – 3 3/4" wide x 2 1/8" projection (95 mm x 53 mm)

Drive System

1 HP (0.75 kW) motor, variable-frequency drive, torque absolute encoder

Electrical Requirements

- » **Single-phase:** 220V-240V
- » **Three-Phase:** 208V, 230V, 400V, 460V, 575V

Graphic User Interface (GUI)

Industry's only 7" (178 mm) LCD touch screen interface that provides increased safety by allowing an individual to simply access the control box settings without wearing the necessary PPE often required for accessing a live electrical panel.

Control box

- » i-COMM™ 3 Digital Controller, variable frequency drive.
- » Pre-wired and factory tested.
- » Standard fiberglass NEMA 4X, optional stainless steel NEMA 4X.

Curtain Retention

- » Standard pressure retention up to 0.2 in – H₂O (50 pascals).
- » Includes TRUE Auto Re-feed system in case of accidental impacts to curtain.

Safety Features

Soft Breakaway Technology thru-beam photo eye at 18" (457 mm) off the floor, reversing sensor.

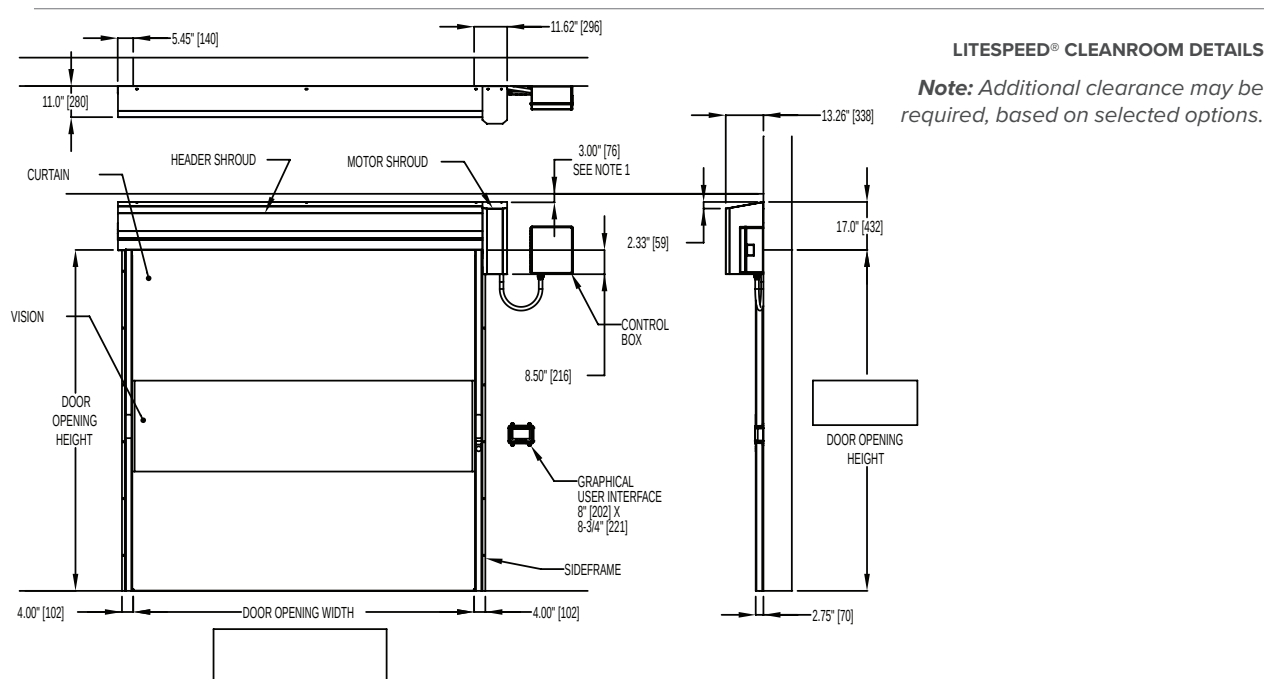
Optional – Virtual Vision™, non-power opening, motion and presence sensors.

Limited warranty

Five (5) Year for motor, brake and gearbox.
Two (2) Year on all mechanical and electrical parts.
One (1) Year labor.

Rite-Hite extended warranty

Seven (7) Year drive system.
Three (3) Year fabric/panel, electrical & mechanical.
Two (2) Year labor.



RITEHITE
ALWAYS LOOKING AHEAD

Milwaukee, Wisconsin, USA
www.ritehite.com

P 414-355-2600 (800-456-0600)
F 414-355-9248

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SplitSecond™ Cleanroom High Performance Doors

Split-center design. Split-second performance. Rite-Hite® SplitSecond high performance industrial door boosts efficiency, productivity and safety in a simple, reliable, compact design.

Split-center design

Bi-parting door features spring tube design to collect the curtain in the side frames and reduce overhead contaminants.

Accelerated thinking

Variable frequency drive for an unmatched peak speed of up to 120"/sec (3 m/sec) allows for maximized productivity, less air movement and better separation between zones.

FDA and cGMP compliant

Smooth curtain fabric and stainless steel components for easy wipe down and corrosion resistance. Recommended for ISO 8 Cleanrooms

Safer work environments

Two large vision windows and immediate top-to-bottom visibility decreases blind spots.

Superior auto reverse

Obstruction sensing reversing system uses 3 photo eyes and a torque sensor.

Impact protection

Flex design curtain reduces downtime and damage from accidental impact.

Replaceable seal

Replaceable bottom seals for easy maintenance.

Communication

Rite-Hite Doors has a series of light communication products to help reduce common collision accidents between forklifts and pedestrians. LED Countdown, LED Pre-Announce and LED Virtual Vision available.



Smart, Connected Capabilities

Rite-Hite provides smart, connected capabilities as part of the Rite-Hite Extended Warranty. Facilities gain visibility into their doors productivity and maintenance, helping to increase safety through the Rite-Hite Digital Platform.



Small footprint



Graphic User Interface

Specifications

Speed

- » Peak speed up to 120" (3 m)/sec with standard variable frequency drive. Top speed is dependent on door size
- » Closing speed 40" (1 m)/sec

Size

- » **Minimum** - 5'0" w x 7'0" h (1524 mm x 2134 mm)
- » **Maximum** - 10'6" w x 11'6" h (3200 mm x 3505 mm)

Curtain material

- » 40 oz. PVC in blue or white
- » Replaceable bottom seals
- » Large clear vision

Side frames and header cover options

- » Stainless steel (FDA & USDA compliant materials)

Electrical Requirements

- » **Single-phase:** 220V-240V
- » **Three-Phase:** 208V, 230V, 400V, 460V, 575V

Graphic User Interface (GUI)

Industry's only 7" (178 mm) LCD touch screen interface that provides increased safety by allowing an individual to simply access the control box settings without wearing the necessary PPE often required for accessing a live electrical panel.

Control box

- » i-COMM™ 3 Digital Controller, variable frequency drive.
- » Pre-wired and factory tested.
- » Standard fiberglass NEMA 4X.

Safety features

- » Three thru-beam photo eyes mounted at 18" (457 mm), 36" (914 mm) and 54" (1372 mm) from the floor and obstruction sensing reversing system. Bi-part design provides enhanced visibility.
- » Non Powered Opening Option – Allows the door to be opened in the event of an emergency or power outage.

Limited warranty

Five (5) Year for motor, brake and gearbox.
Two (2) Year on all mechanical and electrical parts.
One (1) Year labor.

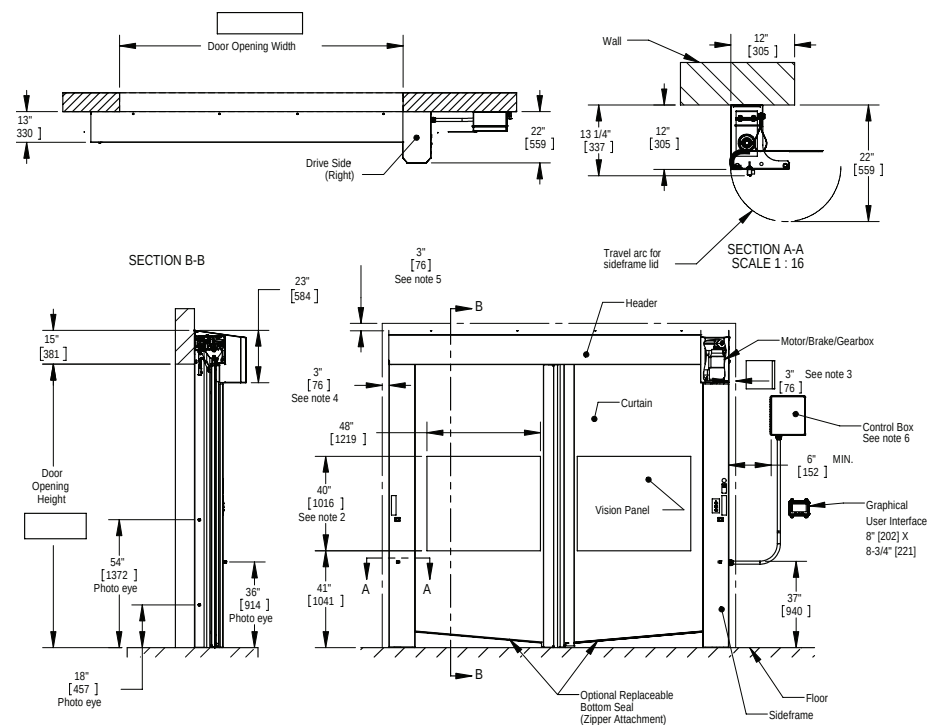
Rite-Hite extended warranty

Seven (7) Year drive system.
Three (3) Year fabric/panel, electrical & mechanical.
Two (2) Year labor.

SPLITSECOND™ CLEANROOM

Notes:

1. Alternate dimensions in brackets are in millimeters
2. Vision height is 32" [813] for doors less than 8'0" [2438]
3. Motor shroud requires min. 3" [76] of side clearance for access
4. Recommended sideframe installation clearance is 3" [76].
5. Header shroud requires min. 3" [76] of top clearance for access
6. Fiberglass Control Box (std.) 14" [356] x 16" [406] x 8" [203].
7. Stainless Control Box (opt.) 16" [406] x 19" [482] x 8" [203]



RITEHITE
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D23SSECLSS0303G1

Milwaukee, Wisconsin, USA

www.ritehite.com

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PSSB DOOR

**Fully Flush Door:
Available in Single or Double**

Use: To be used with GCS and other 2" modular panel systems

Part Number

Door Core	Single	Double
Rock wool	641 031	641 032
Polyurethane	641 011	641 012
Honeycomb	641 041	641 042

Standard Dimensions:

Single door width: 27.8", 31.7", 35.7", 39.6", 47.5"

Double door width: 47.5", 55.4", 63.2", 71.1", 79.0"

Height: 80.0", 87.9", 99.7"

Thickness: 2"

Dimensions are rounded to the nearest tenth.



SPECIFICATIONS

Standard Door

- Two 0.03" galvanized steel metal sheet facings with powder coated RAL 9016 white finish
- Specific reinforcements for lasting durability at door accessory connections

3-Sided Door Frame

- Assembled to GCS SB05 (2") wall partitions by insertion of 30x30 aluminum key connection
- Welded aluminum frame with RAL 7001 powder coated finish
- Angle pieces to fasten the frame base to floor

Hardware

- 2 to 4 hinges (height dependent); stainless steel or surface mounted nylon (steel core)
- Flush magnetic lock integration
- Stainless steel handles or nylon (black or white)
- Integrated tubular door seal clipped on 3 sides
- Spring actuated drop seal at the bottom of door leaf
- Door hardware fastened with screws and specific reinforcements
- Integrated flush bolt for double leaf doors
- Mortise lock case closure

The specifications and photos included in this document are not contractually binding. Technical developments may lead G-CON Clean Solutions to modify them without notice.

Website

www.gconbio.com/clean-solutions

Email

sales@gcon-cs.com

Phone

979.431.0700

PSSB DOOR

Fully Flush Door:
Available in Single or Double Configuration

OPTIONS

Door Frame

- Other RAL color options available
- 4 sided frame

Door Facings

	Single Door Max Width	Double Door Max Width (Identical Doors)
uPVC Finish	42"	83"
25µm Polyester Coating*	40"	79"

Dimensions are rounded to the nearest whole inch

Other RAL color options available

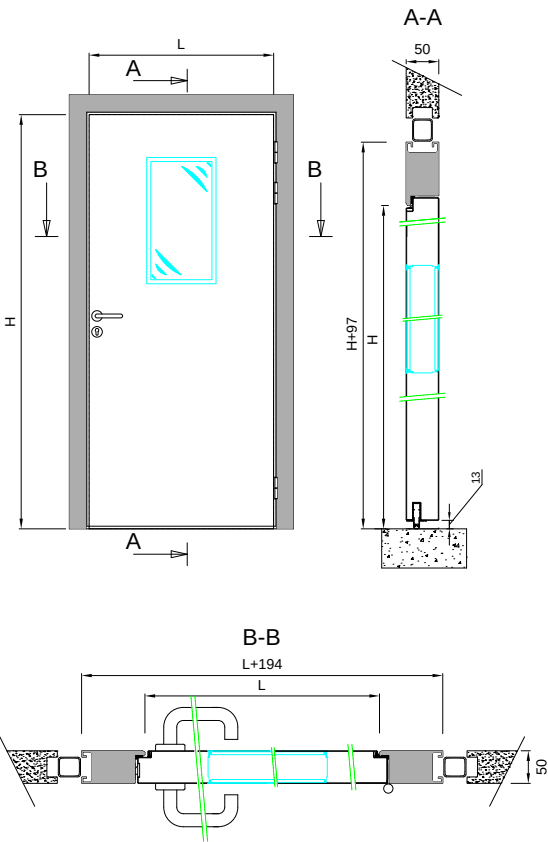
*Polyester 25µm finish not H₂O₂ (vaporized hydrogen peroxide) resistant

Main Accessories

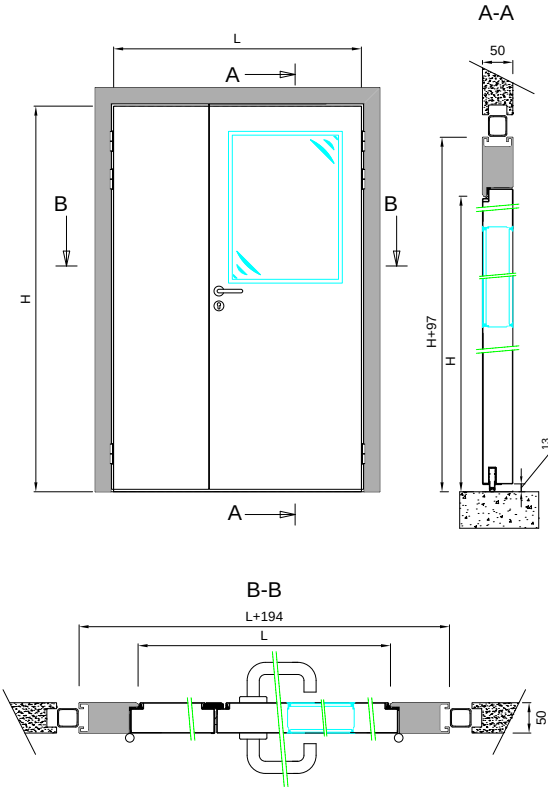
- Flush-mounted crimped vision panel: 13.4" x 24.4", 23.6" x 31.5", 7.9" x 59"
- Door closer strength: 1-4 or 3-6 (as per the EN1154 standard)
- Blocker or limiter
- Selector strip for double doors
- Color version nylon hinges
- 3D adjustable aluminum hinges
- Stainless steel or nylon pull handles
- Push plate (stainless steel)
- Closure by push bar
- Kick plate (Stainless steel or PVC)
- Cylinder lock
- Flush interlocking system

Other options available upon request

PSSB SINGLE DOOR



PSSB DOUBLE DOOR



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Phone

979.431.0700

PSBN DOOR

Semi-Flush Door: Available in Single or Double

Use: To be used with GCS and other wall systems by using an adaptive door frame.

Part Number

Door Core	Single	Double
Rock wool	640 021	640 022
Polyurethane	640 001	640 002
Honeycomb	Contact Us	

Standard Dimensions:

Single door width: 27.8", 31.7", 35.7", 39.6", 47.5"

Double door width: 47.5", 55.4", 63.2", 71.1", 79.0"

Height: 80.0", 87.9", 99.7"

Thickness: 2"

Dimensions are rounded to the nearest tenth.



SPECIFICATIONS

Standard Door

- Two 0.03" galvanized steel metal sheet facings with 25 µm uPVC coated RAL 9016 white finish
- Specific reinforcements for lasting durability at door accessory connections

3-Sided Door Frame

- 2.4" to 5.9" thick by clamping with hidden fasteners
- Aluminium door frame with RAL 7001 white powder coated finish

Hardware

- 2 to 4 hinges (height dependent); stainless steel or surface mounted nylon (steel core)
- Stainless steel handles or nylon (black or white)
- Integrated tubular door seal clipped on 3 sides
- Spring actuated drop seal at the bottom of door leaf
- Door hardware fastened with screws and specific reinforcements
- Integrated flush bolt for double leaf doors
- Mortise lock case closure

The specifications and photos included in this document are not contractually binding. Technical developments may lead G-CON Clean Solutions to modify them without notice.

Website

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Email

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Phone

979.431.0700

PSBN DOOR

Semi-Flush Door:
Available in Single or Double Configuration

OPTIONS

Door Frame

- Other RAL color options available
- 4 sided frame
- Flush magnetic lock integration
- Stainless steel push plate and kick plate
- Flush interlocking system

Door Facings

	Single Door Max Width	Double Door Max Width (Identical Doors)
uPVC Finish	42"	83"
25µm Polyester Coating*	40"	79"

Dimensions are rounded to the nearest whole inch.

Other RAL color options available

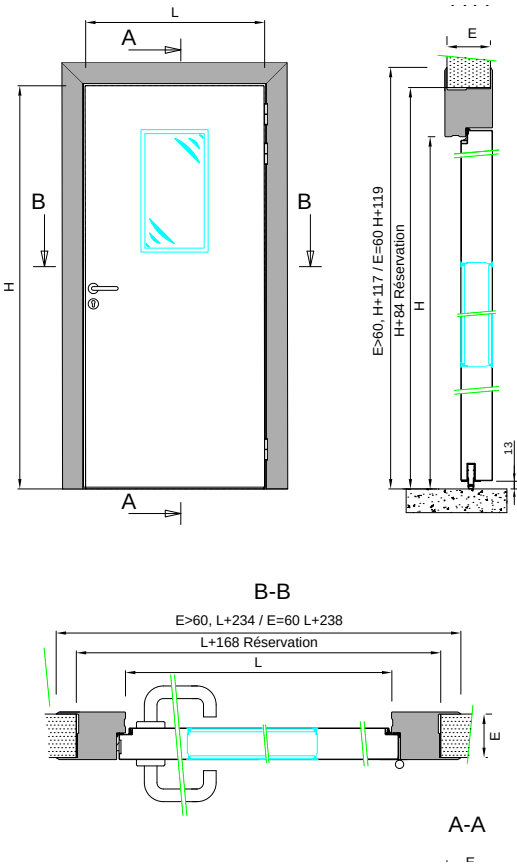
*Polyester 25µm finish not H₂O₂ (vaporized hydrogen peroxide) resistant

Main Accessories

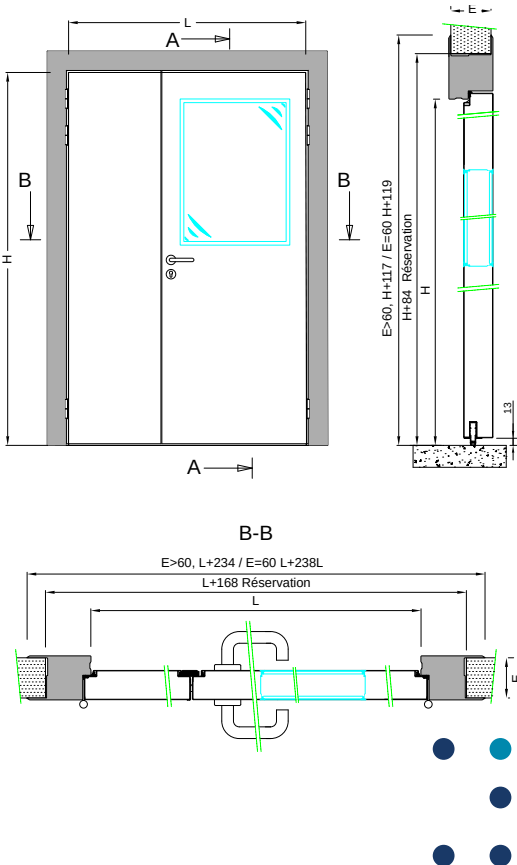
- Flush-mounted crimped vision panel: 13.4" x 24.4", 23.6" x 31.5", 7.9" x 59"
- Door closer strength: 1-4 or 3-6 (as per the EN1154 standard)
- Blocker or limiter
- Selector strip for double doors
- Color version nylon hinges
- 3D adjustable aluminum hinges
- Stainless steel or nylon pull handles
- Push plate (stainless steel)
- Closure by push bar
- Kick plate (Stainless steel or PVC)
- Cylinder lock

Other options available upon request

PSBN SINGLE DOOR



PSBN DOUBLE DOOR



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Lighting

LED LIGHTING



PHARMACEUTICAL



SEMICONDUCTOR



LIFE SCIENCES



FOOD & BEVERAGE



MEDICAL DEVICE



HEALTHCARE

FOR CLEAN AND CONTROLLED ENVIRONMENTS



WORLD CLASS • WORLDWIDE

Astra Technologies UK

is a market leader in cleanroom lighting
for **advanced technology facilities**.

35 YEARS

of manufacturing experience for **clean
and controlled environments** including
pharmaceutical, biotechnology,
semiconductor and medical device
applications.

SAFESTEP LED

IP65/64 Recessed Rear Access Luminaires for Modular and Non-Modular Ceilings

PRODUCT RANGE

The Astra SAFESTEP luminaire is specifically designed for use in cleanrooms and clean areas such as in the pharmaceutical, biotechnology, life science and healthcare industries.

Aptly named, the SAFESTEP luminaire's unique design integrates seamlessly into composite panel ceilings and provides walk-on protection, thus safeguarding personnel working above the ceiling. With safety paramount in mind, the SAFESTEP luminaire removes potential trip hazards and the risk of falls from height, whilst also eliminating any need for boxes, cages or barriers that are often fitted on top of non-walkable luminaires.



Applications:

- Pharmaceutical
- Biotechnology
- Life Sciences
- Healthcare and Hospitals
- Research Centres
- Laboratories

Specification:

- IP65/64 Rated
- Fully-welded construction
- Tested to BS 6399-1: 1996 Accidental walk-on protection
- Detachable gear tray
- LED energy saving technology
- Fire-rated diffusers
- Anti-bacterial coating options
- Custom made sizes available

To specify state:

IP65/64 Recessed light fixture for seamless integration into modular and non-modular ceilings. Tested to BS 6399-1: 1996. Minimum concentrated load of 0.9kN as recommended for accidental walk-on protection. Sealed opal diffuser optics with option for 4mm toughened glass. Smooth front for easy cleaning, fully-welded construction using corrosion-resistant steel with durable polyester powder-coat finish. High-efficiency LEDs and drivers mounted on a removable gear tray for ease of maintenance. – as Astra Lighting SAFESTEP LED.

Key Performance Indicators:			
Efficiency	142 - 156 LL/CW	Colour Rendering (Ra)	80+
Lumen Maintenance	L90/B10 @ 50,000 hours	Colour Temperature	4800K
Life Expectancy (L70)	100,000 hours	Colour Consistency	3 SDCM

Construction

The SAFESTEP luminaire is manufactured from corrosion resistant steel with a durable epoxy/polyester powder-coat finish.

Designed to integrate seamlessly into composite panel ceilings, the SAFESTEP luminaire to suit panel thicknesses of 50-200mm. This guarantees a flush finish to both sides of the panel ceiling and provides a smooth, easy-to-clean surface which is an essential requirement for sterile environments.

Approvals:



A product with MET Listed Mark (NRTL) for North American and Canadian markets.



MET listed per UL 1598 for wet location. LOC-3 ceiling mounted recessed - covered ceiling only.



Rated to IP65/64 ingress protection for both water and dust.



Suitable for ISO 5, Class 100 Rated Rooms (FED STD 209E).



Both EN 60598-2-2 :2012 and EN 60598-1 :2015 - Certified design and manufactured.



BS 6399-1:1996 - Minimum concentrated load of 0.9kN (200 lbs) as recommended for accidental walk-on protection. Uniform distributed load 2.5kN/m² (500 lbs).

Optional Features:

Optical Options

Fire-rated opal polycarbonate, UGR19 (low-glare) and toughened glass diffuser options available.

Emergency Battery Pack

A range of battery packs are available with 1 hour or 3 hour duration.

Anti-Bacterial Coating

Anti-bacterial powder coating provides long-term protection against bacterial growth.

High-Durability Paint (HDP)

For areas where aggressive cleaning and sterilisation chemicals such as VHP (vaporised hydrogen peroxide) are used.

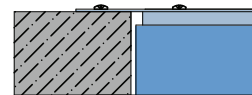
304/316 Stainless Steel

Corrosion resistance of stainless steel varies by grade. The two most common stainless steel grades are 304 and 316.

Dual Access

Available with both front and rear access.

Installation Detail:

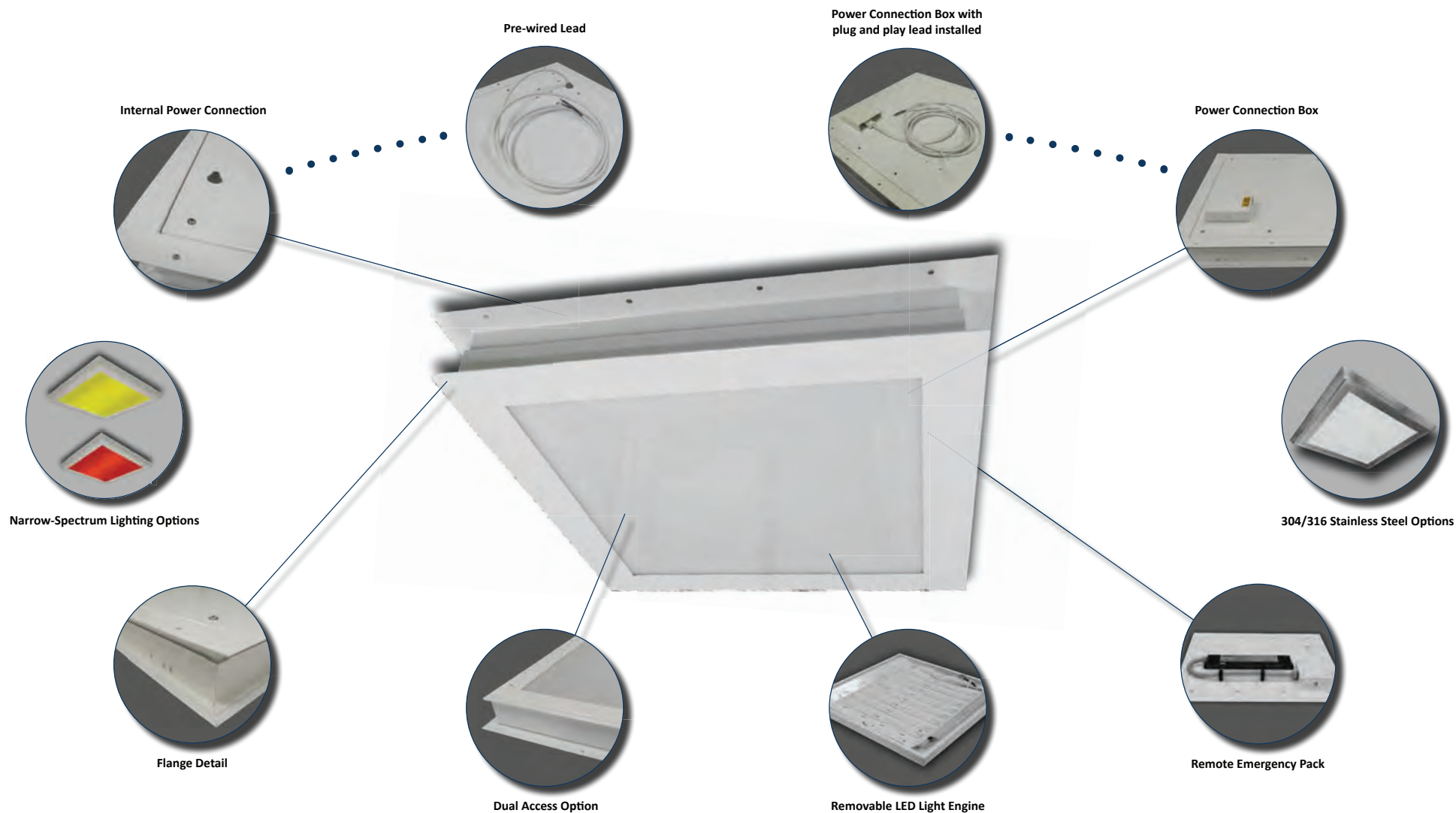


Cut Aperture.



T56 Grid.

www.astralighting.com



SENATOR LED

IP65 Low-Profile Surface-Mounted Luminaire for Solid Ceilings

PRODUCT RANGE

The Astra SENATOR luminaire is specifically designed for use in cleanrooms and clean areas such as in the pharmaceutical, food and healthcare industries.

The SENATOR is a surface-mounted luminaire with a low-profile design and chamfered edges for minimum disturbance to airflow within the cleanroom. Available in a range of paint colours such as Ral 9010, 9001 and 9003, this luminaire can be finished in the same colour as the ceiling panels so that the luminaire blends seamlessly with the ceiling.



Applications:

- Pharmaceutical
- Biotechnology
- Life Sciences
- Semi-conductor
- Nanotechnology
- Laboratories

Specification:

- IP65 Rated
- Fully-welded construction
- Detachable gear tray
- LED energy-saving technology
- Fire-rated diffusers
- Anti-bacterial coating options

To specify state:

IP65 Low-profile 40mm surface-mounted LED luminaire with chamfered edge design for minimal disturbance to airflow. Sealed inverted fire-rated opal diffuser with option for 4mm toughened glass. Smooth front with minimal grooves and crevices for easy cleaning. Fully-welded construction with optional anti-bacterial or high-durability powder-coat finish. High-efficiency LEDs and drivers mounted on a removable gear tray for ease of maintenance. – as Astra Lighting SENATOR LED Surface Mount.

Key Performance Indicators:			
Efficiency	142 - 156 LL/CW	Colour Rendering (Ra)	80+
Lumen Maintenance	L90/B10 @ 50,000 hours	Colour Temperature	4800K
Life Expectancy (L70)	100,000 hours	Colour Consistency	3 SDCM

Construction

With a rigid, fully-welded construction the SENATOR luminaire is manufactured from corrosion-resistant steel with a durable epoxy/polyester powder-coat finish.

With a removable front frame and replaceable LED light engine, the SENATOR has internal fixing holes to enable installation onto solid ceilings.

Approvals:



A product with MET Listed Mark (NRTL) for North American and Canadian markets.



MET listed per UL 1598 for wet location. LOC-3 ceiling mounted recessed - covered ceiling only.



Rated to IP65/64 ingress protection for both water and dust.



Suitable for ISO 5, Class 100 Rated Rooms (FED STD 209E).



Both EN 60598-2-2 :2012 and EN 60598-1 :2015 - Certified design and manufactured.

Optional Features:

Optical Options

Fire-rated opal polycarbonate, UGR19 (low-glare) and toughened glass diffuser options available.

Emergency Battery Pack

A range of remote battery packs are available with 1 hour or 3 hour duration.

Anti-Bacterial Coating

Anti-bacterial powder coating provides long-term protection against bacterial growth.

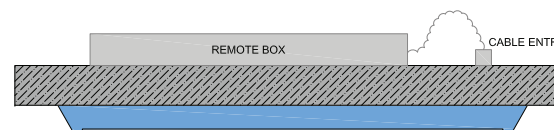
High-Durability Paint (HDP)

For areas where aggressive cleaning and sterilisation chemicals such as VHP (vaporised hydrogen peroxide) are used.

304/316 Stainless Steel

Corrosion resistance of stainless steel varies by grade. The two most common stainless steel grades are 304 and 316.

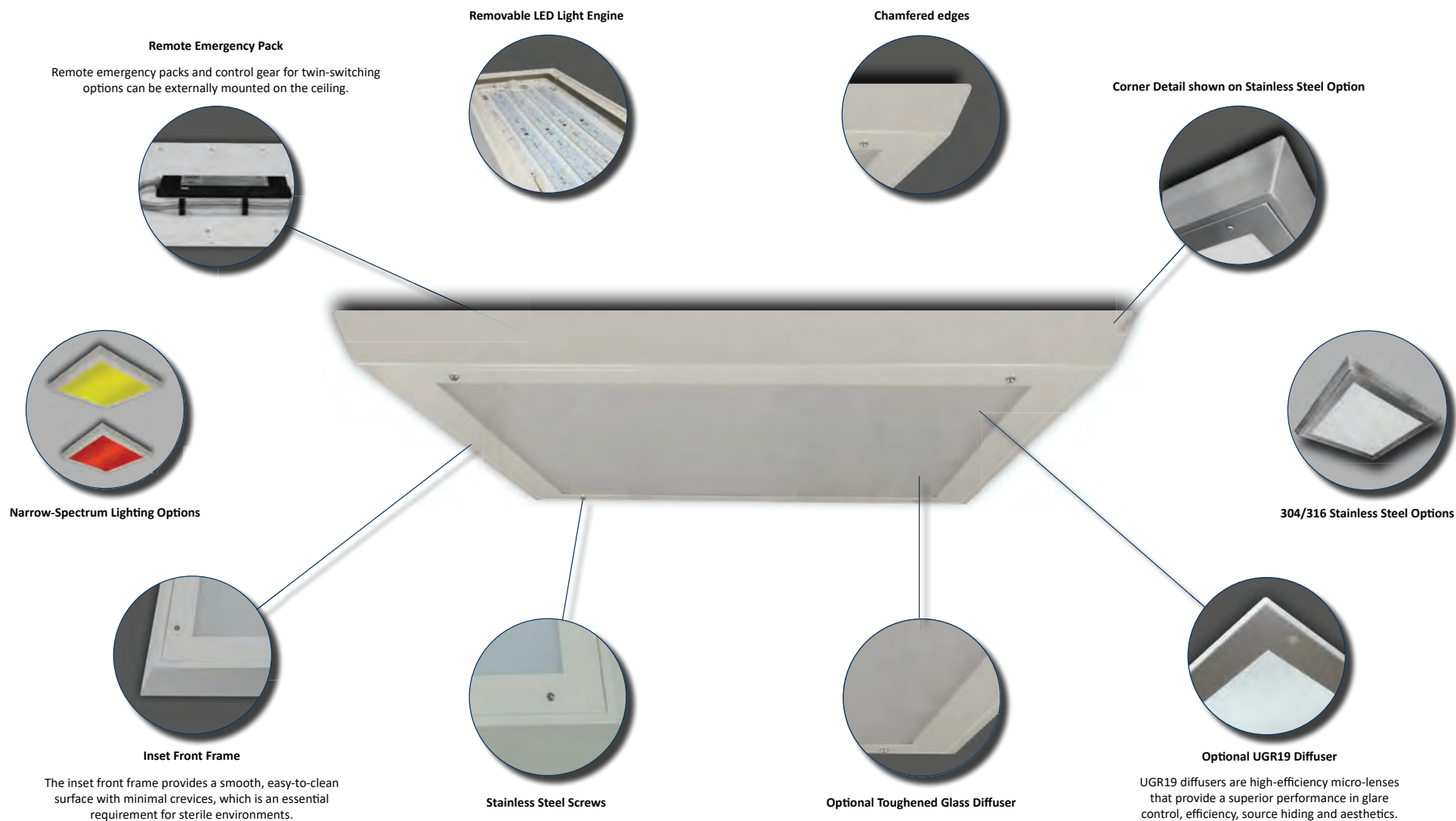
Installation Detail:



Surface-Mounted installation.

Note: Remote box for Emergency versions and Twin Switching options.

www.astralighting.com



Key Performance Indicators

Efficiency

Luminaire Lumens per Circuit Watt - The efficiency of the light fixture including consumption of the driver and the light transmission of the diffuser.

Please note that it is very important to understand and compare performance correctly, as many manufacturers only publish the LED efficiency, which does not include the above-mentioned system losses, thus misleading figures can often be 50% higher than the true delivered efficiency.

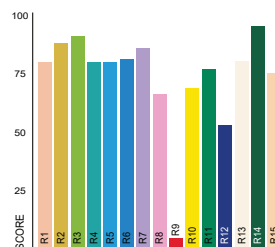
Lumen Maintenance and Life Expectancy

These figures illustrate the life expectancy of the LED. 50K represents performance after 50,000 hours of use. L90 indicates lumen maintenance of at least 90%, which means that after 50,000 hours, the output will be no less than 90% of the initial luminance. B10 indicates a failure rate no greater than 10%. This means that no more than 10% of the LEDs will have failed to meet the L90 criteria above.

Colour Rendering (Ra)

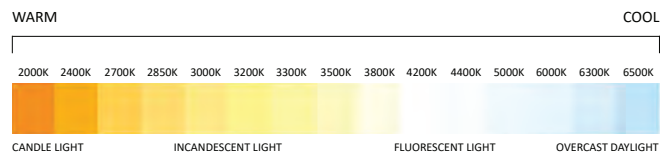
CRI is an acronym for Colour Rendering Index and is the world's most widely-accepted metric to describe the ability of a light source to accurately reproduce the colour of the object it illuminates.

For most indoor and commercial lighting applications, 80CRI (Ra) is the general baseline for acceptable colour rendering. For applications where colour appearance is important for the work being carried out, 90CRI (Ra) is recommended.



Colour Temperature

The Kelvin-based CCT scale (Correlated Colour Temperature) is a simplified way to characterise the spectral properties of a light source. Whilst in reality the colour of light is determined by how much each point on the spectral curve contributes to its output, the results can still be summarised on a linear scale.



Colour Consistency

SDCM is the acronym for Standard Deviation Colour Matching and has the same meaning as a "MacAdam ellipse". The MacAdam ellipse is a system of colour measurement and measures how much colour variation is possible before the human eye detects a colour change.

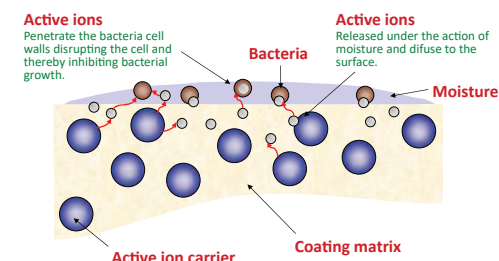
An SDCM of 1 step (+/- 30K) means that there is no visible colour difference between the light sources (LED chips). 2-3 SDCM means that there is hardly any visible colour difference while a 5 or more SDCM is easily noticeable.

Materials & Finishes

Anti-bacterial Coating

Anti-bacterial powder coatings provide an active biocidal system based on silver, which is effective against major strains of bacteria. This provides long-term protection against bacterial growth and is shown to exhibit zero growth for fungi and moulds.

The coating delivers a constant and controlled release of Silver ions which remain active for periods in excess of 10 years. The active Silver ions penetrate the bacteria cell walls disrupting the cell and inhibiting bacterial growth.



High-Durability Paint (HDP)

For areas where aggressive cleaning and sterilisation chemicals such as VHP (vaporised hydrogen peroxide) are used, we offer a specialist high-durability coating which provides increased corrosion resistance for such applications.

304/316 Stainless Steel

Corrosion resistance of stainless steel varies by grade. The two most common stainless steel grades are 304 and 316.

The key difference is the addition of molybdenum, an alloy which drastically enhances corrosion resistance, especially for more stringent environments. 316 stainless steel contains molybdenum, but 304 doesn't.



WORLD CLASS • WORLDWIDE

SimpleSeal™ CSERO/CSERI Luminaires
A NEW LEVEL of Performance for Cleanroom Lighting

KORE™
TECHNOLOGY

SE



A brand of  **legrand**

KEVAL®

Kenall...Leading the Way in Cleanroom Lighting

- Continuing & significant investment in R&D spurs lighting innovation in cleanrooms
- Understanding the highly specialized demands of a wide variety of cleanrooms
- Molding the future by using our expertise to help create industry standards and protocols
- Offering unparalleled expertise in the design and manufacture of sealed, certified LED luminaires
- Designing fully optimized LED technology to benefit and improve your applications



Kenall's **NEW** CSERO/CSERI provides superb visibility & industry leading efficacy, as high as 175 lm/W, using proprietary KORE Technology ...all at a lower total cost of ownership.



Tackling Cleanroom Lighting's Biggest Challenges

Completely Eliminate Debilitating Glare

Science and industry's most visually challenging tasks take place in the cleanroom — but the debilitating glare of a poorly diffused fixture can cause workers to suffer eyestrain, even migraine headaches — leading to lower productivity and reduced quality and accuracy of work. Eliminate glare and optimize research results in your cleanroom using KORE Technology's patented optical design.

Preserve Highly Valued Ceiling Space

Complicating matters, cleanroom ceiling space is highly valuable: filters and mechanical elements take precedence over luminaires. Lighting designs with fewer fixtures provide more room for equipment placement, reduce the need for ceiling penetrations and improve air filtration; creating a superior cleanroom.



End Uneven Lighting, Usher in Energy Efficiency, Reduce Cost

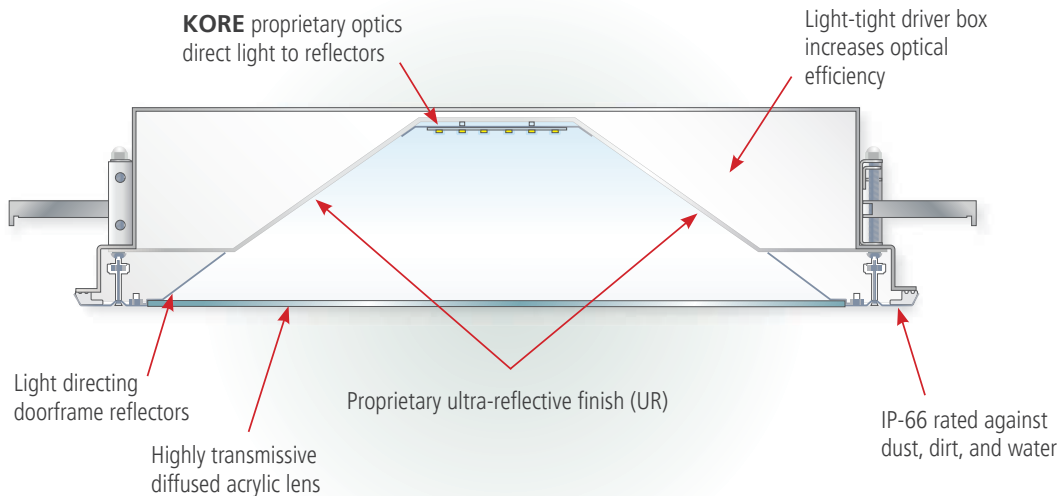
Lowest Total Cost of Ownership... by Far

The NEW SimpleSeal CSERO luminaire with patent-pending **KORE Technology™** creates bright, diffused light evenly across the lens with an unparalleled level of energy efficiency.

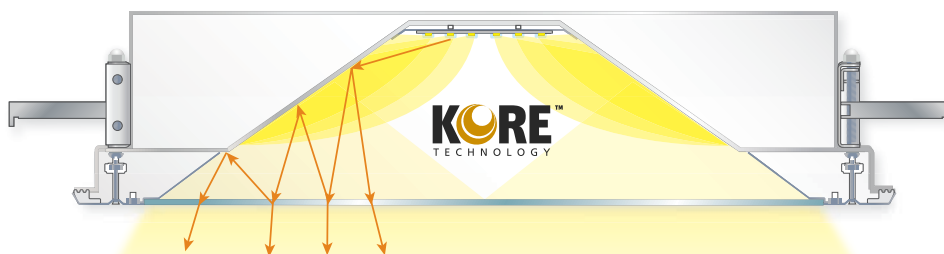
KORE Technology's advanced diffusion utilizes proprietary optics and reflectors to produce light that fills the space with optimal efficiency.

The result? *Less fixtures, less energy, less cost.*

Patent-Pending Design



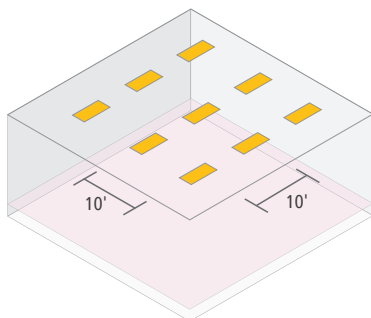
KORE Technology How It Works



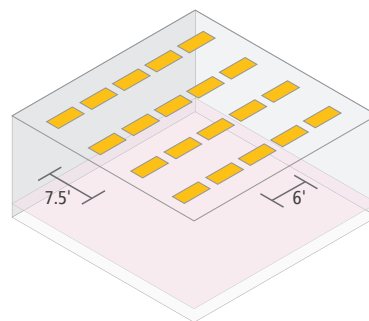
The trapezoidal reflector and optics work together to evenly distribute radiant flux across the lens, creating a **1.5:1 lens uniformity**

New Build? Save Money Now & in the Future While Enhancing Lighting Performance

Kenall CSERO/CSERI
using KORE Technology



Competitive brand name fixture
without KORE Technology

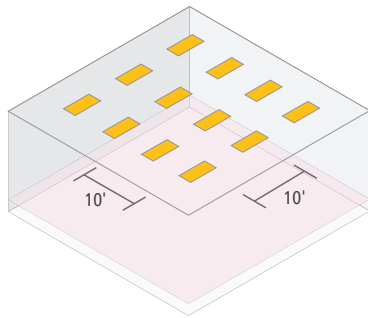


Area = 900.00 Sq.ft (30' x 30' x 10'h)
Design Illuminance: 100 fc avg.
Light Loss Factor: 0.85
Reflectance: 80,50,20
Fixture Size: 2' x 4'

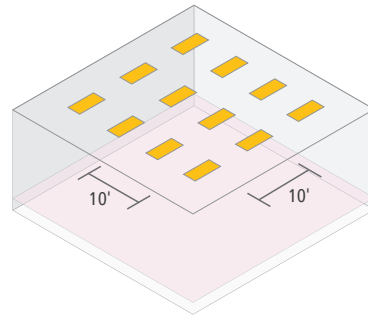
Cost Comparison		
Fixture	CSERO/CSERI with KORE Technology	Brand Name Competitor @ Max. Output
Fixture Count	9	20
Circuits	1	2
Power	837	1498
Labor	55% less	100%
55% Installed Cost Savings		

Relighting Existing Space? Cut Your Energy Bill Dramatically While Optimizing Performance

Relight of existing space using
CSERO/CSERI with KORE Technology



Competitive brand name fixture
without KORE Technology



Area = 900.00 Sq.ft (30' x 30' x 10'h)
Design Illuminance: 100 fc avg.
Light Loss Factor: 0.85
Reflectance: 80,50,20
Fixture Size: 2' x 4'

Energy Use Comparison 30' x 30' Space		
Fixture	Fixture Count	Watts
Kenall	12	624
Competitor	12	1086
42% Energy Reduction		

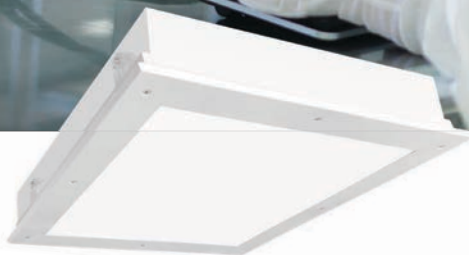
Why is KORE Technology Unique?

The difference between the lowest and highest points of light is called contrast ratio. For KORE Technology, this is imperceptible, meaning at just 1.5:1. the effect is that glare is eliminated; having been reduced to its lowest point for any given wattage, while still providing remarkable efficacy.



CSERO Overlapping Door Series

Select overlapping door luminaires for the most stringent cleanliness standards and protocols, including those that involve caustic chemicals and extreme abrasion. Fixtures of this kind feature a one-piece, seam-welded housing that is sealed behind a one-piece doorframe with a doorframe gasket.



2' x 2'



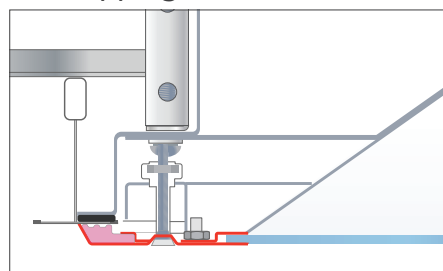
1' x 4'

SimpleSeal™ CSERO Series

- Input watts: 18 – 136W
- Lumen range: 2,109 – 21,637 lm
- Lumens per watt: up to 175 lm/W
- CCT: 3000K, 3500K, 4000K, 5000K; 82 or 90 CRI



Nominal sizes: 1' x 4', 2' x 2', 2' x 4'
 Installation Type: Universal installation into 1.0" and 1.5" grid or flange (drywall) ceilings
 Lamp Type: LED

**Overlapping Door**

www.kenall.com | P: 800-4-Kenall | F: 262-891-9701 | 10200 55th Street Kenosha, Wisconsin 53144

This product complies with the Buy American Act: manufactured in the United States with more than 50% of the component cost of US origin. It may be covered by patents found at www.kenall.com/patents. Content of specification sheets is subject to change; please consult www.kenall.com for current product details.

A brand of **legrand**

CSERI Inset Door Series

Compatible with both drywall and grid ceilings, the Inset Door series is comprised of a one-piece, seam welded, hole-free housing, a doorframe in either aluminum, cold-rolled or stainless steel, and a housing-to-doorframe gasket.

This clean design provides excellent performance that is defined and measured to the highest available standards, and certified an independent testing laboratory.



2' x 2'



1' x 4'

SimpleSeal™ CSERI Series

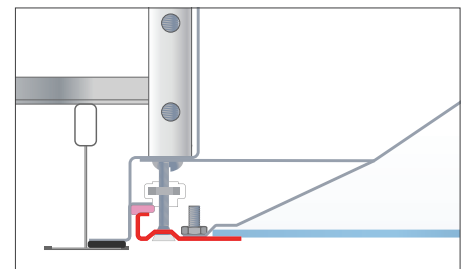
- Input watts: 18 – 136W
- Lumen range: 2,109 – 21,637 lm
- Lumens per watt: up to 175 lm/W
- CCT: 3000K, 3500K, 4000K, 5000K; 82 or 90 CRI



Nominal sizes: 1' x 4', 2' x 2', 2' x 4'
 Installation Type: Universal installation into 1.0" and 1.5" grid or flange (drywall) ceilings
 Lamp Type: LED



Inset Door



www.kenall.com | P: 800-4-Kenall | F: 262-891-9701 | 10200 55th Street Kenosha, Wisconsin 53144

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A brand of **legrand**

LED FLAT PANELS

MLFP CCT SELECTABLE SERIES



PRODUCT DESCRIPTION:

A seamless replacement for 1'x4', 2'x2' and 2'x4' fluorescent fixtures, MaxLite's next-generation LED Flat Panels with field selectable CCT technology are designed to lay in drop ceilings in offices, schools, and healthcare applications. The panels produce highly efficient, uniform illumination in any setting, and with the flick of a switch, installers can choose from 3500K, 4000K and 5000K color temperatures to suit various application needs. The panels are fully dimmable, and may be combined with motion sensors for further energy savings.

MaxLite panels deliver all the benefits of LED technology, including a long life with high lumen maintenance, reduced energy consumption and lower maintenance costs.



FEATURES:

- 0-10V dimmable
- 120-277 Voltage
- Power Factor: 0.9
- On EM mode, the fixture output a minimum of 700 lumens for 90 minutes, when fully charged

WARRANTY:

10-year standard warranty with labor allowance*

*Warranty Limitations: Product must be rated for the application per the Product Data Sheet (PDS); operated ≤16 hrs; in ambient of -29°F to 104°F.

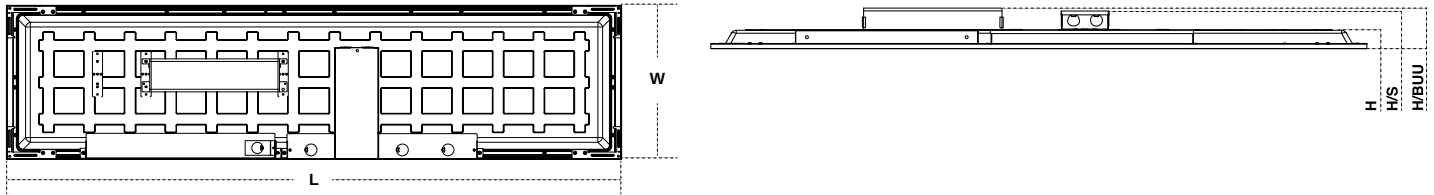
ORDER STRUCTURE

FAMILY	SIZE	WATTAGE	CCT	BATTERY BACKUP	MOTION SENSOR
MLFP= LED Flat Panel	14BL= 1'x4'	30= 30W	CS= CCT Selectable (3500K, 4000K, 5000K) 40= 4000K ¹	BLANK= None EM= Battery Backup Unit	BLANK= None MS= Motion Sensor
	22BL= 2'x2'	18= 18W 30= 30W 45= 45W			
	24BL= 2'x4'	28= 28W 40= 40W 55= 55W			

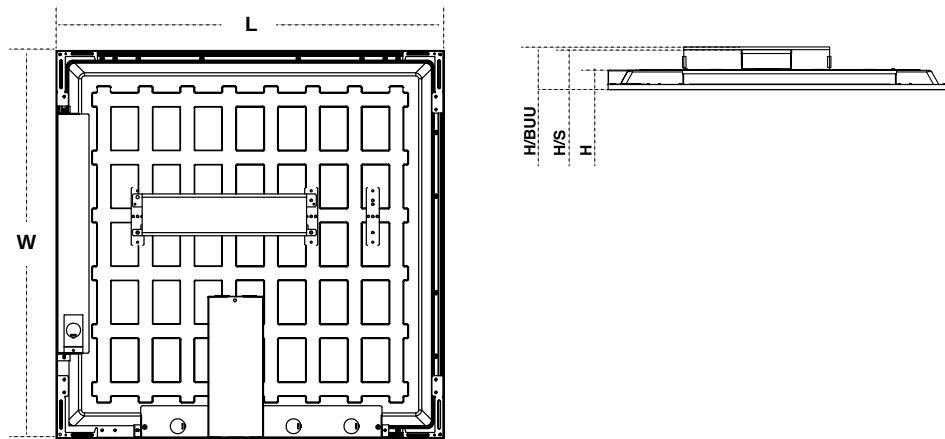
¹ Only 2x2 30W and 2x4 40W are in 4000K

DIMENSIONS:

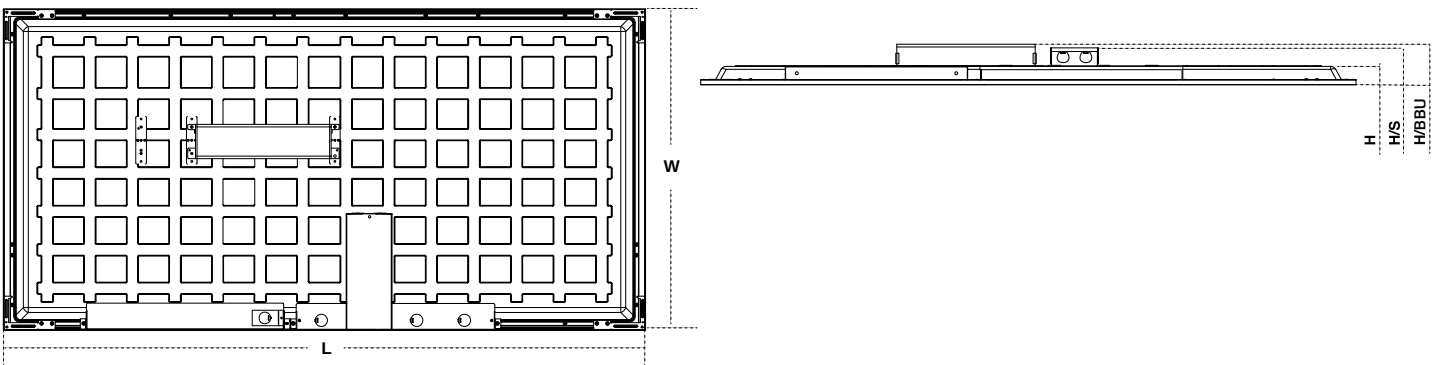
1'x4':



2'x2':



2'x4':



PRODUCT SIZE	L	W	H	H/S	H/BBU
1x4	47.7"	11.9"	1.4"	2.7"	2.9"
2x2	23.8"	23.8"	1.4"	2.7"	2.9"
2x4	47.7"	23.7"	1.4"	2.7"	2.9"

KEY	DESCRIPTION
H	Standard product
H/S	Product with sensor
H/BBU	Product with Emergency BBU

SPECIFICATIONS		MLFP14 BL30CS	MLFP22 BL18CS	MLFP22 BL30CS	MLFP22 BL45CS	MLFP24 BL28CS	MLFP24 BL40CS	MLFP24 BL55CS	MLFP22 BL3040	MLFP24 BL4040
ITEM	SPECIFICATION	DETAILS								
GENERAL PERFORMANCE	Fixture Size	1'x4'	2'x2'	2'x2'	2'x2'	2'x4'	2'x4'	2'x4'	2'x2'	2'x4'
	Power Consumption (W)	30W	18W	30W	45W	28W	40W	55W	30W	40W
	Lumens Delivered (lm)	3,397 lm	2,095 lm	3,383 lm	5,075 lm	3,185 lm	4,506 lm	6,112 lm	3,300 lm	4,450 lm
	Efficacy	110 lm/W								
	CRI	≥80								
	Color Temperature (K)	CCT Selectable (3500K,4000K,5000K)							4000K	
	L70 Lumen Maintenance* (hours)	>100,000 Hrs.								
	Operating Humidity	20-85% RH, non-condensing								
ELECTRICAL	Power Factor	≥0.9								
	Input Voltage	120-277V								
	Dimming	Dimmable (0-10V)								
	Max. Ambient Temperature	-4°F - 104°F								
QUALIFICATION	Certification	cETLus - Damp Locations, FCC								
	Warranty	10 year warranty*								
	DesignLights Consortium	DLC Standard								

Pass Throughs



Atmos-Tech Industries
 1108 Pollack Ave., Ocean, NJ 07712
Phone: 732.493.8400 • **Fax:** 732.493.8954
Email: Sales@AtmosTech.com • **Website:** www.AtmosTech.com

Through Wall Pass-Thru Systems



APPLICATIONS:

The through wall Pass-Thru system protects the integrity of even the most critical Cleanroom environments while allowing convenient access to adjoining rooms.

The Pass-Thrus interlocking system allows only one door to be opened at a time which allows the Cleanroom air pressure to be maintained and minimizes particle migration.

All Atmos-Tech Pass-thru units are constructed with smooth interior and exterior surfaces to allow for proper cleaning and sanitizing.

AVAILABLE OPTIONS

- Stainless Steel
- Epoxy Painted Steel
- Laminated Particle Board
- Poly-Pro
- HEPA/ULPA Filtration
- Custom Sizes
- Custom Configurations
- Standard and Ultra-violet Lighting
- Automatic and Vertical Sliding Doors
- Fire rated doors

Results 1 - 5 of 5

<u>Item #</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
<u>PT1212-12</u>	12 in	12 in	12 in	18 in	14 in
<u>PT1818-18</u>	18 in	18 in	18 in	24 in	20 in
<u>PT2424-24</u>	24 in	24 in	24 in	30 in	26 in
<u>PT3030-30</u>	30 in	30 in	30 in	36 in	32 in
<u>PT3636-36</u>	36 in	36 in	36 in	42 in	38 in

Results 1 - 5 of 5



Pass-thru cabinets from Clean Air Products feature rugged, durable, stainless steel construction, are easy to clean and maintain in sterile environments, and comply with USP 800 cleaning requirements.

Cabinet

- Type 304, #4 Finish Stainless Steel
- Unique Double Wall Construction
- Removable Inner Liners
- Lipless Interior Floor
- Stainless Steel Pan Head Hardware

Doors

- Stainless Steel, Flush Mount Continuous Hinges
- Silicone Bulb Gasket
- Over Center Compression Latches
- Clear Tempered Safety Glass Windows

Mechanical Interlock

- Optional but Highly Recommended
- Enclosed Within Pass Thru Wall
- Removable Interior Maintenance Panel
- 90 Degree Stainless Steel T-Handles

Recommended Applications / Industries

- Pharmacies
- Semiconductor Manufacturing

Learn More

For more information on CAP18 pass thru cabinets, including CAD drawings, RFQs, purchase specifications, exploded views and options, visit:
www.cleanairproducts.com/product-category/pass-thrus

CAP18W

STANDARD WALL MOUNTED PASS THRU DATA SHEET



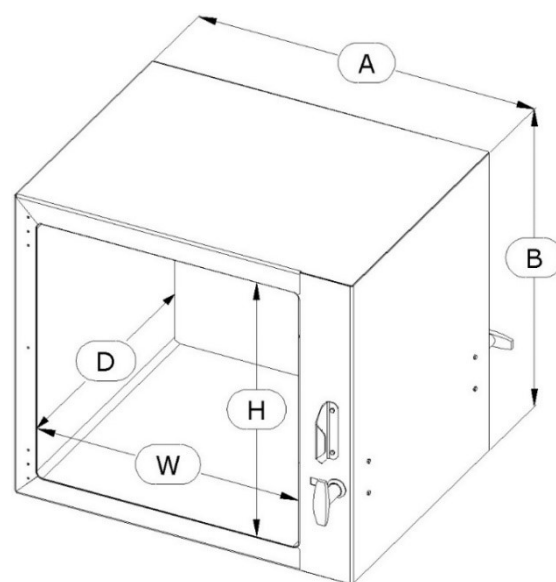
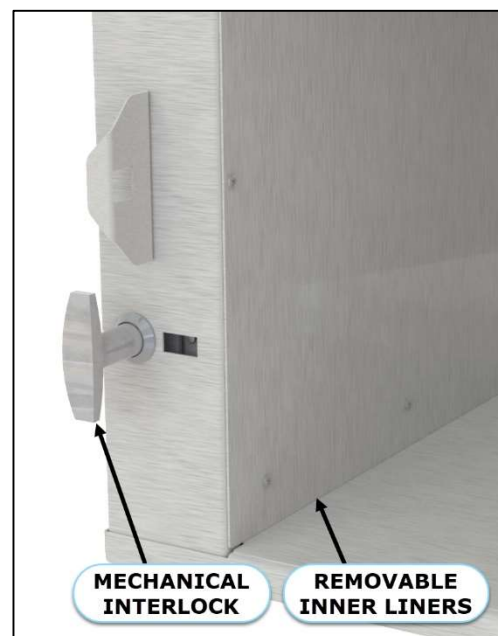
Stainless Steel pass thru cabinets by Clean Air Products are the ideal way to efficiently transfer supplies and specimens into or out of a cleanroom. Pass thru cabinets eliminate unnecessary foot traffic, significantly reducing contamination. Plus, with the incorporation of our interlocking doors, pass thrus will increase the operating efficiency of the room. Clean Air Products pass thrus are designed to meet the most stringent requirements for cleanroom entry systems.

The CAP18W wall mounted pass thru cabinet is ideal for manufacturing and laboratory processes requiring easy cleaning. Unique double wall construction, which encases and protects the optional mechanical interlock further facilitates cleaning. The cabinet floor is completely flush; there is no "lip" to clean around and there are few internal seams. The interior features removable liners which are easy to clean or remove for maintenance. Stainless steel doors feature a silicone bulb gasket which eliminates crevices that could harbor contamination. Every surface of the door can be thoroughly cleaned. Durable 16 gauge stainless steel construction ensures years of operation.

OPTIONS

- Custom sizes
- Mechanical interlock with Type 316 stainless steel T-handles
- Magnetic interlock
- Locking over-center compression latches
- Set-in Tray
- Adjustable shelves
- Type 316L, #2B finish stainless steel construction
- Electropolishing
- Same door swing on both sides
- Door open visual alarm
- UV light
- Universal stainless steel mounting frame set, may also include:
 - Sloped top frame pieces
 - Support gussets
 - Support legs
 - Custom size 1.5" x 1.5" frames
- Alternative window materials:
 - Clear or yellow acrylic
 - Polycarbonate
 - Electrostatic dissipative polycarbonate
 - Clear or amber PVC
 - Electrostatic dissipative PVC
 - UV filtering film over clear tempered safety glass
 - No Window (Solid Stainless Steel Door)

Additional options are available,
contact us to discuss your specific requirements.



SIZES

MODEL	INSIDE DIMENSIONS (in.)			OUTSIDE DIMENSIONS (in.)	
	Width W	Height H	Depth D	Width A	Height B
CAP18W-SST-12WX12HX12D	12	12	12	16.75	14
CAP18W-SST-18WX18HX18D	18	18	18	22.75	20
CAP18W-SST-24WX24HX24D	24	24	24	28.75	26
CAP18W-SST-30WX30HX30D	30	30	30	35.3125	33.3125
CAP18W-SST-36WX36HX36D	36	36	36	41.3125	39.3125

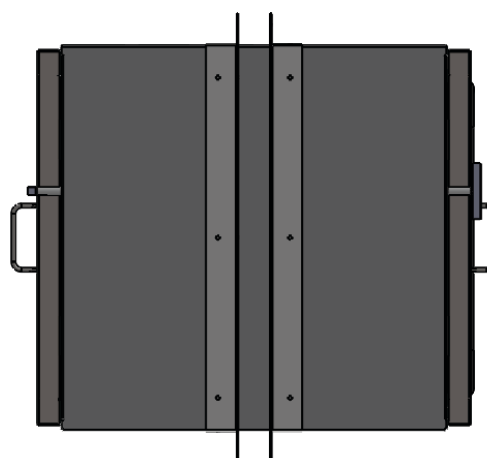
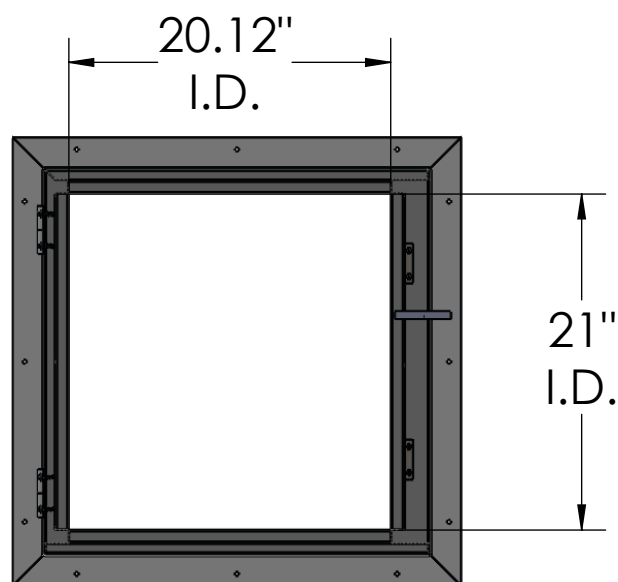
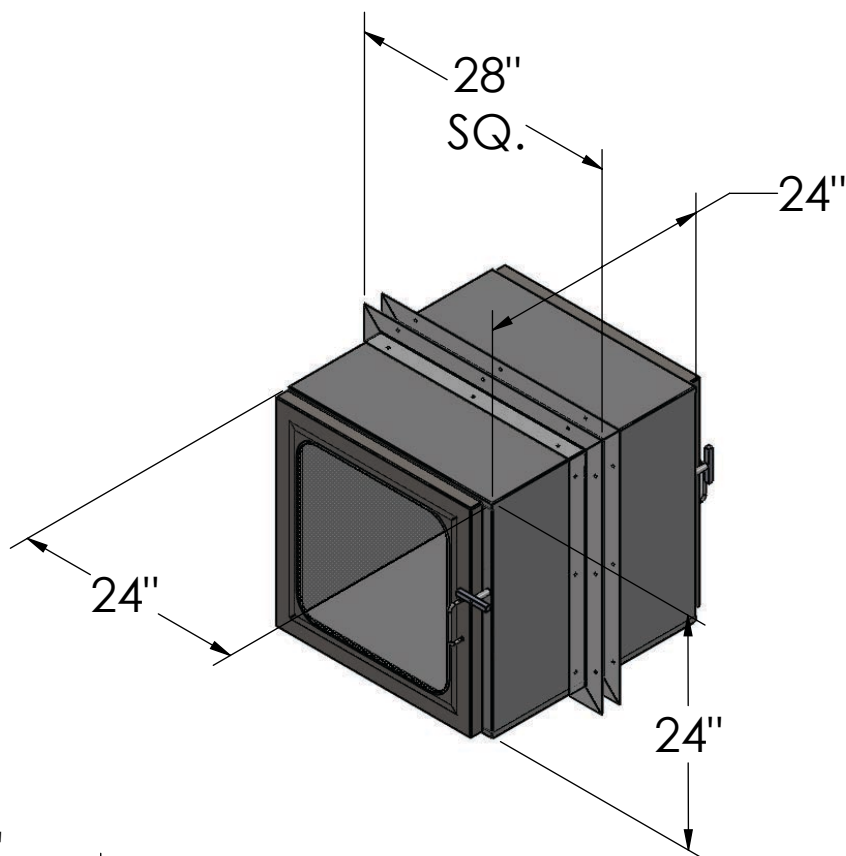
Additional Sizes: Pass thrus can be ordered in a variety of sizes and configurations, contact us for details.

Sizes are based on inside dimensions, recommended wall cutout is $(A + \frac{1}{2}')$ x $(B + \frac{1}{2}')$

PASS THRU

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Technical
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unauthorized
use without
permission from
owner is
prohibited**

Technical Air Products
Find your clean space.

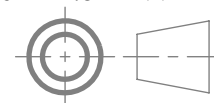


1. T-HANDLE FOR NON-LOCKING INTERLOCK
2. 16ga COLD ROLLED STEEL CONSTRUCTION
3. CLEAR LAMINATED SAFETY GLASS

TOLERANCES, UNLESS OTHERWISE NOTED:

INCH:	
X	+/- .1
X.X	+/- .05
X.XX	+/- .01
X°	+/- 0.5°

ALL DIMENSIONS PER
ANSI Y14.5M-1994



DESCRIPTION

PASS THRU 24"x24"x24"-PC

MATERIAL:

16ga. CRS

FINISH:

POWDER COAT SKY WHITE

WEIGHT:

134LBS

NOTES:

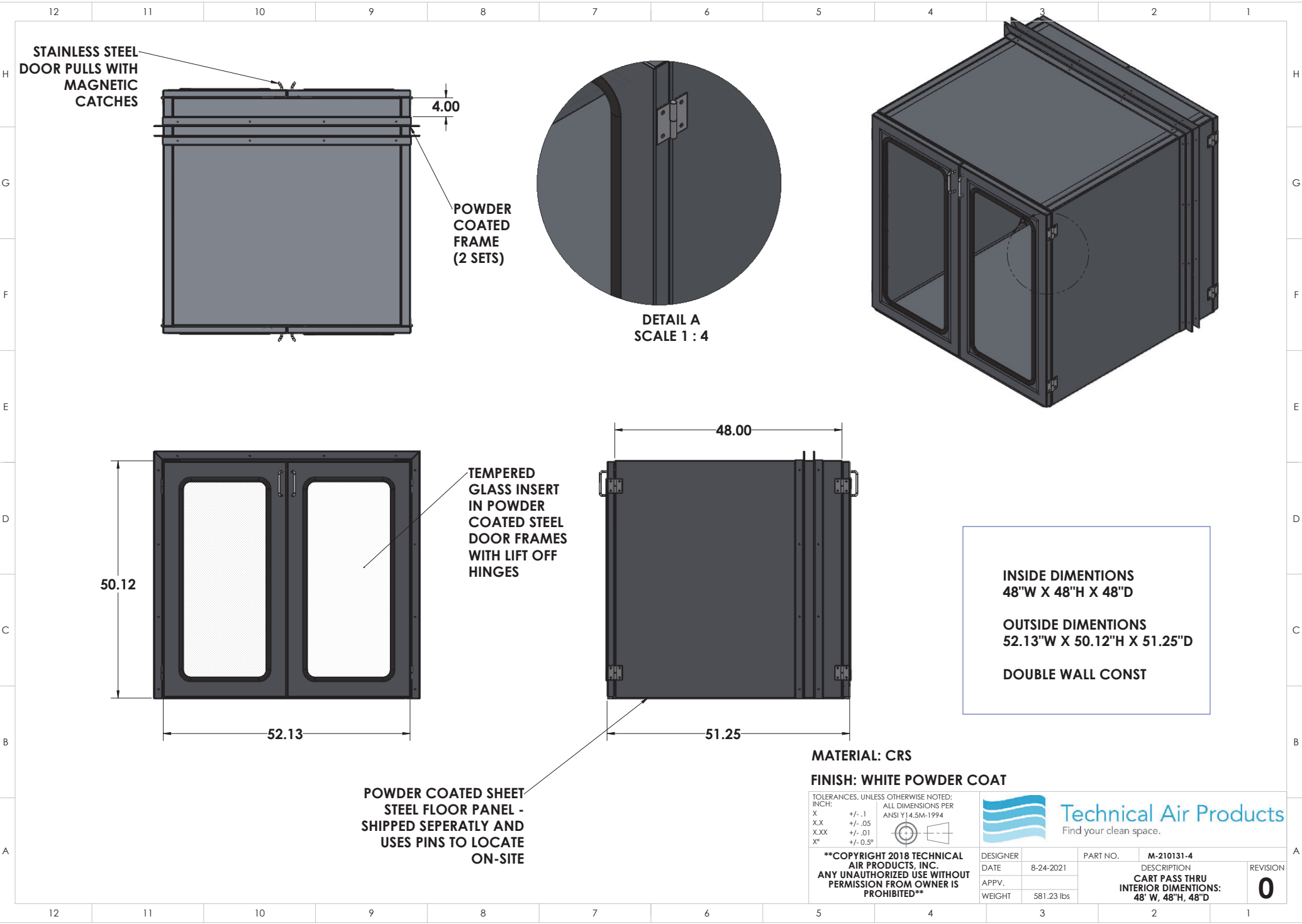
DRAWN BY: **ADK**

DATE: **3/9/2020**

REVISION:

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with mount



CPT-484848-4

\\ta-essentials\Company\Engineering\JOBS\2021\210273 Precision Environments (FLOW)\cart pass thru master

Air Showers





AIR SHOWERS AND PASS THRUS UNLIMITED, INC.
PO BOX 427
RANCHO CUCAMONGA, CA 91729-0427
800-913-0054 Local 909-483-1709
Website: www.aspt.com / email: info@aspt.com

AIR SHOWER



ASPT specializes in the design and manufacturing of air showers. We offer a large selection of sizes, construction materials and options at competitive prices while providing performance and value.

MODEL DESIGNATION

SD 48 48 NI B WN ST NF 2 B MS MS WP

SD=Single blower
TN=Multiple blowers
LP=Low profile single blower
LT=Low profile multiple blowers
CT=Cart air shower

OD width in inches

OD length in inches

NI=no ionization
WI=with ionization

A=208-230 VAC 3 phase
B=440-480 VAC 3 phase
C=Special voltage 3 phase

WN=nozzles in ceiling
NN=no nozzles in ceiling

ST=straight through configuration
LA=left angle configuration
RA=right angle configuration
TT=3 door configuration

WP=wood core / plastic laminate
WA=wood core / aluminum skin / white painted finish
AM=aluminum honeycomb panels in an extruded aluminum frame with a painted finish
PS=cold roll steel with a white powder coated finish
SS=304 stainless steel #4 finish

EXIT DOOR DESIGNATION
MS=manual swing door
1X=single swing automatic door
2X=bi-swing automatic door
1S=single slide automatic door
2S=bi-parting automatic door

ENTRY DOOR DESIGNATION
MS=manual swing door
1X=single swing automatic door
2X=bi-swing automatic door
1S=single slide automatic door
2S=bi-parting automatic door

DIRECTION OF OPERATION
A=one direction only
B=shower in one direction and no shower in the other direction
C=shower runs in both directions

Number of doors

NF=no floor / uses existing floor
WF=with 6" raised floor

STANDARD FEATURES

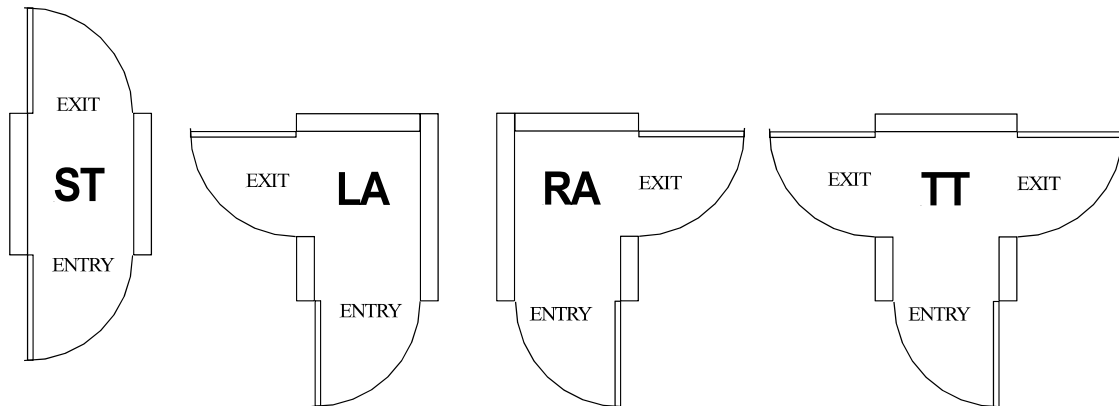
- 5HP* direct drive paddle wheel blower with open drip proof motor
- 99.99% @ .3 micron HEPA filter
- MERV 7 Pre-filters
- PVC air nozzles with adjustable outlet
- Clear anodized aluminum frame doors with 1/4' clear tempered glass
- Door seals and bottom sweep
- 600 pound holding force 24VDC magnetic door interlocks
- Commercial duty door closers
- Emergency stop/start switch
- LED interior lighting
- Pre-wired control panel with non-fused disconnect switch
- UL508 listed control panel

*SD4848 and LP6436 have a 3HP blower

OPTIONS

- Variable frequency drive for blower motor
- 99.999% ULPA @ .12 micron filter upgrade
- MERV 8 pre-filters
- Alpha/numeric display
- Automatic door operators
- Magnehelic gauge for HEPA filter
- Ionization
- Alarm system for door interlocks

FLOOR PLANS



DOOR SWINGS SHOWN ABOVE CAN BE CHANGED TO MEET SPECIFIC NEEDS

ST FLOOR PLAN IS AVAILABLE IN ALL SIZES

LA AND RA FLOOR PLANS ARE AVAILABLE IN ALL SIZES EXCEPT THE LP6436

TT FLOOR PLAN IS AVAILABLE IN ALL SIZES EXCEPT THE SD4848 AND ALL LP MODELS

MECHANICAL ACCESS ON ALL FLOOR PLANS FOR THE "SD" AND "TN" MODELS ARE FROM ONE SIDE, BOTH ENDS OR FROM ABOVE

MECHANICAL ACCESS FOR ALL FLOOR PLANS FOR THE "LP" MODELS ARE FROM BOTH ENDS, OR FROM THE MECHANICAL SIDE

MECHANICAL ACCESS FOR ALL FLOOR PLANS FOR THE "LT" MODELS ARE FROM THE SIDE OF THE MECHANICAL ENCLOSURE ONLY

ADA DOOR CLEARANCES REQUIRE AN AIR SHOWER AT LEAST 60" WIDE WITH A 36" WIDE DOOR AND AT LEAST 48" BETWEEN THE ENTRY AND EXIT DOORS

ADA DOOR CLEARANCES FOR LA, RA AND TT FLOOR PLANS REQUIRE A MINIMUM OF 24" FROM THE ENTRY DOOR TO THE LATCH SIDE OF THE EXIT DOOR

MODEL "SD" AIR SHOWER



The SD model air shower design consists of a single roof section with one blower and one HEPA filter. This model air shower has sizes that hold 1-3 people per cycle. The air shower has the mechanical components mounted on top of the unit and is accessible by removable panels. This air shower is often used where there are less than 25 people per hour using the air shower.

MODEL #	Width OD	Length OD	Height OD	Width ID	Length ID	Height ID	Door size	Blower	# of nozzles	ADA
SD4848ST	48"	48"	117"	36"	44"	84"	36" x 84"	3HP	24	NO
SD4848LA	48"	48"	117"	36"	40"	84"	36" x 84"	3HP	24	NO
SD4848RA	48"	48"	117"	36"	40"	84"	36" x 84"	3HP	24	NO
SD4860ST	48"	60"	119"	36"	56"	84"	36" x 84"	5HP	36	NO
SD4860LA	48"	60"	119"	36"	52"	84"	36" x 84"	5HP	36	NO
SD4860RA	48"	60"	119"	36"	52"	84"	36" x 84"	5HP	36	NO
SD4860TT	48"	60"	119"	36"	52"	84"	36" x 84"	5HP	36	NO
SD4872ST	48"	72"	119"	36"	72"	84"	36" x 84"	5HP	36	NO
SD4872LA	48"	72"	119"	36"	64"	84"	36" x 84"	5HP	36	NO
SD6060ST	60"	60"	119"	48"	48"	84"	36" x 84"	5HP	36	YES
SD6060LA	60"	60"	119"	48"	48"	84"	36" x 84"	5HP	36	NO
SD6060RA	60"	60"	119"	48"	48"	84"	36" x 84"	5HP	36	NO
SD6060TT	60"	60"	119"	48"	48"	84"	36" x 84"	5HP	36	NO
SD6072ST	60"	72"	119"	48"	68"	84"	36" x 84"	5HP	36	YES
SD6072LA	60"	72"	119"	48"	60"	84"	36" x 84"	5HP	36	YES
SD6072RA	60"	72"	119"	48"	60"	84"	36" x 84"	5HP	36	YES
SD6072TT	60"	72"	119"	48"	60"	84"	36" x 84"	5HP	36	YES
SD6084LA	60"	84"	119"	48"	72"	84"	36" x 84"	5HP	36	YES
SD6084RA	60"	84"	119"	48"	72"	84"	36" x 84"	5HP	36	YES

MODEL "TN" AIR SHOWER



The TN model air shower design consists of a two or more roofs section with one blower and one HEPA filter. This model air shower has sizes that hold 4 or more people per cycle. The air shower has the mechanical components mounted on top of the unit and is accessible by removable panels. This air shower is often used where there are more than 25 people per hour using the air shower.

MODEL #	Width OD	Length OD	Height OD	Width ID	Length ID	Height ID	Door size	Blower	# of nozzles	ADA
TN4896ST	48"	96"	117"	36"	92"	84"	36" x 84"	(2)3HP	48	NO
TN48496LA/RA	48"	96"	117"	36"	88"	84"	36" x 84"	(2)3HP	48	NO
TN48496TT	48"	96"	117"	36"	88"	84"	36" x 84"	(2)3HP	48	NO
TN48120ST	48"	120"	119"	36"	116"	84"	36" x 84"	(2)5HP	72	NO
TN48120LA/RA	48"	120"	119"	36"	112"	84"	36" x 84"	(2)5HP	72	NO
TN48120TT	48"	120"	119"	36"	112"	84"	36" x 84"	(2)5HP	72	NO
TN48144ST	48"	144"	119"	36"	140"	84"	36" x 84"	(2)5HP	72	NO
TN48144LA/RA	48"	144"	119"	36"	136"	84"	36" x 84"	(2)5HP	72	NO
TN48144TT	48"	144"	119"	36"	136"	84"	36" x 84"	(2)5HP	72	NO
TN48180ST	48"	180"	119"	36"	176"	84"	36" x 84"	(3)5HP	108	NO
TN48180LA/RA	48"	180"	119"	36"	172"	84"	36" x 84"	(3)5HP	108	NO
TN48180TT	48"	180"	119"	36"	172"	84"	36" x 84"	(3)5HP	108	NO
TN60120ST	60"	120"	119"	48"	116"	84"	36" x 84"	(2)5HP	72	YES
TN60120LA/RA	60"	120"	119"	48"	112"	84"	36" x 84"	(2)5HP	72	YES
TN60120TT	60"	120"	119"	48"	112"	84"	36" x 84"	(2)5HP	72	YES
TN60144ST	60"	144"	119"	48"	132"	84"	36" x 84"	(2)5HP	72	YES
TN60144LA/RA	60"	144"	119"	48"	132"	84"	36" x 84"	(2)5HP	72	YES
TN60144TT	60"	144"	119"	48"	132"	84"	36" x 84"	(2)5HP	72	YES
TN608180ST	60"	180"	119"	36"	176"	84"	36" x 84"	(3)5HP	108	YES
TN60180LA/RA	60"	180"	119"	36"	172"	84"	36" x 84"	(3)5HP	108	YES
TN60180TT	60"	180"	119"	36"	172"	84"	36" x 84"	(3)5HP	108	YES

MODEL “LP” AIR SHOWER



The LP model air shower is designed to fit under a 96” high ceiling. The mechanical is located on the side of the air shower and has one blower and one HEPA filter. This model air shower has sizes that hold 1-3 people per cycle. This air shower is often used when there are less than 25 people per hour entering the unit.

MODEL #	Width OD	Length OD	Height OD	Width ID	Length ID	Height ID	Door size	Blower	# of nozzles	ADA
LP6436ST	64"	36"	94"	36"	32"	84"	36" x 84"	3HP	24	NO
LP7242ST	72"	42"	94"	36"	38"	84"	36" x 84"	5HP	36	NO
LP7248ST	72"	48"	94"	36"	44"	84"	36" x 84"	5HP	36	NO
LP7248LA/RA	72"	48"	94"	36"	56"	84"	36" x 84"	5HP	36	NO
LP8460ST	84"	60"	94"	48"	56"	84"	36" x 84"	5HP	36	YES
LP8460LA/RA	84"	60"	94"	48"	48"	84"	36" x 84"	5HP	36	NO

MODEL "LT" AIR SHOWER



The LT model air shower is designed to fit under a 96" high ceiling. The mechanical is located on the side of the air shower and has one blower and one HEPA filter. This model air shower has sizes that hold 3-12 people per cycle. This air shower is often used when there are more than 25 people per hour entering the unit.

MODEL #	Width OD	Length OD	Height OD	Width ID	Length ID	Height ID	Door size	Blower	# of nozzles	ADA
LT6472ST	64"	72"	94"	36"	68"	84"	36" x 84"	(2) 3HP	48	NO
LT7296ST	72"	96"	94"	36"	92"	84"	36" x 84"	(2) 5HP	72	NO
LT7296LA/RA	72"	96"	94"	36"	88"	84"	36" x 84"	(2) 5HP	72	NO
LT8496ST	72"	96"	94"	36"	92"	84"	36" x 84"	(2) 5HP	72	YES
LT72144ST	72"	48"	144"	36"	140"	84"	36" x 84"	(3) 5HP	108	NO
LT84144RA/LA	84"	144"	94"	48"	132"	84"	36" x 84"	(3) 5HP	108	YES
LT72192ST	84"	192"	94"	36"	188"	84"	36" x 84"	(4) 5HP	144	NO
LT84192ST	84"	192"	94"	48"	188"	84"	36" x 84"	(4) 5HP	144	YES
LT84192RA/LA	84"	192"	94"	48"	180"	84"	36" x 84"	(4) 5HP	144	YES



CAP701 KD-ST



CAP701 LP-ST



CAP701 tunnel

- Durable heavy-gauge painted steel construction
- Inspection panels for high-pressure supply ducts
- Highest velocity and air volume rate for fast, efficient cleaning
- Microprocessor controller
- Touchscreen controls
- Magnetic interlocks
- LED lighting
- Silicone-free, urethane sealant
- Standard-size HEPA filters and prefilters
- Zero leak, negative pressure reliability seal on HEPA filter gasket
- Easy service access
- Industry-leading customization options

In electronics, pharmaceuticals, biotechnology, food and new technology manufacturing, you rely on cleanrooms or controlled spaces to protect operations from the constant threat of air particulate contamination. Air showers protect a cleanroom from contamination that could be brought into the cleanroom. The clean garments worn by cleanroom personnel become contaminated during the gowning/ungowning process and must be cleaned before they enter the clean environment.

Not all air showers are made alike, and not all air showers perform alike in every situation. Only Clean Air Products CAP701 Series air showers combine high-quality all-metal construction with the highest performance, customized options and versatile configurations. The Clean Air Products design advantage makes for easy installation and maintenance of all the CAP701 models. Air showers from Clean Air Products deliver maximum efficiency and value for your cleanroom and controlled environment.

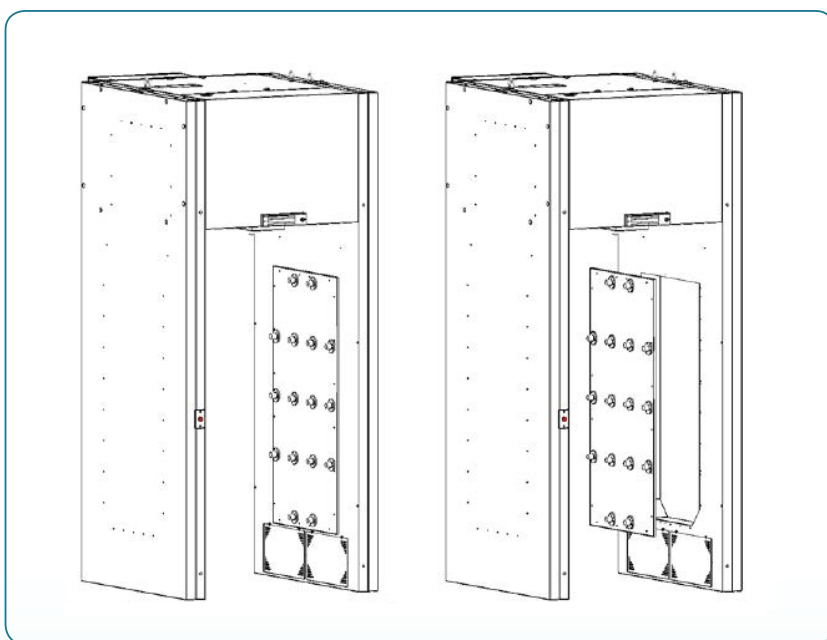
CONSTRUCTION

CAP701 Series air showers are constructed of all-metal, smooth-painted steel shells (no wood or plastic laminate). CAP701 air showers are 16-gauge painted steel shells with a heavy-duty glass door and door closer. Stainless steel is an option. The shell and concealed air ducts (with inspection panels) are finished with a powder-coat paint that provides a strong, durable cleanroom-compatible finish.

The all-steel shell design withstands the rigors of shipping, installation and use (and sometimes abuse) of the busiest cleanrooms. While a metal air shower may dent or scratch, it is superior to laminated particle board air showers, which are susceptible to shipping damage, joint separation, deterioration or delamination of the particle board. The steel construction of the CAP701 Series air shower reduces the chances of biological growth and contamination caused by systems using laminated particle board in the construction.

Inspection panels for high pressure supply ducts

CAP701 Series air showers feature removable interior nozzle wall panels that allow for easy inspection of the high pressure supply ducts. In the unlikely event that high pressure ducts should become contaminated, they can be easily cleaned, bringing the air shower back to its original performance level and ensuring a long and useful service life.



Microprocessor controller

An adjustable microprocessor controller allows easy “on-site” adjustment of the cleaning cycle time and other critical process controls.

Touchscreen controller

A touchscreen LCD panel, mounted on the inner side wall of the air shower, changes system parameters and the display status, including a cleaning cycle countdown timer.

Additional features:

- Adjustable microprocessor settings
- Cleaning time sequence control with adjustable cleaning and wait time
- Eight programs, including a countdown timer to cue personnel when to exit the air shower, VFD option (soft start, high and low) and direction reversing toggle switch
- Diagnostic features
- Security code (to limit access to programming)

Main electrical control box

The main electrical control panel is mounted above one door on the exterior of the air shower cabinet. It contains the microprocessor controller, starter, thermal overloads, fuses, relays, lockable disconnect power shutoff and other electrical components.

The standard electrical box measures 8.25 feet above the floor (to underside of the box), allowing it to install above a standard 8-foot drop ceiling. Alternate locations for the main electrical control box include a lower height (to fit below a 9-foot drop ceiling), mounting on the top or the side of the air shower, or remote mounting.

Electrical supply

The electrical supply for the CAP701 is a 208 V 60 Hz, three-phase, four-wire, 13.6 FLA per blower section.

Variations:

- 480 V, 60 Hz, three-phase, four-wire, 6.6 FLA per blower unit
- Export voltages are available (consult option sheet)
- Remote mount lockable fuse disconnect
- Hazardous location (consult factory for details)

Doors

The doors have heavy-duty aluminum frames with a full-clear safety glass viewing panel. The door assembly has an elegant, clear, anodized finish on both the door and door frame. Each door is furnished with heavy-duty door hinges and a door closer.

Variations:

- Double doors
- Power opener
- Power sliding doors
- Stainless steel
- Painted steel
- High speed roll-up
- Viewing window material and colors
- Thresholds and door sweeps



Most air showers use the existing floor without a threshold and no door sweep. The space under the doors allows a small amount of air to flow out of the cleanroom through the air shower. Thresholds, fixed door sweeps or automatic door bottoms can be added as required.

Filters

HEPA: A standard-size 24 in. x 24 in. x 12 in. deep HEPA wood-framed filter with gasket with a 99.99% efficiency DOP test rating on 0.3 micron particles.

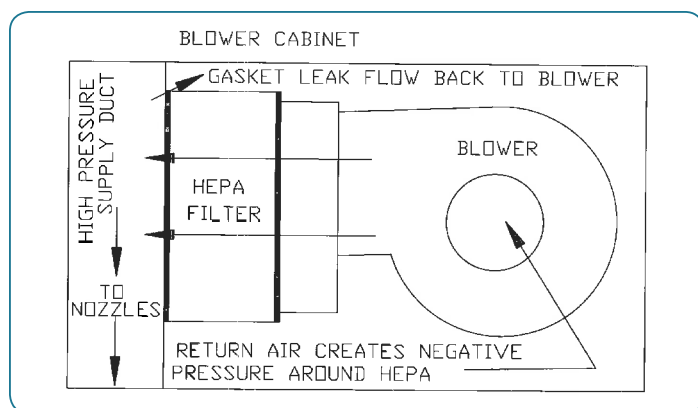
Prefilters: Standard-size 10 in. x 20 in. high-efficiency MERV 8 pleated prefilters are located on the lower interior side walls of the air shower behind a hinged perforated grill to allow easy service access.

Variations:

- Metal-framed HEPA filter

Zero leak, negative pressure reliability seal on HEPA filter gasket

Because of the very high pressure on the HEPA filter, gasket leaks can cause contamination to enter the clean air stream. The CAP701 solves this problem by sealing the HEPA filter with both an upstream and downstream gasket. The supply blower is ducted directly to the upstream side of the HEPA filter, creating a negative pressure area around the HEPA filter and its high-pressure gaskets. In the event a gasket would leak, the leak would flow back to the blower and not contaminate the clean airstream. This makes replacing the HEPA filter easy and eliminates the “gasket leak problems” on other systems.



Magnehelic pressure gauges

Magnehelic air pressure gauges sense the differential pressure across the HEPA filter and/or prefilter and indicate when the filters need servicing. A gauge can also measure the air pressure supplying the nozzles. Lower pressure may indicate a problem with the nozzle velocity, typically caused by a dirty HEPA filter or prefilter.

Options:

HEPA filter, prefilter or nozzle pressure sensing

Blower/motor

The blower wheel is an energy-efficient backward-curved aluminum airfoil. It is direct-drive mounted to an energy-efficient 5 HP, three-phase motor with sealed ball bearings for low maintenance and long life. The complete assembly is vibration-isolated from the rest of the air shower. The blower assembly is mounted in a blower cabinet and is serviced through an access panel on the interior of the air shower.

Variations:

- Hazardous location motor (consult factory for details)

Sprinkler sleeve

An internal sprinkler sleeve allows the sprinkler pipe and head to be easily installed on site.

Flooring

For standard installation, CAP701 Series air showers use the existing building floor.

Variations:

- Raised floor design
- Thresholds

Air flow capacity

A powerful 3-phase 5HP blower motor provides approximately 1900 CFM at 7800 LFPM (CAP701KD-ST). This high air flow volume (power), combined with the high nozzle velocity (force), quickly and efficiently cleans personnel inside the air shower.

After cleaning, the air recirculates to the high-pressure blower, where it passes through a prefilter, then a HEPA filter, and is then ducted back to the adjustable high-velocity cleaning nozzles.

Air nozzles

Each standard air shower includes 34 adjustable, clear, anodized aluminum nozzles, 16 per side (2 nozzles in the ceiling), providing a uniform concentration of airflow for fast, effective cleaning.

Variations:

- Fixed nozzles, aluminum or stainless steel
- Custom nozzle patterns



Silicone-free, urethane caulk

Many applications dislike silicone because it affects their operations. However, some industries prefer silicone caulk over urethane. Silicone caulk is listed as an upgrade on approval drawings, quotes and acknowledgments.

Door interlocks

Magnetic door interlocks are the most common option chosen for air showers. A low-voltage magnetic door interlock prevents both doors from being opened at the same time. EPO "emergency power off" buttons, located on the interior and both ends, disconnect power to the interlock magnets, allowing both doors to be opened at the same time. An alarm warning sounds when the EPO is activated and is reset by a keyed switch inside the air shower.

Air shower sequence (with interlock magnets)

As the gown room door (Door A) opens, the opposite door (cleanroom Door B) magnetically locks and personnel enter the air shower. Door A shuts, both doors lock and the cleaning cycle begins. At the end of the cleaning cycle, Door B unlocks and personnel exit the air shower into the cleanroom. Door A remains locked until Door B closes, at which time both doors unlock. When personnel leave the cleanroom and enter the air shower, the sequence is reversed except the air shower does not go through a cleaning cycle. Units without interlock magnets would need either a manual wall-mounted start switch or motion sensor start.

Variations:

- Program modification for two-way cleaning into and out of cleanroom
- Presence sensor to monitor when someone is inside the air shower
- Card reader interface. Entrance door locked all the time, unlocks after card reader swiped
- Fire alarm connection. When a fire alarm sounds, the EPO is activated, deactivating (unlocking) the interlock magnets



LED interior lighting

Interior long-lasting and energy-efficient LED lighting automatically turns off when the air shower is not in use.

Cleaning cycle light indicator sequence

The interior LED ceiling light indicates when it is "OK" to enter and exit the air shower (this is in addition to the touchscreen display). Personnel enter the air shower only when the light is off. As the door opens, the interior light comes on, indicating the air shower is in use. When the door closes, the air shower cleaning blower starts. When the cleaning cycle is complete, the light flickers, cuing personnel to exit the air shower. When the air shower is empty and the cleanroom door is closed, the light goes off, indicating the air shower is ready for others to enter the air shower.

Variations:

- Custom sequence programming
- Presence sensor to monitor when someone is inside the air shower

THE CAP701 SERIES MOST POPULAR CONFIGURATION

The CAP701KD is the most versatile model of air shower available. Here are its MOST POPULAR features and options:

- **Door interlocks**
- **Magnehelic gauges**
- **480 V 60 Hz, three-phase, four-wire 6.0 FLA**
- **Ionization**
- **Electrical box mounted at an alternate location**
- **Stainless steel cabinet**
- **Fixed nozzles**
- **Raised-grate floor air return**
- **72" (length) size unit**
- **Several units combined into a tunnel**
- **Fire alarm connection (unlocks the doors)**
- **Card reader (keeps doors locked at all times)**

Ionization

Static charge on cleanroom garments can cause particles to stick and be harder to remove. The high-velocity air moves the particles, but some may not blow off. Adding ionization to selected nozzles will neutralize static charges on garments, which allows the high-velocity airflow to more efficiently remove particles from them. The ionization “points” are installed within the high pressure wall and are serviced by removing the side wall nozzle access panel.

Raised-grated floor air return

A raised floor enhances the performance of a CAP701 Series air shower, especially with high traffic or where critical cleaning is required. The units are sometimes installed into a pit so there is no “step up” to enter the air shower. The raised floor is a heavy-duty floor grate made of 1/8 in. x 1 in. vertical-mounted bars which run the length of the shower and are close enough for personnel to easily walk on. Dirt and contamination fall through the gaps between bars and are contained in the lower plenum and removed. Air circulates through prefilters located between the floor grate and plenum and then through the HEPA filter in the upper blower assembly.

Additional options:

- Prefilters located in the upper blower assembly
- Raised floor can be installed into the pit so that the air shower floor is flush with existing floor

Presence sensor

When several people enter and exit the air shower at the same time, a presence sensor can be beneficial to speed throughput and to ensure everyone is always cleaned prior to entering the cleanroom. The air shower will run the cleaning cycle anytime the dirty side (gowning room side) door shuts, *and* it detects someone inside the air shower. A situation could occur if someone does not follow the “OK to enter” indicator light sequence and enters the air shower at the same time someone leaves the air shower. This eliminates any possibility of someone bypassing the cleaning cycle prior to entering the cleanroom.

Variable frequency drive, nozzle air purge

With variable-frequency drive, the blower runs at a low speed when not in the high-velocity cleaning cycle. This constantly moving air keeps the interior of the air shower cleaner by constantly filtering the air.

Air shower tunnels with a motion sensor start (no entrance door) often have a VFD drive installed in the first few sections, allowing the blower to run at a low speed when not in the cleaning mode. This keeps the non-door end of the air shower clean and also helps those sections to ramp up to full speed faster as someone walks up to the air shower for cleaning.

SPECIAL OPTIONS FOR INDUSTRY

The configuration flexibility of CAP701 air showers makes them ideal for the specific needs of a variety of industries, including:

Pharmaceutical package

The CAP701KD-ST model has a special set of options specifically for pharmaceuticals and applications in which microbial contamination and ease of cleaning are concerns.

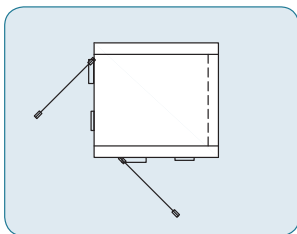
Food-grade package

The CAP701KD-ST model has a special set of options specifically for the food industry and its specific requirements.



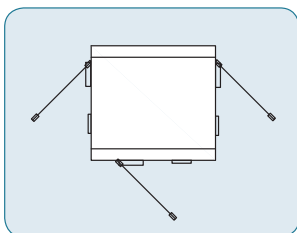
90-degree configuration

CAP701 air showers can be provided with the doors in a 90-degree left-hand or right-hand configuration for those applications in which straight-in air showers do not fit the available space.



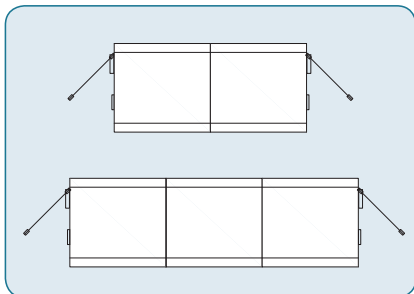
Three-door air showers

CAP701 air showers with three doors are used for left-hand or right-hand entrance or exit configurations. The typical configuration is one entrance door and two doors exiting to two different cleanrooms.



Multiple-units tunnel

Two or more CAP701 air showers can be combined to form a longer unit. Adding sections allows for additional capacity while maintaining efficient nozzle placement.



Tunnels are commonly used for “continuous flow” cleaning. Both 90-degree and straight-through air showers can be combined to form the tunnel configuration.

Tunnels with a motion sensor start are often used when several people must be cleaned in a short period of time and in a continuous flow, such as at the beginning of a shift. The cleaning cycle starts as the person approaches the air shower. The air shower will continue to run while people are passing through and shuts off after no people are detected.

Options:

- Motion start switch
- VFD drives (see VFD drive section)

Floor-mount cart/parts-cleaning air showers

Parts-cleaning air showers are available in a variety of sizes, shapes and configurations. Floor-mounted air showers are used for carts, conveyors, pallets and continuous-part operation. This style of air shower can use swing doors, vertical-sliding, horizontal-sliding or no doors.

Options:

- Rub rails
- Door styles

Wall-mounted air showers

These are similar to the parts-cleaning air showers, but smaller and mounted off the floor.

Low-profile air shower

The overall assembled height of the low-profile CAP701LP air shower is 95 inches. The unit’s blower assembly, HEPA filter and electrical components are mounted on the side, allowing the unit to fit under a lower ceiling. It can be assembled in a space only 96 in. high. The unit is shipped disassembled in parts that fit through a standard 3 ft. x 7 ft. doorway. It is often used for retrofits where ceilings can’t be penetrated to fit the air shower, or when overhead obstruction limits space. Consult the factory for details.

ADA compliance

CAP701 Series ADA compliant models are sized so that an individual in a wheelchair can turn around inside the air shower. Straight-through and 90-degree left-hand and right-hand models are available. See the CAP701-7172-ADA drawing for sizes and details. Consult your local code officials about your specific application.

Options:

- Power door openers

Decontamination air showers

See spec sheets for air showers used to remove large quantities of dust or materials from powder paint, grinding ducts and flour. Removing heavy metal hazardous contamination from garments requires a different air shower system. Please consult the factory for details.

Ceiling air purge

This is used for applications in which air contained in the air shower must be purged prior to opening the air shower exit door. Purged units are taller than standard units and do not fit through a 3 ft. x 7 ft. doorway. See the CAP701CP data sheet or consult the factory.

CAP701 Series air showers are shipped partially disassembled on a skid. All ducts, openings and nozzles are protectively sealed to prevent contamination. Separate parts include the upper blower section, two sides and two doors. These “knocked down” parts are sized to fit through a standard 3 ft. x 7 ft. doorway.

To assemble the air shower, the blower section is raised into position. The two side-wall sections are then bolted from the outside onto the upper blower housing and doors are attached. At this point, the assembly is self-supporting. The assembly takes two people approximately two hours to complete with proper installation equipment. It is possible to assemble the air shower from inside the air shower. Contact the factory about this optional design, and for more assembly and installation information.

Options:

- Shipped fully assembled; simply stand the air shower up. Swivel-lifting eyes provided. See fully assembled option sheet.
- Assemble completely from inside air shower. Some applications have little available room to assemble the air shower from the outside. See interior assembly option sheet.



Interior service panels for all maintenance

All motor, blower, nozzle and electrical parts of CAP701 Series air showers are accessed through interior service panels, providing the ultimate flexibility for installation and operation of your air shower. There are no worries about ducts, pipes, sprinkler lines, wall posts or other obstructions blocking the air shower's exterior ducts or service access panels. CAP701 Series air showers can be installed through the cleanroom ceiling and the grid system can be attached to the sides of the air shower. Consult factory with special maintenance requirements.

LEARN MORE

Clean Air Products designs the CAP701 Series air showers for optimal performance, customization, configuration and maintenance. For more information on CAP701 Series air showers including CAD drawings, RFQs, purchase specifications, exploded views and options, visit:

www.cleanairproducts.com/product-category/air-showers

www.cleanairproducts.com

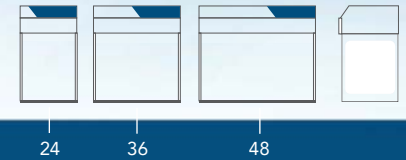
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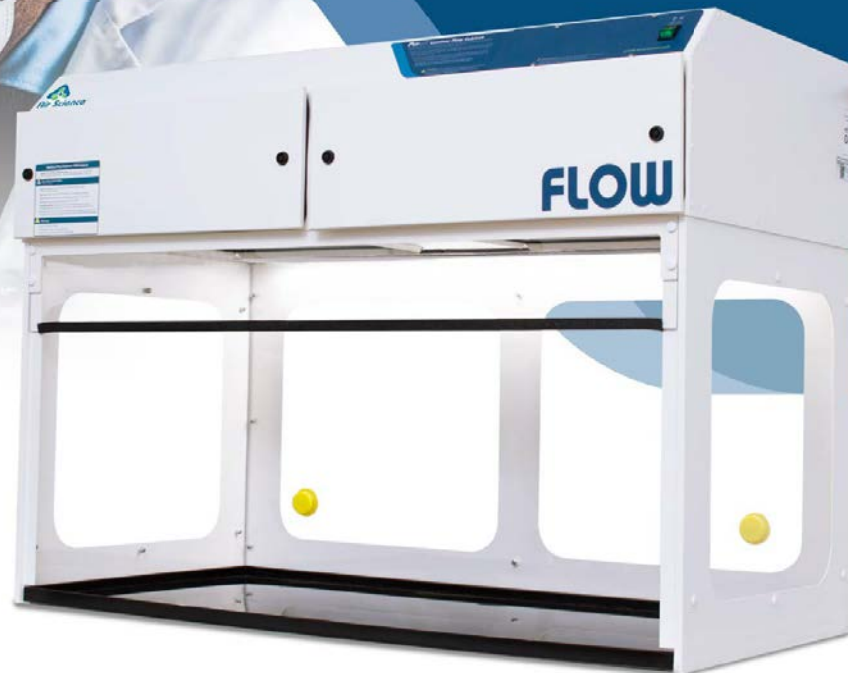
Laminar Flow Hoods





Laminar Flow Cabinets

- Simple, Effective Protection for Samples and Work Processes
- Uncompromised Performance, Economical Price



115 watt¹ Purair FLOW-48.



37–115 watt¹

The single EC blower motor assures lower cost of ownership in one of the world's most energy efficient laminar flow cabinets.

CONTENTS:

- Product Overview (p.2)
- Design Features (p.3)
- Performance & Selection (p.4)
- Containment & Filtration (p.5)
- Specifications (p.6)
- Options & Accessories (p.8)

FLOW

Laminar Flow Cabinets

24 • 36 • 48

PRODUCT OVERVIEW

2

Get a Quote. 

INTRODUCTION

Purair® FLOW Series laminar flow cabinets are designed to protect the interior work zone from particulate contamination.

The Purair FLOW Series product line employs the Air Science exclusive [Multiplex™ HEPA Filtration](#) technology to sustain a contamination-free environment.

HEPA filtered air passes uniformly through the cabinet interior via vertical laminar flow. The airflow is oriented to prevent introduction of airborne particulates during normal use.



37–115 watt¹

The single EC blower motor assures lower cost of ownership in one of the world's most energy efficient laminar flow cabinets.

APPLICATIONS

Vertical laminar flow cabinets are intended for use in non-hazardous applications where user protection from biologicals or biohazardous byproducts is not required.

Mycology and Food Microbiology \ Plant and Mammalian Cell Culture \ Clinical Pharmacies and Hospitals \ Cleanrooms \ Semiconductor Assembly \ Pharmaceutical Production \ Aerospace Contamination Control \ Medical Device Assembly \ General Research Protocols



KEY FEATURES

- Provides sterile work zone for aseptic techniques.
- Air cleanliness meets ISO Class 5.
- Energy saving LED lighting.
- Vertical laminar flow with HEPA filtration.
- Large front opening provides unrestricted access to the work zone.

FLOW SERIES

The Purair FLOW is designed to provide protection to the work surface from biological or particulate contamination. It is ideal for pharmacy compounding of non-toxic agents, assembly of finely tuned instrumentation, cell culture and other processes where protection of the user is not required but easy access to the work surface is important. ISO Class 5 air quality is maintained through a downward laminar flow that provides gentle airflow throughout the cabinet. The clean, simple, low maintenance design offers a comfortable workstation for a range of applications and may be bench mounted or positioned on a mobile bench.



Purair FLOW-36 shown with optional spill tray and mobile cart.



Deep into its second generation, Air Science embraces the diversity and cultural heritage of the founders and co-workers who are continuing a tradition of excellence. Demonstrating a commitment to adaptation, inclusion and quality output from a United States-based company with a domestic and global reach.

Air Science® USA LLC \ 120 6th Street, Fort Myers, FL 33907
T. 239-489-0024 \ airscience.com

Air Science® Technologies Ltd. \ United Kingdom
T. 0151 526 2457 \ airscience.com/UK

Specifications are subject to change without notice or obligation on the part of Air Science. For questions contact Air Science.

¹) Energy consumption disclosure is based on internal testing with primary filters during normal operation.
Power consumption published is nominal and dependent on cabinet size.

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FLOW

Laminar Flow Cabinets

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DESIGN FEATURES

3

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DESIGN FEATURES

- A. Control Panel:** The control panel includes an On/Off switch for simple operation.
- B. Main Filter:** HEPA filter with 99.97% efficiency for 0.3 micron particulates (ULPA optional).
- C. Pre-Filter:** Disposable polyester fiber pre-filter with 85% arrestance.
- D. Blower Motor:** Centrifugal fan.
- E. Stand:** Optional base stand converts to mobile cart with optional locking casters.
- F. Lighting:** Compact LED cabinet lamp located away from laminar flow area.
- G. Pass Through Ports:** Convenient rear-wall pass through ports for safe routing of instrument cords, cables, and leads.
- H. Filter Door Lock:** Prevents unauthorized removal or accidental exposure to saturated filters.
- I. Filter Clamp:** Wide knob filter clamps are conveniently located forward of the assembly. The clamps secure the filter to the plenum with even pressure to assure a tight seal and to simplify filter removal and replacement when required.
- J. Work Surface:** Optional polypropylene spill tray, available in white or black, or optional stainless steel spill tray available.

ADDITIONAL FEATURES

360 Degree Visibility: Clear back and side panels allow ambient illumination into the chamber and provide users with an unobstructed view of its contents.

Construction: All models are available in 120V, 60Hz or 230V, 50Hz models.

Purair FLOW-36, shown with optional spill tray and mobile cart.

Air Science® USA LLC \ 120 6th Street, Fort Myers, FL 33907
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FLOW

Laminar Flow Cabinets

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PERFORMANCE & SELECTION

4

Get a Quote. 

Air Science FLOW cabinets are expertly designed to meet specific applications and certified for quality construction. Standard features, options and accessories are developed purposefully to enhance user-friendliness.

PERFORMANCE

The [Air Science Multiplex filter](#) offers a range of options for high performance protection.

Multiplex filter configuration permits a customized combination of filter media for a broad range of chemical families and biological agents if required.

Purair FLOW cabinets maintain an average airflow velocity of 0.30 m/s (60 fpm) at initial setpoint, measured 6" (150 mm) from the filter face.

The HEPA filters are easy to replace; no tools required.

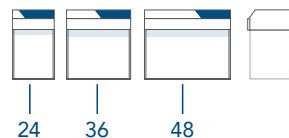
DESIGN

Professional quality Air Science cabinets comply with current technical and safety regulations.

The cabinet frame and work surfaces, comprised of industrial components, are durable and chemically resistant with a microbial powder finish coating.

The Air Science filter assembly is easy to access, easy to change, plus a unique filter clamping design eliminates bypass leakage of the main filter.

Stackable sections make cabinets highly portable and enable quick setup.



SELECTION

Purair FLOW cabinets are available in three model sizes with various options. Designed for desktop use, or for installation on an optional base stand or mobile cart.

RELIABILITY

Purair FLOW cabinets incorporate energy-efficient centrifugal blowers for maximum operational savings, low noise and minimal vibration.

Air Science uses long-life HEPA filters without aluminum separators to increase filter efficiency, minimize the potential for leakage and increase filter life.

CONTROL

The **basic control panel** features an On/Off switch for simple operation of the blower and light.



Energy-efficient blowers promote long life and dependable performance of Purair FLOW work stations.



Purair FLOW-24.



Basic Control Panel

CONTENTS:

- Product Overview (p.2)
- Design Features (p.3)
- Performance & Selection (p.4)
- Containment & Filtration (p.5)
- Specifications (p.6)
- Options & Accessories (p.8)

FLOW

Laminar Flow Cabinets

24 • 36 • 48

CONTAINMENT & FILTRATION

5

Get a Quote. 

multipleX  

FILTRATION

At the heart of the Purair product line is innovative filtration technology. **The Multiplex Filtration System** consists of a pre-filter and main filter. The mechanical design enhances safety, convenience and overall value.

- The disposable pre-filter is accessible from the exterior top of the cabinet.
- A filter clamping mechanism allows for the filter to be easily installed and ensures an even seal at the filter peripheral face at all times to prevent bypass leakage.
- The filter chamber prevents contaminated air from contacting internal cabinet mechanisms.



SECUR.
safe disposal service



Filter disposal services are available in selected markets providing responsible destruction or recycling of used saturated filters in authorized facilities.

AIRFLOW

Room air enters from the top of the cabinet through the disposable pre-filter where larger particles are trapped, increasing the service life of the main HEPA filter.

Air is forced evenly across the HEPA filter to deliver a flow of pure air within the work zone to dilute and flush airborne contaminants from the work area. An average airflow velocity of 0.30 m/s (60 fpm) at initial setpoint ensures that there is a sufficient number of air changes within the work zone to eliminate cross contamination and to maintain optimum cleanliness.

Purified air travels across the work zone to the work surface in a vertical downflow stream and then exits the work zone across the open cabinet front.

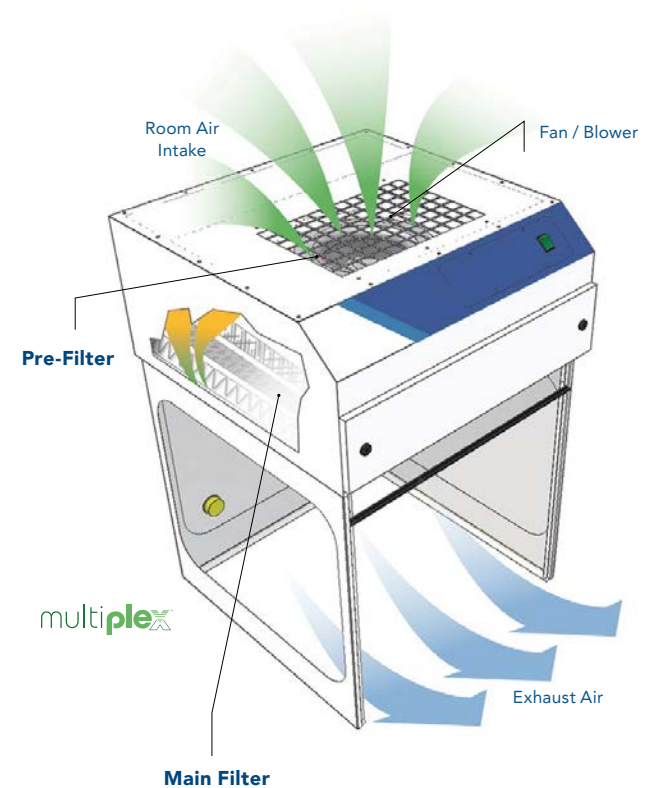
FILTER CONFIGURATION

P.  **The pre-filter** may be replaced while unit is in operation.

H. **The main filter** is easy to replace; no tools required. The filter clamps tightly against the filter gasket to prevent filter bypass and to maintain filter integrity.

MULTIPLEX FILTRATION SYSTEM, SUMMARY

Pre-Filter	P	Disposable polyester fibers with 85% arrestance.
Main Filter	H	A self-contained filter designed to physically capture particles larger than 0.3 microns (HEPA) or 0.12 microns (ULPA).



Through our partner company [Filtco Filters](#), Air Science is a single source supplier of all pre-filters, carbon filters and HEPA/ULPA filters used in our products.

Specifications are subject to change without notice or obligation on the part of Air Science. For questions contact Air Science.

Air Science® USA LLC \ 120 6th Street, Fort Myers, FL 33907
T. 239-489-0024 \ airscience.com

Air Science® Technologies Ltd. \ United Kingdom
T. 0151 526 2457 \ airscience.com/UK

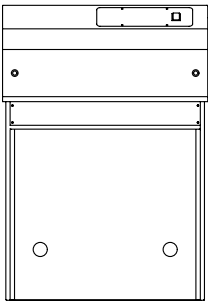
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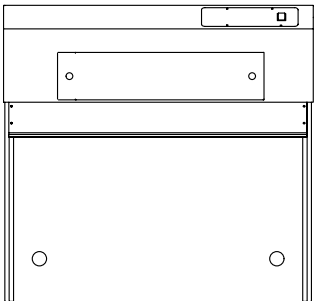
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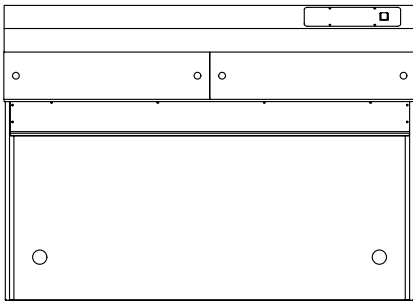
Purair FLOW-24



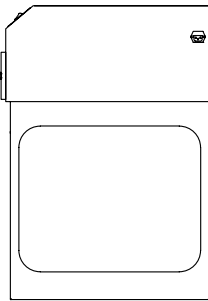
Purair FLOW-36



Purair FLOW-48



Side View



MODEL	VOLTAGE	DIMENSIONS					WEIGHT (LBS/KG)	
		Nominal Width	Internal Height	Internal Depth	External (W x D x H)	Shipping (W x D x H)	Net	Ship
FLOW-24-A	120V, 60Hz	24" / 610 mm	23.29" / 591.5 mm	22.5" / 571 mm	24" x 24" x 35" / 610 x 610 x 889 mm	40" x 40" x 45" / 1016 x 1016 x 1143 mm	72 / 33	150 / 68
FLOW-24-G	230V, 50Hz	24" / 610 mm	23.29" / 591.5 mm	22.5" / 571 mm	24" x 24" x 35" / 610 x 610 x 889 mm	40" x 40" x 45" / 1016 x 1016 x 1143 mm	72 / 33	150 / 68
FLOW-36-A	120V, 60Hz	36" / 914 mm	23.29" / 591.5 mm	22.5" / 571 mm	36" x 24" x 35" / 914 x 610 x 889 mm	48" x 40" x 45" / 1219 x 1016 x 1143 mm	99 / 45	175 / 79
FLOW-36-G	230V, 50Hz	36" / 914 mm	23.29" / 591.5 mm	22.5" / 571 mm	36" x 24" x 35" / 914 x 610 x 889 mm	48" x 40" x 45" / 1219 x 1016 x 1143 mm	99 / 45	175 / 79
FLOW-48-A	120V, 60Hz	48" / 1219 mm	23.29" / 591.5 mm	22.5" / 571 mm	48" x 24" x 35" / 1219 x 610 x 889 mm	60" x 40" x 45" / 1524 x 1016 x 1143 mm	138 / 63	225 / 102
FLOW-48-G	230V, 50Hz	48" / 1219 mm	23.29" / 591.5 mm	22.5" / 571 mm	48" x 24" x 35" / 1219 x 610 x 889 mm	60" x 40" x 45" / 1524 x 1016 x 1143 mm	138 / 63	225 / 102

"A" — 120V, 60Hz
"G" — 230V, 50Hz

EdgeGARD®

Where comfort meets
dependability



 Baker



EdgeGARD® Clean Benches are high performance, industry leading equipment

EDGE GARD® E3 HF



Our high-performance laboratory equipment is built with you in mind, with industry-leading ergonomics, energy-efficient engineering, and the lowest life cycle costs available. Baker products help you work more comfortably, boost productivity, save money and minimize environmental impact.

Compare our clean bench models

EDGE GARD® E3 HF

Horizontal-Flow Clean Bench 3', 4', 5', 6' and 8' Models

The EdgeGARD® e3 HF horizontal-flow clean bench ensures product protection for a variety of life science and industrial laboratory and process applications where product protection is essential.

EDGE GARD® VF

Vertical-Flow Recirculating Clean Bench 4', 5' and 6' Models

The EdgeGARD® VF is a vertical-flow recirculating air clean bench that provides protection for samples and work procedures where product protection and particulate control are required.

EDGE GARD® VF



Baker builds it better

As the pioneer and leading innovator of air containment, contamination control and precision cell culture products, Baker doesn't take shortcuts when it comes to protecting you or your research.

RESEARCH APPLICATIONS

- Pharmaceutical Compounding
- Cell Biology & Biomedical Research
- Clinical / Diagnostic Testing
- Plant Tissue Culture
- Animal Science and Research



PRODUCT OVERVIEW

- Baker's exclusive technology maximizes product protection and helps meet up to ISO Class 4 (Class 10) air cleanliness requirements.
- High-performance airflow system provides uniform airflow to the work surface, extends filter life and minimizes maintenance costs.
- HEPA supply filter with 99.99% minimum efficiency in capturing 0.3 micrometer particulates.
- Spacious, easily accessible work areas accommodate multiple users and a variety of applications and instrumentation.
- Ergonomic design increases user comfort and productivity.
- Industry's most reliable clean bench means lower life-cycle costs and years of trouble-free operation.

EdgeGARD® e3 HF

Horizontal-Flow Clean Bench
3', 4', 5', 6' and 8' Models

With a brightly illuminated, spacious work area and unique high-velocity air return slots, the EdgeGARD® e3 HF offers superior user comfort, product protection and productivity.

Equipped with a HEPA supply air filter and redesigned diffuser, the increased laminar airflow provides a greater workable area and a particulate-free work surface.

The patented cabinet design of the EdgeGARD® e3 HF provides precise control of airflow volumes and velocities, thereby maximizing product protection and ensuring up to ISO Class 4 (Class 10) cleanliness in the work area.



ENHANCED ERGONOMICS AND USER EXPERIENCE

- Standard adjustable height stand allows for work surface height range of 27 1/2" to 41 3/8".
- Work area depth of 20 5/16" and height of 34" provides ample space for safe, efficient operation.
- Satin finish work surface diminishes harsh light reflection.
- Each EdgeGARD® e3 HF clean bench includes LED for less eye strain, and greater energy efficiency.
- Vertical touchpad placement for increased accessibility.
- Slanted 10% façade allows operator more comfortable head and elbow position and reduces fatigue.

BAKER BUILDS IT BETTER

- Designed for a variety of non-hazardous industries and applications, such as IV admixture preparation, drug compounding, plant cell culture, media preparation, pharmaceutical procedures, electronic assembly and limited experimental research.
- High-velocity return air slots maximize cleanliness and product protection by precisely controlling airflow volumes and velocities.
- Diffuser provides unidirectional airflow across the workspace.
- Exclusive StediFLOW® VFD motor controller improves performance, extends filter life and reduces operating costs and downtime by regulating and controlling airflow more efficiently.
- Performance-enhancing design features corrosion-resistant stainless-steel interior, and a powder-coat protected cold-rolled steel exterior.
- Spacious, easily accessible work areas accommodate multiple users and a variety of applications and instrumentation.
- Flexible electrical and plumbing connection options adapt EdgeGARD® e3 HF to your lab.



**IV-22 SPACE
SAVER MODEL
AVAILABLE**

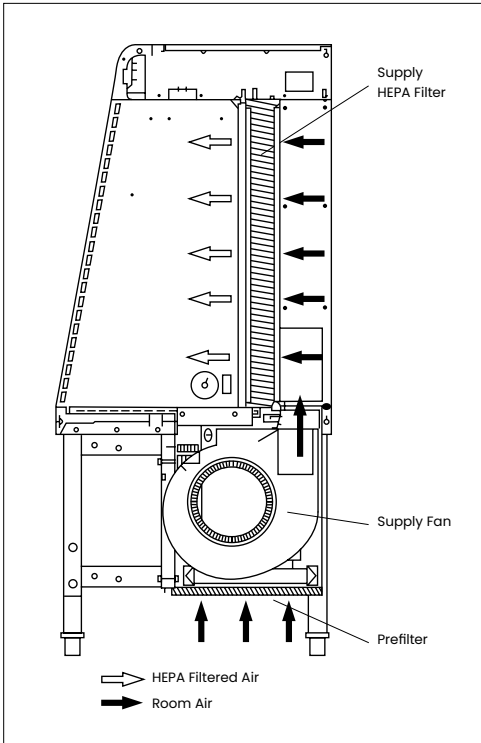
For applications where space is at a premium, such as land nursing stations, satellite pharmacies, intensive care units and other small volume clinical or industrial situations.

**INDUSTRY LEADING SERVICE,
MAINTENANCE, AND EASE OF USE**

- Front access to HEPA filters for quick and easy replacement.
- New removable worksurface for increased sterility and easy cleaning.
- Exterior GFCI duplex outlet accommodates most commonly used instruments and equipment.
- Optional wide-tread casters provide stable mobility when needed.
- Washable, reusable Scott Foam® pre-filter extends HEPA filter life.

OPTIONS AND ACCESSORIES

- Stainless Steel IV Bar
- Digital Pressure Gauge
- Plastic Storage Bins
- Hydraulic Lift
- Pull Bars
- Seismic Restraints
- Ergotron Arm for Monitor/Keyboard



A FULLY INTEGRATED PHARMACY COMPOUNDING VALIDATION SOFTWARE PACKAGE

To optimize the validation and documentation of sterile compounding procedures, Baker integrates with a variety of IV workflow management systems as well as Pharmacy Verification Software.

- Built-in Fully Integrated IV Prep Software keeps the compounding environment clean with no wires or devices within the hood. Compounding space is not altered.
- Uses a powerful 5 megapixel imaging system that closely focuses in on the names, numbers, labels, color and other details of drugs and syringes.
- Includes image recognition and barcode scanning features.
- Storage and retrieval image system allows documentation of the compounding process for quality purposes.
- Easily accessed from desktops, laptops, tablets, and mobile devices.
- Compounding status dashboard is automatically updated.
- Scalable and modular system is flexible and adaptable to the customer environment.

Vertical,
uni-directional and
controlled airflow



EdgeGARD® VF

Vertical-Flow Recirculating Clean Bench
4', 5' and 6' Models

Unlike conventional horizontal-flow clean benches, the EdgeGARD® VF provides vertical, uni-directional and controlled airflow over the entire work surface, while reducing energy consumption, noise and airflow turbulence.

Recognized as the industry's most reliable clean bench, this extension of Baker's EdgeGARD® brand provides lower life-cycle costs and years of trouble-free operation.

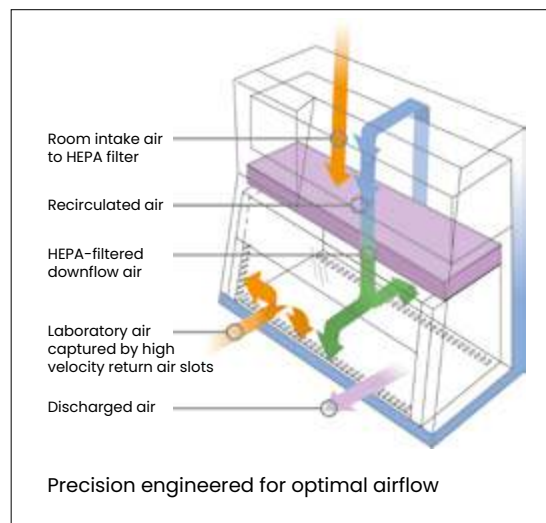
COMFORTABLE USER EXPERIENCE

- Slanted 10° viewscreen for operator comfort and direct line-of-sight viewing.
- Low noise level improves operator comfort and reduces effect of ambient noise in the lab.
- Provides ISO Class 4 (Class 10) protection by delivering HEPA-filtered air to the work surface.
- Well-lit workspace reduces eyestrain.



BAKER BUILDS IT BETTER

- Microbiologically challenged for product protection in accordance with NSF International 49.
- Exclusive high-velocity momentum air curtain to help ensure product protection without restricting access.
- One-piece stainless steel work surface helps prevent surface contamination.
- Designed for serviceability – includes access panels for all electrical components, while the primary HEPA supply filter is removed through the front plenum area.
- An additional pre-filter (only available on the AGVF models) below work surface helps capture large particles and prolongs HEPA filter life.



VERSATILE AND PRODUCTIVE

- 14" high access opening accommodates a variety of application and instrument needs, and offers a wide work area for multiple users. 20" and 24½" options are available.
- Fits through standard doorways and down laboratory aisles.
- Easy to move and maneuver when configured with mobile stand, casters and pull bars.
- Hinged viewscreen opens to 303/8" allowing access to work area.

Available as a benchtop model or on a channel stand (with or without casters).

OPTIONS AND ACCESSORIES

- Comes standard with one Petcock on the right side (with options for more on either side).
- Stationary stand with adjustable foot.
- Optional wide-tread, stainless steel casters, 5" diameter x 1", with brakes.



Technical Specifications – EdgeGARD® e3 HF

Console Models

Model Number	EG301	EG401	EG501	EG601	EG801
Exterior Dimensions					
Nominal Size	3'	4'	5'	6'	8'
Exterior Footprint (<i>w x d</i>)	41 x 30 1/2"	53 x 30 1/2"	65 x 30 1/2"	77 x 30 1/2"	100 x 30 1/2"
Min Height (<i>w/telescoping legs and leveling feet</i>)	70"				
Max Height (<i>w/telescoping legs and leveling feet</i>)	81.5"				N/A
Interior Dimensions					
Interior Footprint (<i>w x d</i>)	35 x 20 5/16"	47 x 20 5/16"	59 x 20 5/16"	71 x 20 5/16"	95 x 20 5/16"
Height (<i>h</i>)	34"				
Weights					
Cabinet (<i>lbs., w/telescoping legs</i>)	425 Lbs.	460 Lbs.	509 Lbs.	665 Lbs.	835 Lbs.
Cabinet (<i>lbs., w/hydraulic lift</i>)	481 Lbs.	521 Lbs.	575 Lbs.	736 Lbs.	N/A
Performance					
Supply Volume (<i>at 90 FPM</i>)	744 CFM	999 CFM	1254 CFM	1509 CFM	2019 CFM
Lighting	Minimum 100 ft candles average at work surface				
Electrical					
Normal Operating Amperage (<i>115v</i>)	2.7A	3.9A	6.8A	5.6A	10.3A
Power Cord	One 20' (6m) power cord with 20A type NEMA 5-20P				
Service Requirement	115 V AC, 20A, 60 Hz, 1Ø, 16A maximum useable current				

IV-22 Space Saver Model

Model Number	EGBIV22
Electrical	115V, AC
Amps	11.2
Required Breaker	15 amps
Net Weight / Ship Weight	200 / 325 lbs
Filter Size	24" x 24" x 6"

Filtration System

- Supply filter, zero-probed HEPA filter, 99.99% efficient on all particles 0.3 micron by DOP test.
- Pre-filter, washable Scott Foam®.

Illumination

- Minimum 100 foot-candles average at worksurface.
- Space-Saver model, 75 foot-candles at work surface.

Technical Specifications – EdgeGARD® VF

Model Number	EGVF401	EGVF501	EGVF601
Size (nominal)	4'	5'	6'
Exterior Dimensions w/ Stationary Stand (w x d x h [min to max])	53½" x 32" x [891/16" – 979/16"]	65½" x 32" x [891/16" – 979/16"]	77½" x 32" x [891/16" – 979/16"]
Interior Dimensions (w x d x h)	46" x 251/8" x 31c"	58" x 251/8" x 3113/16"	70" x 251/8" x 3113/16"
Shipping Weight - Benchtop model - With channel stand	435 lbs. 507 lbs.	499 lbs. 576 lbs.	564 lbs. 646 lbs.
Access Opening (working position)	14"	14"	14"
Access Opening (loading/cleaning position)	303/8"	303/8"	303/8"
Electrical Requirements	115 V, AC	115 V, AC	115 V, AC
Amps / Breaker	16 / 20	16 / 20	16 / 20



General Specifications

- Interior workspace made from 16-gauge stainless steel.
- ISO Class 4 (Class 10)* air cleanliness in the workspace.
- 16-gauge cold-rolled steel exterior construction with white powder coated finish.
- HEPA filters with 99.99% minimum efficiency in capturing 0.3µm micron particles.
- Separate switches for blower and light; if blower is not on, light switch will not work.
- Washable pre-filter extends HEPA filter life.

Purchase Specifications

EdgeGARD® e3 HF Horizontal Flow Clean Bench

1. High-velocity return air slots to be located at the leading edges of work surface and side walls. Return air slots protect against backwash of dirty air entering the work area when items are placed within the air stream on the work surface.

2. Unit shall be all steel construction,18-gauge, cold-rolled steel, with a white powder coated finish, stainless steel work surface and stainless steel inner work area side walls.

3. Unit shall be provided with permanent Variable Frequency Drive motor which automatically compensates for increasing pressure drop across filter in excess of that which is required by existing standards.

4. Complete unit shall be listed as certified by Underwriters Laboratory (UL) for cULus electrical, fire and mechanical safety.

5. All joints and seams offering a possible path of contaminated air from outside to the inside of the work area shall be sealed.

6. Framing for the filter seal shall be of rigid aluminum construction and only the filter media shall be exposed to the work area opening, to eliminate picture frame effect.
7. Unit shall have washable, reusable Scott Foam® pre-filters.

8. The unit manufacturer must be able to provide evidence that this unit has been tested by an independent laboratory or research organization.

9. Speed controller shall automatically compensate for voltage change to maintain constant voltage to motor while allowing for manual adjustments during filter loading.

10. Unit shall feature removable work surface and drain pan to prevent accidental spillage into HEPA filter area and allow for ease of cleanability.

11. The unit shall have standard HEPA filters for a protection effectiveness of 99.99% when filtering particles of 0.3 micron size.

12. A removable HEPA filter protective screen shall be provided.

13. Shall be provided with two externally mounted GFCI-protected duplex outlets with circuit breaker.

EdgeGARD® VF Vertical-Flow Recirculating Clean Bench

1. EdgeGARD® VF vertical-flow clean bench is available in 4', 5' and 6' work surface widths. Each unit shall be provided with a certified copy of the factory tests showing that filter leak checks, electrical tests, down flow velocities, smoke patterns, and airflow balancing have been performed. Tests to prove Class 10 (ISO Class 4) air cleanliness for 0.3µm particles for model design shall be available if requested.

2. Hinged view screens shall be constructed of ¼ inch shatterproof scratch and chemical resistant polycarbonate, with a maximum opening of 30" for equipment loading. To decrease glare and offer the best ergonomics, the view screen shall be mounted at a 10° angle from vertical.

3. Supply filters shall be front loading and meet the zero-probed HEPA 99.99% efficiency requirements on all particles 0.3 micron in size. System shall have washable pre-filters to extend HEPA filter life. Magnehelic pressure gauge(s) are provided to monitor filter loading and as a secondary means of monitoring mass airflow.

4. The cabinet body shall be double walled. The exterior walls shall be constructed of a single sheet of #16 gauge cold-rolled steel with a white powder coated finish. Internal side and back walls, as well as the work surface, shall be constructed of #16 gauge 304 stainless steel. The side wall and the back shall be of one-piece construction formed with radius 7/16" corners. Either a stainless steel air diffuser or filter protector is provided in the work area.
- Interior Dimensions:
a) EGVF401 – 46" L x 25 1/8" D x 31 13/16" H
b) EGVF501 – 58" L x 25 1/8" D x 31 13/16" H
c) EGVF601– 70" L x 25 1/8" D x 31 13/16" H

5. High-velocity return air slots shall be located at the leading edges of the work surface and side walls. Return air slots protect against the backwash of dirty air entering the work area when items are placed within the air stream on the work surface.

6. Cabinet shall have a momentum air curtain down flow velocity profile, which provides a higher airflow velocity of 100 FPM nominal behind the view screen relative to a down flow velocity of 50-65 FPM nominal over the work surface.
7. Cabinet shall have a welded, full perimeter drain pan with 7/16" radius corners for cleaning ability with a 1" drain valve to capture any cleaning liquids or spills.

8. Each cabinet work area shall be provided with an internally mounted GFCI duplex 120V outlet with drip-proof cover and circuit breaker (mounted on the left), fluorescent lighting providing 100 foot-candles of illumination at work surface and electronic ballasts. The cabinet shall have separate switches for the blower and the light; if the blower is off, the light switch shall not work.

9. The cabinet shall be capable of automatically handling a 40% minimum increase in pressure drop across the filter without reducing total air delivery by more than 10%. A manual speed controller shall be capable of handling a minimum 112% increase in pressure drop across the filter. Test data to verify these capabilities shall be provided upon request.

10. Cabinet design shall utilize a steel plenum provided to allow filters to be directly clamped to the plenum against a closed cell neoprene gasket. Plenum applies force to full perimeter of filters rather than point force. Service of the system shall be accessible from the front.

11. System shall be factory pre-wired and have a 17-foot external length power cord with 20 Amp plug (type NEMA 5-20P). System design shall have easy access to electrical panel

12. All system components shall be certified by Underwriters Laboratory (UL61010-1 2nd Edition) for electrical, fire and personal safety.

13. Noise levels should meet 67 dBA or lower to provide operator comfort and reduce effect of ambient noise in the laboratory.

14. System shall be capable of moving through a standard 80" high doorway.

15. Cabinet shall have permanently affixed label located directly above the viewing window that has the following phrase: "Do not use for biological, chemical or radiological work where hazardous materials are present."

16. The system shall be warranted for three (3) years, parts and labor.

Caution

A clean bench is not designed to protect personnel or the environment from potentially harmful agents. The adequacy of this product for the user's personal safety, as with any clean bench, should be determined by an industrial hygienist or safety officer. Site preparation information, architectural drawings, detailed dimensions and purchase specifications are available.

36 Month Warranty

The Baker Company, Inc., expressly represents and warrants all goods (a) to be as specified (and described) in The Baker Company catalogs and literature, and (b) to be free under normal use, service and testing (all as described in The Baker Company catalogs and literature) from defects in material and workmanship for a period of thirty-six months for units sold in the United States and twelve months for units sold internationally from the invoice date.

The exclusive remedy for any breach or violation of this warranty is as follows: The Baker Company, Inc., will F.O.B. Sanford, Maine, furnish without charge repairs to or replacement of the parts or equipment that proved defective in material or workmanship. No claim may be made for any incidental or consequential damages.

This warranty is expressly in lieu of all other warranties, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose unless otherwise agreed in writing signed by The Baker Company. (The Baker Company shall not be responsible for any improper use, installation, service or testing of the goods.)



EdgeGARD®

Where comfort meets *dependability*

bakerco.com

SafeGARD Solutions

SterilGARD® e3

Class II Type A2 Biosafety Cabinet. The most energy efficient, comfortable and safe A2 cabinet in the industry.

- 1. Multiple energy-saving features equals up to 60% increase in energy efficiency
- 2. Safest work environment with new StediFLOW™ self-adjusting motor technology
- 3. Most comfortable working environment available with reduced noise and vibration
- 4. 30% more filter life and less impact on the environment
- 5. More energy efficient and brighter lighting system for easier viewing and reduced eyestrain



IsoGARD®

Class III Glovebox. Designed to Handle Hazardous Microbiological Agents or Pharmaceutical Potent Compounds.

- 1. Pass-through and main chamber incorporate uniform unidirectional airflow to flush away any generated particles while bathing the work surface in HEPA-filtered air
- 2. Constructed with thick safety glass, solid closed-cell silicone gaskets and supplied with hypalon gloves
- 3. Stainless steel glove port design with one-piece sleeve-and-glove assembly allows gloves to be replaced or changed without breaking containment



AniGARD® e3

Animal Transfer Station. Confidence you can rely on.

- 1. Spacious, easily accessible work areas accommodate a variety of cage sizes and activities
- 2. Ergonomic design with efficient lighting increases user comfort and visibility
- 3. Designed for easy movement and maneuverability throughout the laboratory
- 4. Offers up to ISO Class 4 (Class 10) protection by delivering HEPA-filtered, particulate-free air



SterilSHIELD®

Compounding Aseptic Isolator (CAI). Designed specifically for ultimate product protection of non-hazardous drugs.

- 1. Offers a contained, pressurized work area for pharmacy applications
- 2. One of the most comfortable isolators in the industry, with oval gloveports that offer easy reach to interior surfaces, and adjustable height stand
- 3. HEPA-filtered, unidirectional airflow with better than ISO Class 5 (Class 100) air cleanliness conditions to prevent contaminants from entering the work area



NCB™ e3

Class II Type B1 Biosafety Cabinet. Developed to exceed the National Cancer Institute's Expectations...and yours.

- 1. All exhaust air is removed directly from the work area and pulled through a dedicated exhaust duct into the facility's separate exhaust system
- 2. Vapors and gases emitted from vessels or work behind the air split approximately half way back from the cabinet front - are removed and not recirculated
- 3. Dual supply HEPA filters assure that all positive pressure areas are free of particulate contamination. Recirculated air is HEPA-filtered immediately below the work surface before it is passed through a HEPA supply filter above the work area



AeroPROTECT 360°

Aseptic Contamination Enclosure. Optimum personnel & environment protection.

- 1. 360° visibility to the work area for easy monitoring
- 2. 8" [203mm] sash opening allows access to the work surface and is the primary means of access to ensure user protection
- 3. Front facing controls and gauges within easy reach when standing from both sides
- 4. Dual force hinged front view screen and rear access, offering easy equipment loading



EdgeGARD® e3 HF

Horizontal-Flow Clean Bench designed with you in mind. Baker's exclusive technology maximizes product protection and helps meet up to ISO Class 4 (Class 10) air cleanliness requirements.

- 1. High-performance airflow system provides uniform airflow to the worksurface, extends filter life and minimizes maintenance costs HEPA supply filter with 99.99% minimum efficiency in capturing 0.3 micrometer particulates
- 2. Spacious, easily accessible work areas accommodate multiple users and a variety of applications and instrumentation



ChemoSHIELD®

Compounding Aseptic Containment Isolator (CACI). Offers a contained, pressurized work area for pharmacy applications.

- 1. One of the most comfortable isolators in the industry, with oval gloveports that offer easy reach to interior surfaces, and adjustable height stand
- 2. Slanted, top-hinged view screen allows for full opening for loading and unloading of pharmacy instrumentation or equipment
- 3. HEPA-filtered, unidirectional airflow with better than ISO Class 5 (Class100) air cleanliness conditions to prevent contaminants from entering the work area



BioChemGARD® e3

Class II Type B2 Biosafety Cabinet. The most energy efficient, comfortable and safe B2 cabinet in the industry.

- 1. A 70% reduction in electrical power compared to traditional B2 cabinets
- 2. Increased motor blower reserve extends filter life for less downtime
- 3. Continuously safe work environment with self-adjusting motor technology enhances productivity
- 4. Optional fume hood package for versatile laboratory design



BioPROTECT® e3

Walk-in Equipment Containment Enclosures. Designed expressly for high volume robotic and equipment applications.

- 1. Flexible modular design for high-volume robotic and automated equipment applications
- 2. Accommodates high-throughput robotic systems (including ancillary devices), ultra-centrifuges, flow cytometers, aerosol generators and other large laboratory equipment
- 3. Ideal for high-throughput screening, combinatorial chemistry, immunology, tissue culture, clinical research, drug discovery, molecular biology, and quality control assays



EdgeGARD® VF

EdgeGARD® Vertical-Flow provides vertical, unidirectional and controlled airflow over the entire work surface, while reducing energy consumption, noise and airflow turbulence.

- 1. ISO Class 4 (Class 10) cleanliness (for 0.5 micrometer particles)
- 2. One-piece stainless steel work surface helps prevent surface contamination
- 3. Easy to move and maneuver when configured with mobile stand, casters and pull bars
- 4. Slanted 10° viewscreen for operator comfort and direct line-of-sight viewing
- 5. Well-lighted workspace reduces eyestrain



Air Sentry Chemical Fume Hood

POWERED BY LAB CRAFTERS

Fume hoods designed for unparalleled safety for critical laboratory applications.

- 1. Substantially reduces roll effect (fluctuations in the airflow that may cause harm to the worker)
- 2. Offers a streamlined, unobstructed work area
- 3. Minimizes lingering concentrations above and behind the view screen
- 4. Reduces contaminant concentrations near the edge of the sash (window), reducing potential exposure hazard to personnel





bakerco.com



AIRECARD^{ES}



LAMINAR AIRFLOW WORKSTATIONS

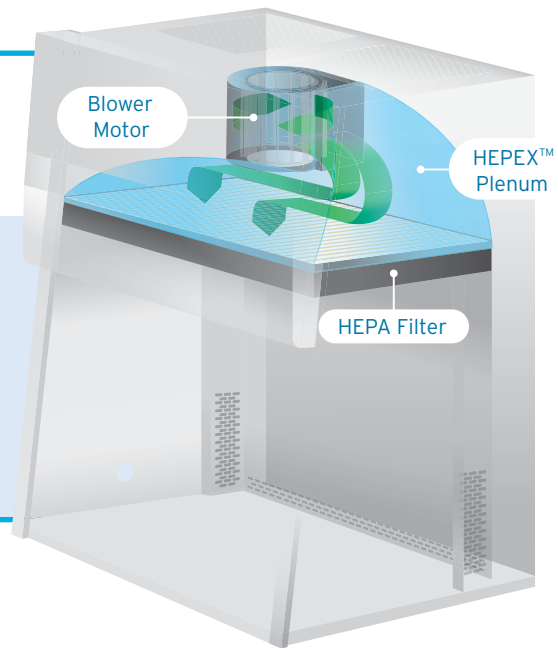


The Safer Choice

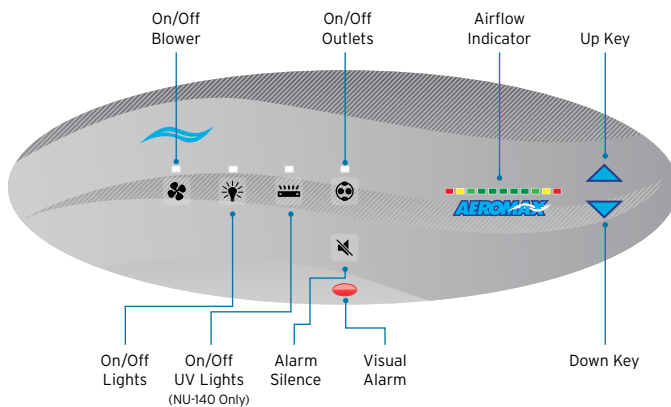
SAFETY IS OUR NUMBER ONE PRIORITY

HEPEX™ zero-leak airflow

The **HEPEX™ Zero Leak Airflow System** evenly disperses airflow over the HEPA filter surface resulting in a consistent air velocity throughout the entire work zone. The HEPEX™ plenum material also minimizes the unit's vibration and noise. It eliminates potential leakage by surrounding positive pressure chambers with negative ambient pressure.



AEROMAX CONTROL CENTER



The **AeroMax™ Control System** is a simplified control system that monitors and displays airflow status via our single PressureFlow™ sensor - a specialized digital pressure transducer. The control panel also notifies lab workers with both visual and audio alarms if the unit's airflow pressure departs significantly from its set point. The user interface is operated through a series of buttons and LED indicators, which control the unit's blower, UV light, outlets, and single DC ECM motor.

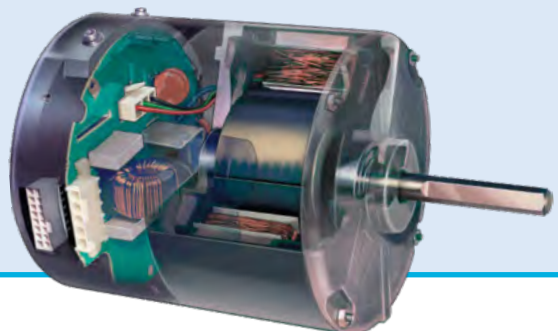
Sustainability

NuAire remains committed to improving our local and global economies, environment, and social communities by utilizing products and supplies that minimize energy consumption and our environmental impact. We use recycled materials that will not deplete our natural resources whenever possible. We also offer a multitude of support and warranty plans to ensure you maximize the lifespan of all your NuAire lab equipment.

SAVE MORE MONEY OVER LONGER PERIODS OF TIME.

Ultra-High Efficiency DC ECM Motor.

A single ultra-high efficiency DC ECM motor with forward facing fan blades reduces total energy consumption while extending the lifespan of your filters. Our AireGard® Series optimize safety, efficiency, reliability, and longevity.



ERGONOMIC DESIGN

NuAire Laboratory Equipment Boasts Superior Ergonomics Without Compromising on Safety. Scientists often spend eight or more hours sitting in front of a laminar airflow cabinet; this makes all day comfort a necessity. Our engineers' designs specifically reduce arm, shoulder, and neck strain that often contribute to workplace injuries.

Ergonomic Benefits

All NuAire equipment is compliant with the Americans with Disabilities Act (ADA). The centrally located control panel [A] combined with a shorter reach into the work zone allows the user to bring their work closer for easy operation without sacrificing safety. An ergonomically designed chair [B] with the optionally available footrest [C] provide ideal back and leg support. Utilizing telescoping or motorized base stand options (NU-140 & NU-240 only) allows you to comfortably sit or stand at a wide range of heights. The work surface is illuminated by white fluorescent lighting, improving visibility and reducing eye fatigue. Increase your energy savings even more by upgrading to LED lighting.



Options & Features

- Increased Knee & Leg Room
- Augmented Cabinet Work Zone
- Adjustable IV Bar w/ Six (6) SST Hooks
- Adjustable Base Stand and Footrest Options
- Movable Elbow Rests w/ Silicone Padding
- Cord Pass-Through Ports & GFCI Outlets
- Stainless Steel Turntable Accessories



Make IV compounding simple and easy with the adjustable IV bar + 6 hooks.



Perfect your posture with our adjustable footrest.



Reduce reaching across your work zone with our stainless steel turntable.



Movable elbow rests with silicone padding complements any NuAire airflow product.

EASIER ON YOU & SERVICE PERSONNEL

100% of Service Functions Can be Performed From the Front or Top of the Cabinet. No repositioning necessary!

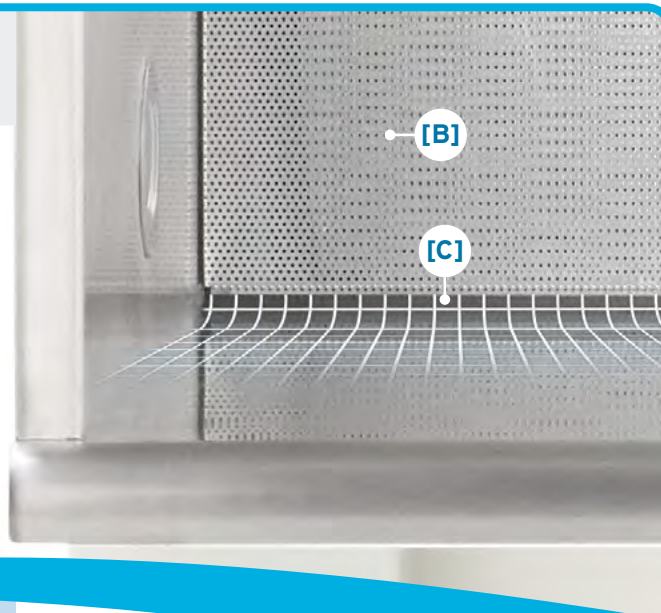
Our NuAire engineers designed every one of our laminar airflow workstations to be easily maintained by service professionals, which lowers your laboratory's downtime and service fees. For horizontal airflow units, removing the diffuser screen [A] located in the back of your work zone allows quick access to the HEPA filter. For the vertical laminar airflow units, the diffuser screen is located at the top of the cabinet's work zone. All NuAire LAFW units also come with a standard 5 year parts, labor, and filters warranty.*



**Note: United States & Canada only; contact your local NuAire distributor for international warranty details.*

CLEANABILITY

All AireGard® Laminar Airflow Workstations come standard with a type 304 stainless steel interior to improve cleanability. On horizontal airflow models, the metal diffuser screen that protects the HEPA filter [B] can be easily removed by hand without the use of tools for cleaning. It is designed with small perforated holes that do not catch or snag cloth and paper wipes. The work zone features a spill lip [C] that protects the HEPA filter in case of a liquid spill.



The NU-340 pre-filter is located just behind the front access grate [D] on the lower front panel of the cabinet.



The NU-140 Electronic, lighting, and filter components are accessible through the hinged front service panel.

AIREGARD® ES NU-140

Vertical Laminar Airflow Workstation

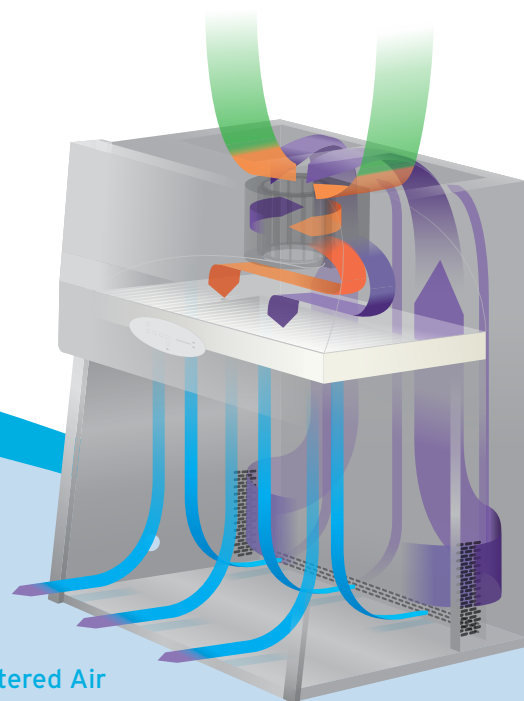


▲ AireGard® ES NU-140-430 shown with optional glass side walls and telescoping base stand with casters.

The AireGard® ES (Energy Saver) Model NU-140 Vertical Laminar Airflow Workstation is a bench/table top model with available base stand options. The NU-140 offers ISO Class 5 air product protection with HEPA filtered air flowing downward over the work zone at a constant velocity of 90 fpm (0.46 m/s). This unidirectional downflow minimizes air turbulence within the work zone and diminishes the potential for cross-contamination. The motor blower, in conjunction with our unique HEPEX™ Zero Leak Airflow System, is positioned to produce at least 90% of constant air delivery with filter loading of up to 250%; this greatly prolongs the overall lifespan of your HEPA filters. The NU-140 is ideal for the preparation of injectable drugs, IV solutions, tissue cultures, microelectronics, and anything else requiring ISO Class 5 air quality product protection.



product protection



- ➡ HEPA Filtered Air
- ➡ Contaminated Room Air
- ➡ Contaminated Work Zone Air
- ➡ Pre-filtered Work Zone Air



The AireGard® NU-140 can be optionally equipped with a mounted or portable Ultraviolet (UV) Light.

AIREGARD® ES NU-240

Horizontal Laminar Airflow Workstation

NuAire's AireGard® ES (Energy Saver) Model NU-240 Horizontal Laminar Airflow Workstation is designed as a bench/table top model with available base stand options. The NU-240 cabinet can be used where ISO Class 5 clean airflow is required for the preparation of non-hazardous drugs, IV solutions, tissue cultures, optics, microelectronics, etc. The NU-240 workstation is used to protect your product from environmental contamination and comes available with telescoping or auto-rising mechanical base stand options, placing your work surface at a comfortable height range of 28" to 40" (711 to 1016 mm). This model is also equipped with an ultra-high efficiency DC ECM motor that is paired with an optimally determined forward-facing fan. This unit lowers your total cost of ownership by using less energy while extending the lifespan of the HEPA filters. This combined with our signature HEPEX™ Zero Leak Airflow System reduces motor noise, minimizes work zone vibration, and automatically compensates for any filter loading and line voltage variance.



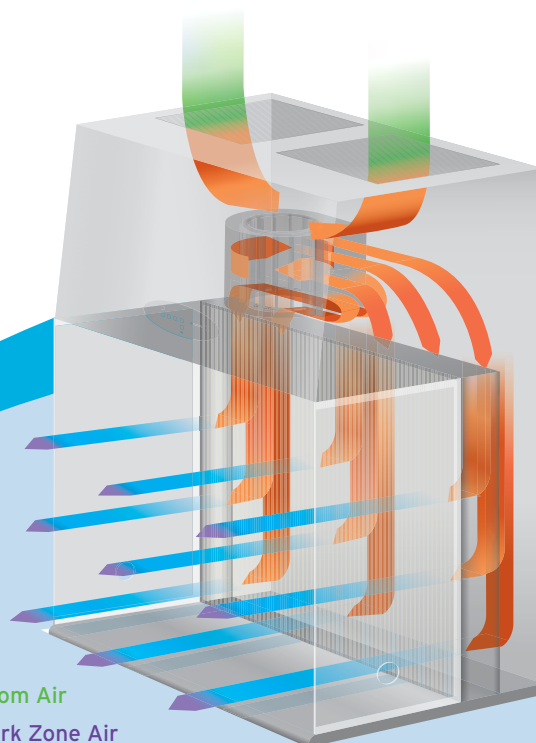
▲ AireGard® ES NU-240-430 shown with an optional IV bar and motorized auto-rising base stand with heavy-duty casters.



product
protection



All AireGard® Laminar Airflow Cabinets can be optionally equipped with exterior GFCI duplex outlets attached just below the work surface.



- ➡ HEPA Filtered Air
- ➡ Contaminated Room Air
- ➡ Contaminated Work Zone Air
- ➡ Pre-filtered Work Zone Air

AIREGARD® ES NU-340

Horizontal Laminar Airflow Workstation

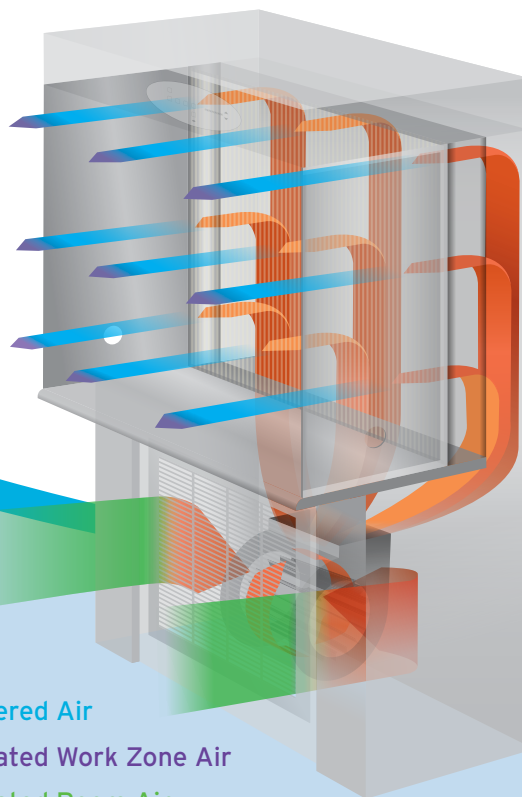


▲ AireGard® ES NU-340-430 configured with a stainless steel interior, LED lighting, IV bar, and casters.

The AireGard® ES (Energy Saver) Model NU-340 Horizontal Laminar Airflow Workstation is a console model featuring the ultra high-efficiency DC ECM motor and pre-filter grate mounted below the work surface for additional overhead clearance. The built-in washable pre-filter greatly extends the overall lifespan of the HEPA filters by catching any large particles before accumulating within your HEPA filters. The NU-340 is also equipped with a single ultra-high efficiency DC ECM motor that lowers the overall cost of ownership by reducing energy consumption. Model NU-340 is ideal for mixing IV solutions, preparing and compounding sterile non-hazardous drugs, tissue cell cultures, micro-electronics, and anything else requiring ISO Class 5 air product protection.



product
protection



The Ergotron™ Arm attaches a keyboard / mouse and computer monitor directly to your cabinet for a more efficient work zone.

- ➡ HEPA Filtered Air
- ➡ Contaminated Work Zone Air
- ➡ Contaminated Room Air
- ➡ Pre-filtered Work Zone Air

FEATURES & SPECIFICATIONS

Laminar Airflow Workstations			
Model #	NU-140	NU-240	NU-340
Cabinet Style	Bench Top w/ Optional Base Stand		Full Console
Nominal Widths	3, 4, 5, 6 ft [0.9, 1.2, 1.5, 1.8 m]		
Laminar Airflow Direction	Vertical	Horizontal	
Workspace Dimensions (W x D x H)	(34 / 46 / 58 / 70) x 26.75 x 30 in [(860 / 1165 / 1470 / 1775) x 679 x 765 mm]	(36 / 48 / 60 / 72) x 19.6 x (32 / 38) in [(911 / 1216 / 1521 / 1826) x 498 x (813 / 965) mm]	
Exterior Dimensions (W x D x H)	(38 / 50 / 62 / 74) x 32 x 58 in [(965 / 1270 / 1575 / 1880) x 813 x 1473 mm]	(38 / 50 / 62 / 74) x 32 x (55.4 / 61.4) in [(965 / 1270 / 1575 / 1880) x 813 x (1406 / 1559) mm]	(38 / 50 / 62 / 74) x 32 x (76.4 / 82.4) in [(965 / 1270 / 1575 / 1880) x 813 x (1940 / 2093) mm]
Net Weight	300 - 600 lbs [136 - 270 kg]	290 - 470 lbs [132 - 213 kg]	330 - 540 lbs [150 - 245 kg]
Certifications	UL listed, ISO Class 5 Air Protection		
Access Opening	25.25 in [641 mm] (No UV Light Option) 20 in [508 mm] (w/ UV Light Option)	32 or 38 in [813 or 965 mm] (Nominal 6 ft sizes only available in 32 in [813 mm] height)	
Electrical Requirements	115 VAC / 60 Hz		
Filter Load Capacity	250%		
Laminar Airflow Velocity	90 fpm [0.46 m/s] True Laminar Airflow Velocity, ISO Class 5 Air Protection		
Supply Filter	3 in [76 mm] Wide HEPA 99.99% Efficient @ 0.3 microns	Filter Height: 30 or 36 in [762 or 914 mm]* Width: 3 in [76 mm] HEPA 99.99% Efficient @ 0.3 microns	
Pre-Filter	Washable & Reusable, Paper-Free Mesh Pre-Filter		
Control System	AeroMax™ w/ PressureFlow™ Pressure Sensor		
Lighting Options	Fluorescent		
	LED		
	Ultraviolet (UV) Light Option	Unavailable	
Password Protection	Yes		
Noise Level	Up to 67 dBA		
Construction Options	Cord Pass-Through Ports (Right/Left Sidewalls)		
	Service Valve/Coupling Options (Right/Left Sidewalls)		
	Duplex Outlet (Mounted Below Work Surface)		
	Rear Wall Recirculation Grill for Airflow Uniformity	Back Wall Metal Diffuser w/ Quick Clean Removal	
	Frameless Easy-to-Slide Viewing Window (Pairs with UV Light Option)	Unavailable	
	Stainless Steel Sidewalls		
	Clear Polycarbonate Sidewalls		
	Attenumont™ Vibration Control Support System		
	Stainless Steel Work Surface w/ PVC Core		
	Nevamar Work Surface w/ PVC Core		
	IV Bar w/ 3 Height Locations, 6 Hooks		
	Seismic Brackets (Rear / Floor Mount)		
Base Stand Options	Telescoping Adjustable Base Stand (w/ Leg Levelers or Caster Wheels)		Leg Levelers
	Motorized Adjustable Base Stand (w/ Leg Levelers or Caster Wheels)		Heavy-Duty Casters
Popular Accessories	Adjustable Ergonomic Footrest		
	Silicone Cushioned Movable Elbow Rests		
	Ergotron™ Monitor, Keyboard, and Mouse Mount		
	Storage Pull-Out Trays or Shelves		
Standard Feature		Optional Feature	

*Note: Nominal 6 ft [1.8 m] size units do not have access to 36" [914 mm] HEPA filter height.



*Contact your local NuAire distributor for international warranty details.



POPULAR CONFIGURATIONS

Arranged by Industry Application

Pharmacy Compounding

AireGard® ES NU-240

Stainless Steel Work Surface

Stainless Steel Sidewalls

IV Bar + Hooks

LED Lighting

Motorized Base Stand
w/ Caster Wheels



Medication Workflow

AireGard® ES NU-240

Stainless Steel Work Surface

Stainless Steel Sidewalls

IV Bar + Hooks

LED Lighting

Telescoping Base Stand
w/ Base Stand Shelf

Ergotron™ Arm
Mounted Outlets



Plant Cell Culture

AireGard® ES NU-140

LED Lighting

Stainless Steel Work Surface

Clear Polycarbonate Sidewalls

Telescoping Base Stand w/
Heavy-Duty Caster Wheels

Padded Elbow Rests

Adjustable Footrest

UV Light with Sliding Window
(NU-140 Only)

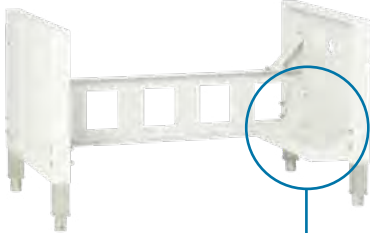


POPULAR ACCESSORIES

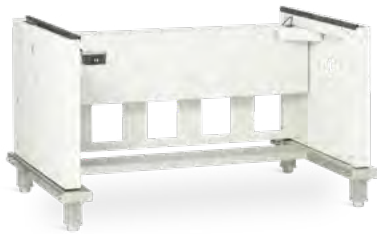
Add and Extend Your Lab's Capabilities

Personalize Your NuAire Laboratory Equipment for Extra Comfort and Versatility. Any NuAire laminar airflow workstation can be customized for any scientific application while preserving user comfort and safety for the entire day, every day. See below for our most popular accessories; if you don't see exactly what you're looking for, please give us a call at any time for assistance in picking out the perfect combination of items to fit any area of expertise.

BSC Base Stands Options



Telescoping Base Stand*
w/ Leg Levelers or Casters
Optional Shelf Attachment
8 or 12 in [203 or 305 mm]



Motorized Base Stand*
w/ Leg Levelers or Casters
(No Available Shelf Attachments)

**Base stand options are only available on the
NU-140 & NU-240 models*

Ergonomics & Workflow



Ergotron™ Arm



Extended Work Surface



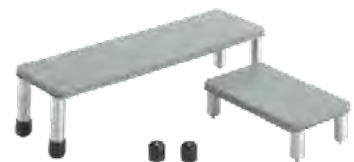
**Stainless Steel
Turntable**



IV Bar w/ 6 Hooks
Three (3) Bar Height Options



Adjustable Foot Rest



Padded Elbow Rests
5 or 10 in [127 or 254 mm]

Construction Options



Ultraviolet (UV) Light
(NU-140 Model Only)



Duplex GFCI Outlets



Interior LED Lighting
(Replaces Fluorescent Lighting)



Service Valves/Couplings

CUSTOM SOLUTIONS

Engineered to Your Lab's Specific Needs

In every NuAire product you'll find brilliant yet practical design with keen attention to detail in every phase of the fabrication and assembly process; you'll always receive thoroughly tested equipment at outstanding value, and with dependable customer service guaranteed. These are the fundamentals for NuAire's international reputation and the reasoning behind our universal recognition as the world's finest. Despite our engineers' finely honed genius, your lab may require something that has never been done before. Luckily, our custom sales department has nearly half a century's worth of experience in crafting all sorts of new and innovative lab equipment to meet your specific

needs. We routinely reshape our cabinet's inner and outer dimensions to neatly fit within any space inside your lab. We often add computer arms, monitors, and microscope windows into our standard cabinets, as well. Another common customization involves installing an IV bar and smooth interiors for efficient and ergonomic pharmacy compounding. Regardless of what type of modification your lab and research may require, NuAire is capable of meeting any esoteric laboratory need and provide you with excellent troubleshooting support for years to come, ensuring your custom equipment continues to perform at peak levels for the entirety of its lifespan.

If your lab requires a unique solution, give us a call; we love a challenge.



This LAFW was created with a nominal width of 8 ft [2.4 m], clear polypropylene sidewalls, and a custom mounted IV bar.

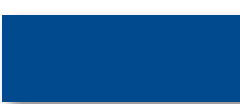


This LabGuard® BSC was fitted with a microscope viewing window to accommodate workflow specializing in human cell tissue research.



A custom model NU-240 was designed to offer a broader and taller work zone to accommodate a single workflow process involving microscopes. A customized isolation table was added to eliminate vibration in the work surface. The extended work surface allows a technician to perform several protocols without having to leave the work zone.

Environmental Monitoring & Particle Counters



Distributed Sensor Modules (DSM*)

Overview

AirCare Automation's **Distributed Sensor Module – DSM*** is a network accessible (*MODBUS RTU*) module that can connect to the AirCare Monitoring Consoles and provide environment monitoring for cleanroom system without the complicated Centralized panel box builds provided today. Designed to integrate seamlessly into AirCare FFU Control Console Systems, the DSM family provides access to multiple sensor features on standard assembly platforms.

DSMP – Differential Pressure Sensor (+/- 50 PA)

DSMTR – Temp (0-122°F) RH Sensor – room mount

DSMTRP – Diff. Pressure, Temp & RH

****NIST Certified sensors available upon request****



Power Supply

- Input Voltage: 24 VDC
- Max Current Consumption: 200mA@24V.

Communication

Two RJ45 MODBUS RTU connectors

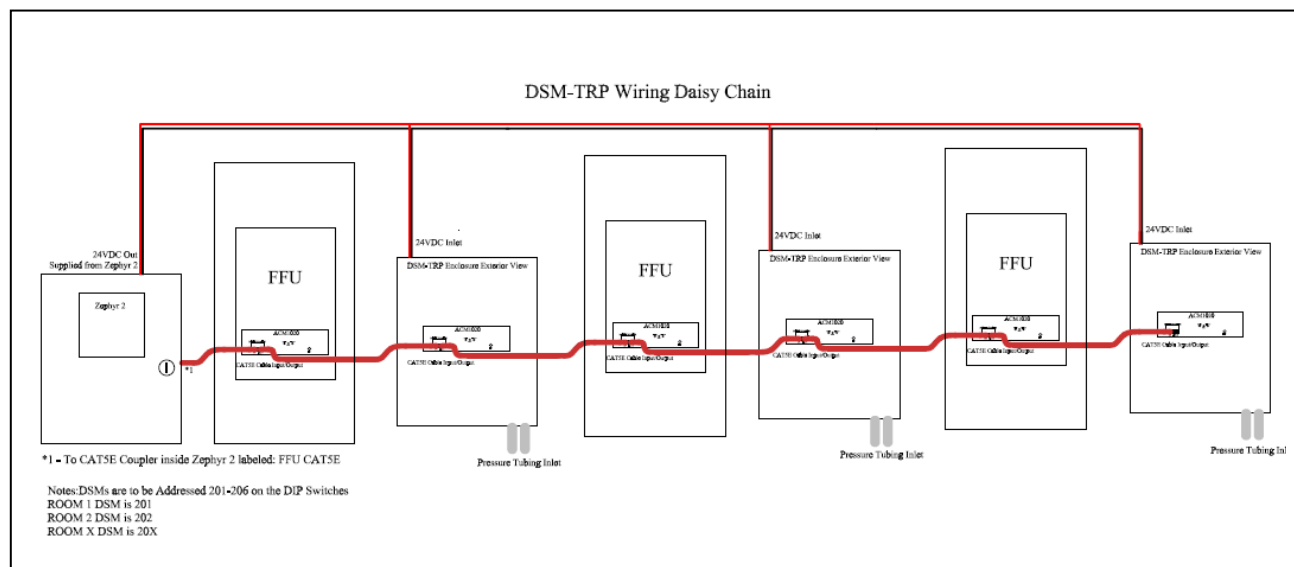
- Voltage limits -7 to +12VDC differential maximum
- Baud rate: 9600
- Cable type: Twisted pair (cat5e)

Functions/ Features

- Monitor Diff. Pressure, Temp, RH
- MODBUS RTU Daisy-chain compatible
- 24V operation by remote DC power source.
- CAT5e cable RJ45 connectors

Environment

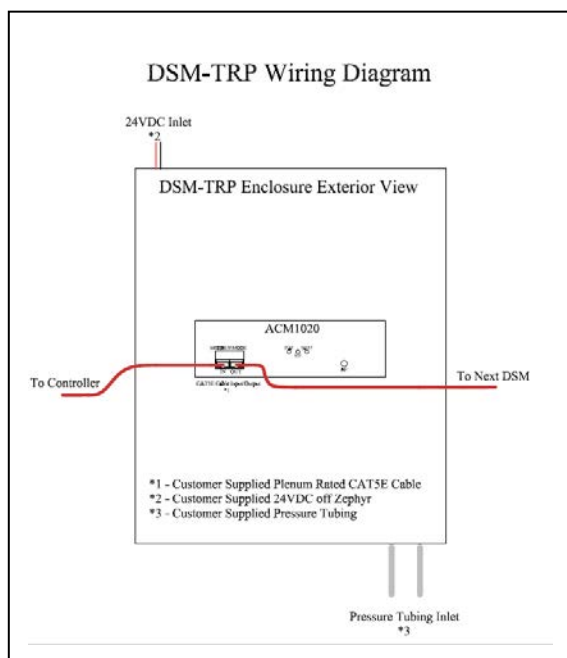
- Polycarbonate Panel box (8 x 8 x 4 inch)
- Operational temperature: 0 to 50°C (32 to 122°F)
- Storage temperature: -20 to 60°C (-4 to 140°F)
- Relative Humidity (RH): 5% to 95% (non-condensing)



Distributed Sensor Modules (DSM*)

DSM Network connection

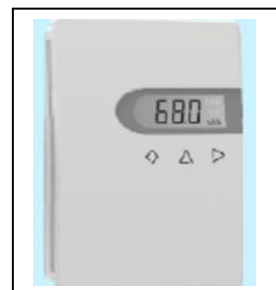
CAT5e cables are recommended with RJ45 connectors provided. 24 Volt DC power is provided by Console Panel box or associated 24V service and the pressure transducer is provided with tubing ports for box mounting – if desired



SENSORS

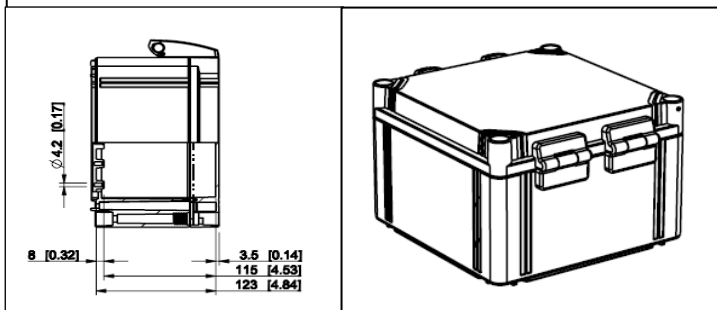
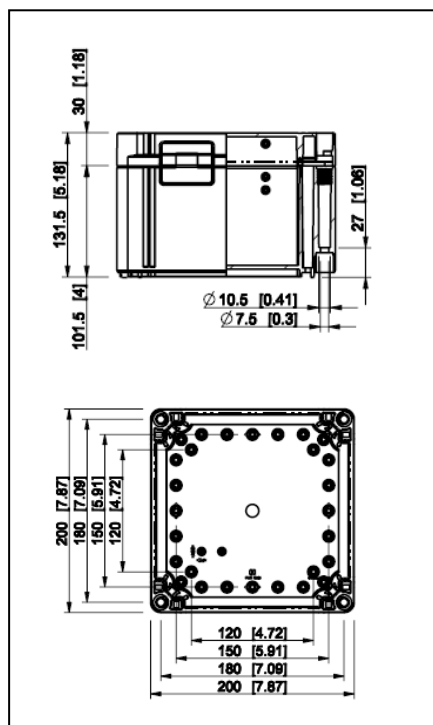
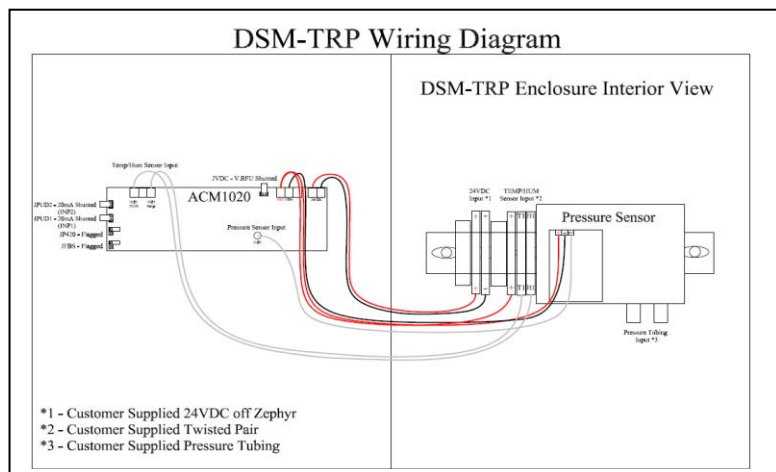
Pressure Sensor are mounted in the DSM box and tubing provided for connection to bulkhead fittings and placement in cleanroom.

Temp/RH sensor is mounted in room with twisted pair connection wiring to the DSM box.



INTERNAL DSM WIRING

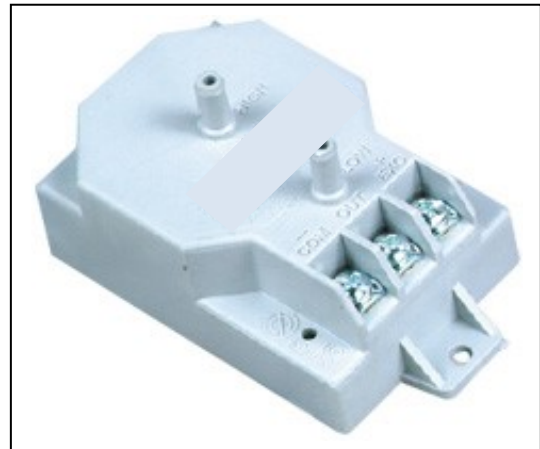
The interface card that contains the MODBUS RTU communications is wired to the power source and terminal strip of sensor node connections. On-site mounting of the DSM, running of Pressure tubing and twisted pair for T/RH connection are provided as well as easy interconnect of 24V power



Overview

The ACS2411/ACS2412 is a family of differential pressure transducer that delivers $\pm 1\%$ FS accuracy. The family comes in several FS pressure ranges providing positive (ACS2411) or negative pressure (ACS2412) monitoring. In cleanroom applications it can be used to monitor room differential pressure and in FFU applications it can be used to monitor faulty filter or FFU motor functions. The output of the sensor is an analog signal that can be fed to a Console or interface card for monitoring and control.

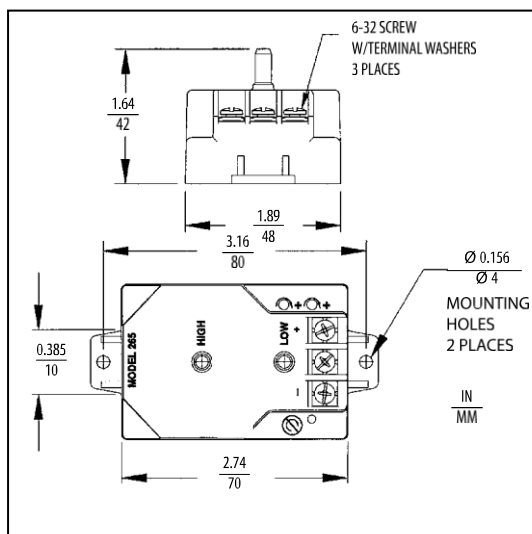
The ACS2411/ACS2412 Family comes with NIST certification for stringent USP797 and USP800 monitoring systems.



Specifications

- Accuracy: $\pm 1\%$ FS
- Switch Differential: 0.02 ± 0.01 "w.c.
- Operating Temperature Range: -18° to 65°C max.
- Electrical Rating:
 - o 12 to 30VAC
 - o Output – 4-20 mA, 0-5V
 - o 2-wire (Comm, Out, In)

Mechanical



Part #	OUT	Pressure Range
ACS2411-25	4-20mA	0-0.25 WCI
ACS2411-100	0-5V	0-1.00 WCI
ACS2412-25	4-20mA	-0.25 to +0.25 WCI

Overview

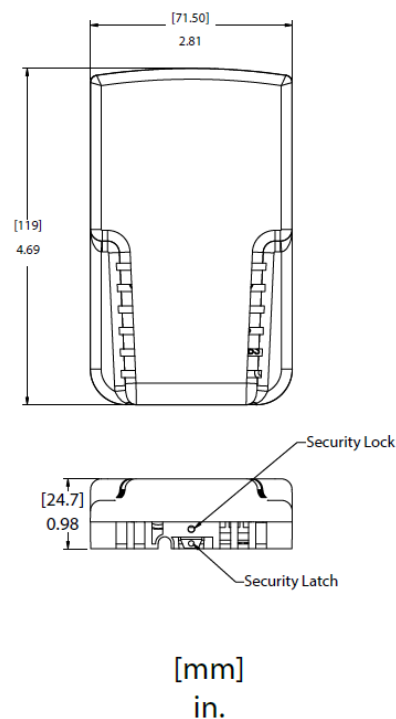
The ACS2423 is a wall mount sensor that monitors room temperature (T) and Relative Humidity (RH) for monitoring room environments. The sensors provide analog signals back to the Console for monitoring and fault condition identification. In cleanroom applications it can be used to monitor room T & RH to verify compliance with USP standards and directives.

The sensors come with NIST compliance certification and the RH sensor tips are replaceable for calibration updates by the end user (factory calibrated sensor tips) The temperature output is an active (analog) signal from the unit housing. The output of the sensor is two independent analog signals that can be fed to a Console or interface card for monitoring and control.



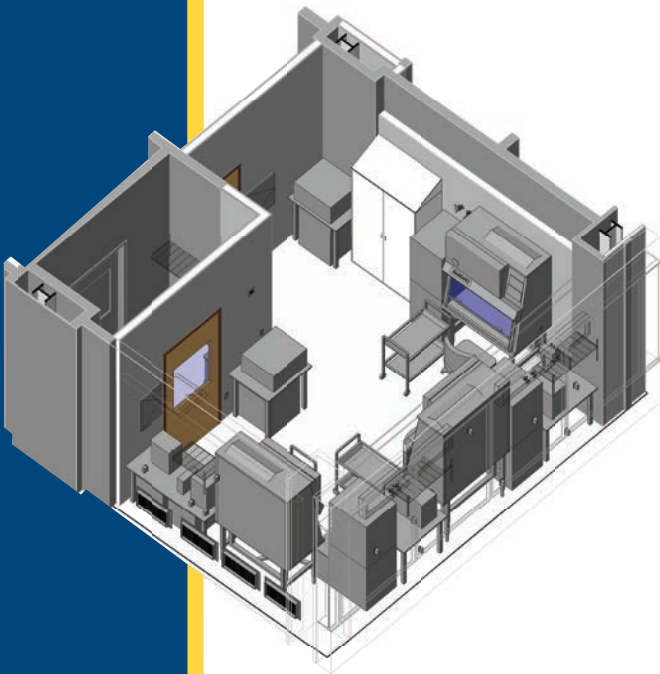
Specifications

- Accuracy: Temp $\pm 0.4^{\circ}\text{C}$ (-10 to $+60^{\circ}\text{C}$)
 - RH $\pm 2\%$ RH (20%-80%RH, 25°C)
- Operating Temperature Range: -10 to $+60^{\circ}\text{C}$
 - o 0-99% RH
- Electrical Rating:
 - o 12 to 30VDC
 - o Output – 4-20 mA
 - o 4-wire



Express Monitoring System

REAL TIME ENVIRONMENTAL MONITORING



Temperature



Relative humidity



Differential pressure



Air velocity



Real time particle counters



Door status



CO₂ levels



Microbial samplers



O₂ levels



Portable particle counter



LIGHTHOUSE
WORLDWIDE SOLUTIONS

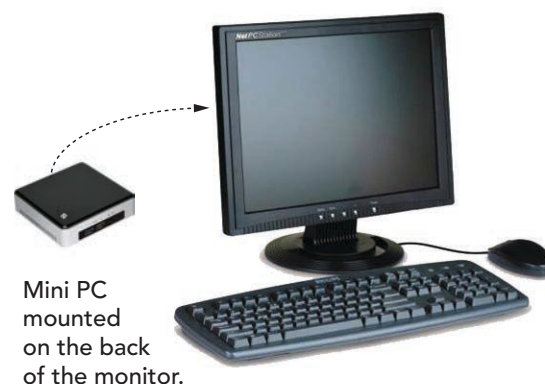
ExpressMonitoring System

The Lighthouse Express Monitoring System (EMS) monitors critical environmental and process parameters such as temperature, humidity, differential pressure, particle counts, carbon dioxide and many other environmental parameters.

The Express Monitoring System stores data on its integrated Microsoft Access database. Data is displayed via graphs, charts, maps and log files. Operators are alerted to out of specification conditions via email, text, local alarm lights and audible alarms.

Particle counters from Lighthouse can be directly integrated into the system for real-time particle counting of critical environments or portable particle count data can be downloaded into the ExpressMonitoring System.

The Express Monitoring System is a quick, easy, low cost solution for monitoring your critical environments and at the same time achieving compliance with your industry guidelines.



Sensors:

Select the parameters that you need to monitor:



Temperature



Relative humidity



Differential pressure



Air velocity



Real time particle counters



Door status



CO₂ levels



Microbial samplers



O₂ levels



Portable particle counters

EMS includes:

Computer
22" monitor
LMS Express RT Software
Keyboard and mouse
Control cabinet 24 ports, RJ45 inputs
1x8 port gateway
Power supply

Features:

Real time monitoring out of the box.
21 CFR Part 11 compliant software.
Pre-configured system.
Real time and historical data review and analysis.
Alarming notification via text, e-mail, alarm lights.
Self-executable IQ/OQ validation documents.
SOP's are included as part of the package.
Easily expandable and user intuitive.
Installation manuals and tutorial videos included.
All sensors come with a 2 year warranty.
NIST traceable calibration.

Service and Support:

Turnkey system installation services are available.
Remote and onsite technical support.
Onsite and offsite NIST traceable calibration.
Online RMA application via website.
Full validation support is available.
Service level agreements.

Pharmaceutical

Biotechnology

Medical device

Semiconductor

Universities

Start real time monitoring in your environment.

Blood Banks, Tissue Banks, Stem Cell Research, Animal Research, Compounding Labs, Hospitals, University Research, Plant Research, Electronics, Medical Device, 503B Compounding, IVF Lab

Cleanrooms

Particle counts in air, liquid and gas.
Temperature
Humidity
Differential pressure
Air velocity
Door status
CO₂ levels
O₂ levels



Refrigerators

Temperature
(0 - 30 C°)
Door status



Freezers

Temperature
(-200 - 0 C°)
Door status



BioSafety Cabinets

Partical counting
Viable sampling
Air velocity
Differential pressure



Incubators

Temperature
Humidity
CO₂ levels
Door status



Ovens

Temperature
(0 - 400 C°)
Door status



Stability Chamber

Temperature
Humidity
Door status



High Purity Gases

Pressure
Particle



Dry Box

Particle
Temperature
Humidity
Door status



Agriculture

Particle
PAR
Temp/Hum
CO₂
Soil Moisture
Fertigation (Temp, Flow, Resistivity, pH, DO)



Mini Environments

Particle
Temperature
Humidity
Differential pressure
Air velocity
Door status



Paint booths

Particle
Temperature
Humidity
Air velocity
Differential pressure



Aerospace

Compounding pharmacies

Animal science

Agriculture

Hospitals

ExpressMonitoring System

REAL TIME ENVIRONMENTAL MONITORING

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D I S T R I B U T E D B Y :



MADE IN USA

Handheld

PARTICLE COUNTERS

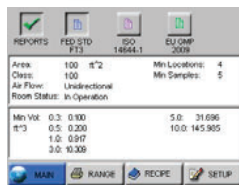


Handheld 2016/3016/5016

Particle Counters



THE ergonomically designed and lightweight Lighthouse Handheld 2016, 3016 and 5016 particle counters feature 0.2, 0.3 and 0.5 μ m sensitivities and are the most advanced handheld particle counters on the market. Providing up to 6 particle size channels of simultaneous counting, Lighthouse Handheld Particle Counters can display cumulative and differential particle count data as well as Temperature/Relative Humidity data on the fast and easy to read color touch screen. Lighthouse Handheld Particle Counters can hold up to 3000 records of particle data and the configurable recipe database can store up to 50 recipes for sampling and reports. Removable batteries and an optional charger help to maximize the Handheld's uptime. Data is very easily downloaded using the Lighthouse Data Transfer Software. The Handheld can be used as a mobile particle monitor or become a part of a large facility monitoring and management system.



TFT Color
Touchscreen Interface



Removable
Rechargeable
Li-Ion Battery



One-handed Operation
with Start & Stop
on Handle



Removable
Temp / RH and
Isokinetic Probes



Easily Download
Data to PC

Features

- Handheld 2016: 0.2 - 2 μ m
- Handheld 3016: 0.3 - 25 μ m
- Handheld 5016: 0.5 - 25 μ m
- 0.1 CFM (2.83 LPM) Flow Rate
- View 6 Particle Sizes Simultaneously
- Designed for ISO 21501-4 Compliance:
- Unit-to-Unit Accuracy and Repeatability
- Bright 3.5" (8.89 cm) Color Touch Screen Display
- Removable / Rechargeable Li-Ion Battery
- Large Memory for Storing Data (3,000 samples)
- Concentration Limit - 4,000,000/ft³
- Temperature/Relative Humidity Probe Included
- Test Wizard for Cleanroom Pass/Fail Reports:
- FS-209E, ISO-14644-1 or EU GMP Annex 1
- 50-record Configurable Recipe Database
- Easily Configurable Interface with Zoom Capability
- Open Architecture Connectivity with OPC Server

- Alphanumeric Location Labels
- Internal Audible Alarm
- Ergonomically Designed
- Lightweight

Benefits

- 2 Year Warranty
- User Friendly Interface
- International Support
- Low Cost of Ownership

Operating:

50°F to 104°F (10°C to 40°C) / 20% to 95% non-condensing

Storage:

14°F to 122°F (-10°C to 50°C) / Up to 98% non-condensing

Handheld 3016 IAQ

Particle Counter



OUR ergonomically designed and lightweight Lighthouse Handheld 3016 IAQ is the newest, most advanced handheld particle counter on the market, featuring Mass Concentration Mode that approximates density in $\mu\text{g}/\text{m}^3$. Providing up to 6 particle size channels of simultaneous counting, Lighthouse Handheld Particle Counters can display cumulative and differential particle count data as well as Temperature/Relative Humidity data on the fast and easy to read color touch screen. Lighthouse Handheld 3016 IAQ can hold up to 3000 records of particle data and the configurable recipe database can store up to 50 recipes for sampling and reports. The Handheld 3016 IAQ monitors particulate levels accurately and reliably, even in "hard-to-reach" areas where two-handed operation is unsafe.



LOC: LOC001	2011/09/05
RCP: RCP001	15:56:00
μ	Σ m^3
PM 0.3	0.05
PM 0.5	0.05
PM 1.0	0.09
PM 2.5	0.13
PM 5.0	0.16
PM 10.0	0.21
TPM:	0.30
START	CFG
DATA	MASS

Mass
Concentration
Screen

Features

- 0.3 - 10 μm Size Range
- 0.1 CFM (2.83 LPM) Flow Rate
- View 6 Particle Sizes Simultaneously
- Approximate Mass Concentration in $\mu\text{g} / \text{m}^3$
- 3.5" (8.89 cm) Color Touch Screen Interface
- Removable/Rechargeable Li-Ion Battery
- Large Memory for Storing Data (3,000 samples)
- Concentration Limit - 4,000,000/ ft^3
- Temperature/Relative Humidity Probe Included
- 200 User Defined Alphanumeric Location Labels
- Easily Configurable Interface with Zoom Capability
- On Screen Data Buffer Viewing
- Molded Handle Allows One-handed Sampling
- Internal Audible Alarm

- Ergonomically Designed
- Lightweight
- Data Easily Downloaded to Computer
- 50-record Configurable Recipe Database

Benefits

- 2 Year Warranty
- User Friendly Interface
- International Support
- Low Cost of Ownership

Operating:

50°F to 104°F (10°C to 40°C) / 20% to 95% non-condensing

Storage:

14°F to 122°F (-10°C to 50°C) / Up to 98% non-condensing

Product Selection Guide

	2016	3016
Size Range	0.2 - 2.0 µm	0.3 - 25.0 µm Standard: 0.3, 0.5, 0.7, 1.0, 2.0, 5.0 µm Standard: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 µm Standard: 0.3, 0.5, 0.7, 1.0, 2.5, 5.0 µm Standard: 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 µm Optional: 0.5, 1.0, 3.0, 5.0, 10.0, 25.0 µm
Channel Size	0.2, 0.3, 0.5, 0.7, 1.0, 2.0 µm	50% @ 0.3 µm; 100% for particles > 0.45 µm (per ISO 21501-4)
Counting Efficiency	50% @ 0.2 µm; 100% for particles > 0.45 µm (per ISO 21501-4)	

	3016IAQ	5016
Size Range	0.3 - 10.0 µm	0.5 - 25.0 µm
Channel Size	0.3, 0.5, 1.0, 2.5, 5.0, 10.0 µm	Standard: 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 µm Optional: 0.5, 1.0, 3.0, 5.0, 10.0, 25.0 µm (specify 3 channels at time of order)
Counting Efficiency	50% @ 0.3 µm; 100% for particles > 0.45 µm (per ISO 21501-4)	50% @ 0.5 µm; 100% for particles > 0.75 µm (per ISO 21501-4)

2016 / 3016 / 3016IAQ / 5016			
Flow Rate	0.1 CFM (2.83 LPM)	Sample Inlet	Isokinetic Sampling Probe
Laser Source	Extreme Life Laser Diode with > 20 years MTTF	Sample Output	Internally filtered to HEPA standards (>99.97% @ 0.3 µm)
Zero Count Level	< 1 count / 5 minutes (per ISO 21501-4)	Vacuum Source	Internal pump, automatic flow control
Concentration Limits	8,000,000 particles / ft³ @ 10% coincidence loss	Enclosure	High impact injection molded plastic
Calibration	Meets ISO 21501-4 calibration using NIST traceable PSL spheres, DMA and condensation Particle Counter	Power	External power supply: 12VDC, 1.25A
Count Modes	Automatic, manual, beep, concentration, cumulative/differential	Battery	Li-Ion, removable & rechargeable
Data Storage	3,000 sample records, rotating buffer (includes particle and environmental data, location and time)	Dimensions	8.75" (L) x 5.0" (W) x 2.5" (H) (22.23 x 12.7 x 6.35 cm)
Communication Modes	RS-232 via RJ-45 to a PC or an optional printer	Weight	2.2 lb (1 kg)
Supporting Software	LMS Express, LMS Express RT, LMS Pharma, LMS Pro	Languages	English (U.S.), Deutsch, Espanol, Italiano, Français, Russian, Japanese, Korean and Chinese.
Environmental Sensors	Temperature/relative humidity probe: 0-150°F (-17.8 to 65.6°C) ±1.8°F @ 77°F, 0-100% ± 5% @ 33%		
Touch Screen Display	3.5" (8.89 cm), color TFT		
Reports	FS-209E, ISO-14644-1 (1999, 2015) & EU GMP		
Alarms	Internal, adjustable alarm buzzer. Alarms on counts. Low battery or sensor failure.		

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Remote Airborne Particle Counters 0.1 CFM (2.83 LPM)

The Particles Plus 520I, 530I and 550I Remote Particle Counters are the most feature-advanced remote particle counters available. Integration is easy into a building automation and cleanroom management system via Ethernet, or (optional) Wireless 802.11 b/g, RS485 or RS232.

The 520I, 530I and 550I remote particle counters display and report 6 user-selectable particle size channels, as well as (optional) temperature and relative humidity, flow and sensor status, date of last calibration, serial number, laser on-time and date of manufacture for easy maintenance and warranty management.

These remote particle counters store up to 40,000 time stamped particle count and environmental data records which provides data redundancy on every instrument. Particles Plus counters can be controlled and monitored remotely via web browser.

All Particles Plus counters meet ISO 21501-4 and JIS B9921. The 520I, 530I and 550I ensure compliance with an on-board pulse height analyzer.

Features and Benefits

- 520I: Measures 0.2 μm to 10.0 μm
- 530I: Measures 0.3 μm to 25 μm
- 550I: Measures 0.5 μm to 25 μm
- 0.1 CFM (2.83 LPM) flow rate
- Long life laser diode technology
- Measures up to 6 channels of simultaneous data
- Approximates mass concentration in $\mu\text{g}/\text{m}^3$
- Large easy-to-use icon driven color touch screen display
- (Optional) temperature and relative humidity probe
- (Optional) internal vacuum pump
- Stores up to 40,000 sample records for on-board data redundancy
- Easy configuration and transferable from instrument to instrument
- Connect using Ethernet, USB or (optional) Wireless 802.11 b/g, RS485 or RS232
- Static or dynamic IP address (DHCP)
- Internal audible alarm
- User-selectable channel sizes
- Complies with ISO 21501-4 and JIS B9921 standards
- Easy to clean and wipe down with minimal particle traps
- Versatile mounting options
- Seamless integration into a facility monitoring system
- Light weight stainless steel enclosure
- 2 year warranty. Extended warranties available.



31 Tosca Drive
Stoughton, MA 02072 U.S.A.
781.341.6898 phone
www.particlesplus.com

Specifications

Models	5201	5301	5501
Size Range	0.2 to 10.0 μm	0.3 to 25 μm	0.5 to 25 μm
Size Channels	Factory calibrated at 0.2, 0.3, 0.5, 0.7, 1.0, 2.0 μm	Factory calibrated at 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 μm	Factory calibrated at 0.5, 0.7, 1.0, 3.0, 5.0, 10.0 μm
Flow rates	0.1 CFM (2.83 LPM)	0.1 CFM (2.83 LPM)	0.1 CFM (2.83 LPM)
Concentration Limit	4,000,000 Particles/ft ³ @ 5% coincidence loss	4,000,000 Particles/ft ³ @ 5% coincidence loss	4,000,000 Particles/ft ³ @ 5% coincidence loss
Counting Efficiency	50% @ 0.2 μm ; 100% for particles >0.3 μm per JIS	50% @ 0.3 μm ; 100% for particles >0.45 μm per JIS	50% @ 0.5 μm ; 100% for particles >0.75 μm per JIS
Light Source	Long life laser diode		
Zero Count	<1 count / 5 minutes (<2 particles / ft ³) (per ISO 21501-4 & JIS)		
Count Alarms	1 to 9,999,999 counts		
Calibration	NIST traceable		
Display	4.3" (10.9 cm) WQVGA (480x272) color touch screen		
Vacuum Requirements	External vacuum >15" (38.1 cm) of Hg		
Optional Internal Vacuum Pump	Internal pump with automatic flow control		
Number of Channels	6		
Custom Size Channels	Calibration for custom size channels available		
Airflow	Internally monitored		
Audible Alarm	Adjustable built-in alarm		
Communication Modes	Ethernet and USB		
Optional Communication Modes	Wireless 802.11 b/g, RS485 or RS232		
Environmental Sensor	(Optional) temperature and relative humidity probe 32° to 122°F (0° to 50°C) $\pm$ 1°F (0.5°C), 15-90% $\pm$ 2% relative humidity		
Alarm	Alarms on counts for all particle sizes, sensor failure, environmental sensors and flow		
Standards	ISO 21501-4 and JIS B9921		
Calibration	Recommended minimum once per year		
External Surface	Stainless steel		
Dimensions (L x W x H)	5.2" x 2.3" x 8.9" (13.3 cm x 5.8 cm x 22.6 cm) includes barb fittings		
Weight	2.6 lb (1.18 kg)		
Accessories	Quick start guide, operating manual on USB flash drive, isokinetic probe, power supply & cable		
Optional Accessories	Printed manual, temperature relative humidity sensor, isokinetic probes, purge filter, data cable, mounting bracket and sample tubing		
Buffer Memory	40,000 sample records (rotating buffer) including particle count data and environmental data		
Sample Time	1 second to 99 hours		
Power	110 to 240 VAC 50/60 Hz universal in-line power supply		
Operating Conditions	41° to 104°F (5° to 40°C) / 20% to 95% non-condensing		
Storage Conditions	32° to 122°F (0° to 50°C) / Up to 98% non-condensing		
Warranty	2 Years. Extended warranties available.		

Patent Pending

Particles Plus, Inc. reserves the right to change specifications without notice.
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www.particlesplus.com





Setra CEMS™

Real-Time Environmental
Monitoring for your Critical
Environments

We design and deliver
premium sensing solutions



Why Choose Setra CEMS™?

Usability

- Access data from anywhere, at anytime
- Intuitive UI design with user-friendly data visualization graphics
- Data is presented in simple, actionable formats



Flexible

- Accepts inputs from Setra and 3rd party hardware via BACnet, MODBUS, and analog inputs
- Easily scalable from smaller, single point installations to thousands of monitored locations across wide geographic areas
- No limit on the number of hardware sensors or data inputs that can be connected to Setra CEMS software



Expertise

- Industry experts dedicated to helping guide our customers in finding the best solution
- Life-cycle support of Setra CEMS from project planning through technical software support
- Hands-on commissioning of Setra CEMS ensures successful integration and training



Customizable

- Create personalized dashboard views displaying the most important data
- Input site specific floor plans and hardware locations
- Customer specific escalation protocols for warning and alarm notifications via SMS texts, emails, and dashboard notifications



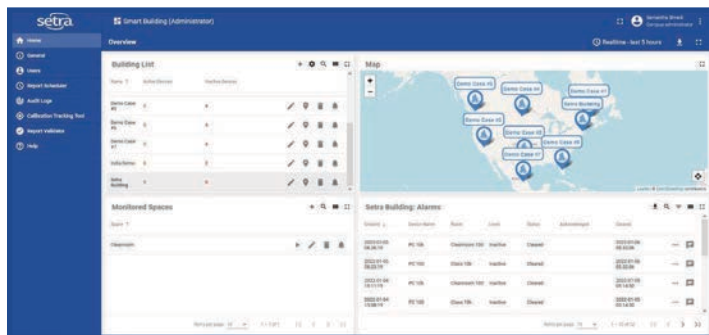
Enables Compliance

- Access to audit logs to know who completed what actions and when
- Easily export data and access reports to meet regulatory requirements
- Schedule reports to be automatically sent to personnel for adherence to internal standard operating procedures and documentation



CEMS Dashboard and Features

Easily monitor your critical environment with one system that is connected to your existing network, accessible remotely, and scalable up to thousands of monitored locations.



Building Overview Options

Whether you have one location or thousands, Setra CEMS allows you to view individual buildings and specific monitored spaces. This allows for companies of any size to utilize CEMS and scale according.



Real Time & Historical Visualization

Setra CEMS gives you the ability to track and trend both real-time and historical data over a rolling two year time period. Any of that data can be captured and exported using the CEMS reporting tools.



Tile View & Floor Plan View

CEMS offers both a tile view and a floor plan view that shows halo dots at each sensing device. This allows for real time monitoring of conditions within your critical space. Alarm thresholds for each device are tailored to your space, displayed visually across CEMS, and sent via email and SMS text notifications.



Cleanrooms



Compounding Pharmacies



Laboratories



Vivariums



Operating Rooms



Isolation Rooms

CEMS Allows For Maximum Flexibility

Scalable for any Application or Industry

Whether you are in a hospital, pharmacy or a clean-room on a manufacturing floor, CEMS ensures you are consistently monitoring the parameters critical to your patients or products.

Monitor Limitless Parameters

Designed to be adaptable, CEMS can easily accommodate site specific needs. There is no restriction on what parameters can be monitored with CEMS, but the most common include: differential pressure, % relative humidity, particulate counts, air changes per hour, door status, and temperature.

Compliance Reporting & Customized Alarms

Setra CEMS software collects real-time data from in-room sensors and provides actionable information and feedback to users. Along with data visualization and alarm notifications, CEMS stores sensor data, alarm events and audit logs for compliance reporting.

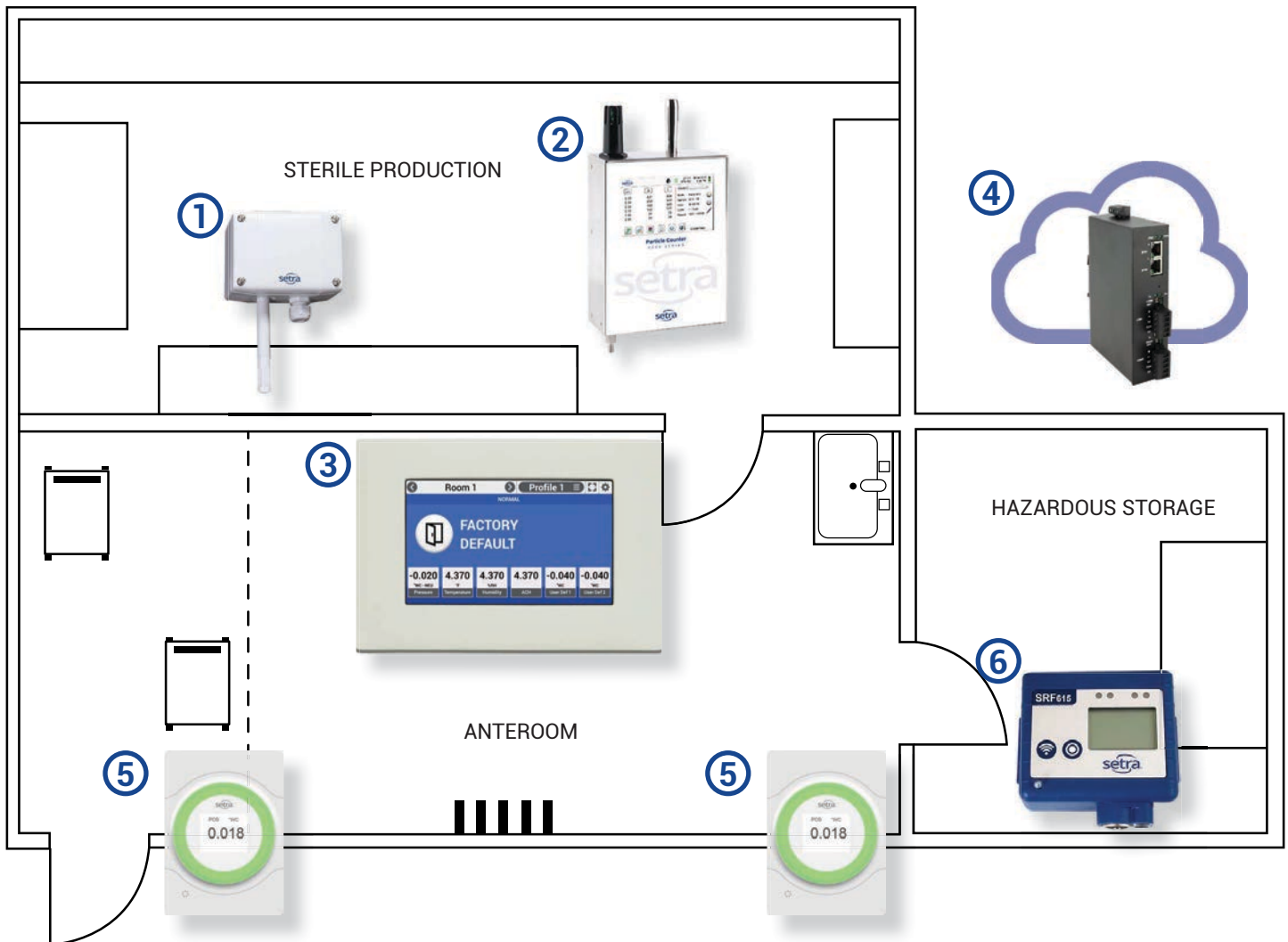
Compatible with Setra & 3rd Party Sensors

CEMS software accepts inputs from both Setra and 3rd party sensing hardware. Regardless of if your application has existing hardware installed or if you are building a new facility, CEMS can receive and analyze your data.

CEMS Hardware & Sensors

CEMS software is compatible with Setra or 3rd party hardware and can be commissioned with existing hardware. It can be commissioned as a new, full hardware and software package. We will work closely with you to implement the best CEMS hardware configuration for your application. Sensor hardware data is communicated through the SetraEDGE™ to the SetraCLOUD via a LAN, WiFi or cellular network.

- ① Temperature & Humidity
- ④ Data Communication
- ② Particle Count
- ⑤ Differential Pressure
- ③ Local Environmental Monitor
- ⑥ Wireless Sensing



Setra CEMS™ Key Benefits



Visibility & Accountability

Increase accountability and visibility with automated compliance checks, timestamps, and signatures.



Regulatory Compliance

Reduces difficulty in meeting state and federal requirements for quality control with remote monitoring and alerting protocols.



Contamination Prevention

Prevents damaging environmental fluctuations with the ability of proactive actions by staff through trend charts, alerting protocols, and state-of-the-art hardware.



Automate Manual Operations

Access automated reporting and 24/7 data visualization to remove human error in manual data logging and report creation.



Product Safety & Integrity

Ensuring high-value assets like vaccines, medications, medical devices, and more remain at safe conditions for use.



Gain Actionable Insights

Instant feedback necessary to enable faster response to adverse conditions and mitigate risk of product sterility.

Setra CEMS™ Key Benefits



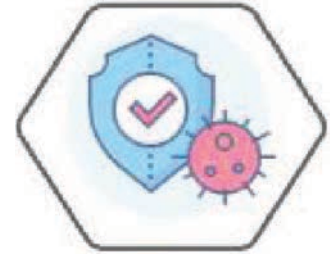
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Product Safety & Integrity

Ensuring high-value assets like vaccines, medications, medical devices, and more remain at safe conditions for use.



Gain Actionable Insights

Instant feedback necessary to enable faster response to adverse conditions and mitigate risk of product sterility.



setraFLEX™

Environmental Monitor

- Supports 3 rooms, 6 parameters each
- 7" Projected capacitive touch screen
- BACnet/IP & BACnet MS/TP
- Flush mount to wall
- Mounts in standard electrical boxes
- Full touch response with medical gloves
- No programming required
- 4 Inputs & 2 outputs on-board
- On-board or external pressure transducer
- High accuracy 0.25% sensor standard
- Monitor and control pressure, temperature, humidity, air change rate, and up to 6 user-defined parameters
- 4 Customizable room profiles
- Alarm on any digital input (door opening, HEPA filter status, etc)
- 2 Levels of password security
- User-defined on-screen text and icons
- Configuration options help reduce nuisance alarms
- 50mm Wall depth when sensor is mounted remotely
- Cloning features reduces time required for multi-unit installation
- Remote duplicate display shows parameters inside and outside of rooms

The Setra FLEX™ provides a flexible room environmental control and monitoring solution in a simple-to-use package. An attractive flush-mount faceplate is complemented by an intuitive graphical display to meet any architectural requirement. The unit supports 3 rooms, monitoring up to 6 parameters for each room. An optional differential pressure sensor can be either factory-installed in the unit or ordered separately and installed above the ceiling. Integration with building automation systems is made easy through either BACnet/IP or BACnet MS/TP network protocols.

Modular design

A modular hardware design enables the FLEX monitor to fit in various wall thickness found around the globe. For applications which require the monitor to fit in wall depths less than 50mm, the FLEX can be ordered with an external pressure sensor. When mounting in a three gang electrical box, the FLEX can be ordered with an integrated on-board sensor. Sufficient on-board I/O provides connectivity for most common equipment and sensor applications. If additional connections are required, or if more advanced HVAC applications demand it, FLEX can work directly with a third party controller over BACnet. A high accuracy 0.25% differential pressure transducer is used in all pressure sensing options. A projected capacitive touch screen provides swipe functionality and allows for use with medical gloves. The faceplate is attached to the unit body, enabling both tamper resistant operation and easy opening for pressure calibration.

Setra FLEX-RM and FLEX-RC

FLEX software is designed to suit any application, with the ability to support up to 3 rooms. FLEX-RM (Room Monitor) provides monitoring only, for those applications where no control from the touch screen is needed. FLEX-RC (Room Control) offers monitoring, plus PI loop or network control of VAV boxes, venturi valves, or hydronic reheat valves. Software is pre-installed, with configuration and network integration done using simple setup screens. There is no programming required. When completed, configuration settings on one unit can be cloned to other devices using a standard USB thumb drive, thereby shortening commissioning time. Units can also be configured remotely over a BACnet network.

The FLEX monitor is both a controller and monitor, with audible and visual alarming on all room environmental parameters. The FLEX monitor enables users to save energy by choosing from a PI control loop or three BACnet Setpoint Override control points and two monitoring sets for any of four room modes, such as occupied and unoccupied.



Specifications

Physical description

Dimensions	9.25" W x 6.56" H x 0.625"D (235.0mm x 166.7mm x 15.9mm)
Mounting	Triple-gang, double deep electrical box. RACO 697, Appleton M3-350, or equivalent
Case	Fire-retardant plastic UL94 V-0
Weight	2 lbs
Display	7" Projected Capacitive (PCAP) multi-touch, 800 x 480 pixels. Usable with medical gloves.
Display brightness	1-7
USB port	Micro-USB port for configuration cloning between units and software upgrades.
Audible alarm	Dual piezo

Communications

Protocols (BACnet objects can be found at setra.com) BTL- compliant

BACnet/IP using IPv4, Ethernet CAT5 cables with RJ45

BACnet MS/TP up to 76.8 kbps, 3-conductor, twisted, shielded 16-24 AWG cable

Electrical

Power	24 VDC, 24 VAC (18-30 VAC operational), 50-60 HZ
Power draw	13 W max, 10 W typical
Wire	2 or 3-conductor (depending on application) stranded unshielded twisted pair, 16-24 AWG
Connections	Removable Terminal Blocks

Regulatory compliance

CSA, CE, RoHS, WEEE

Environmental data

Operating temp. °F (°C)	32 to 120 (0 to 50)
Storage temp. °F (°C)	-40 to 185 (-40 to 85)
Operating humidity	5 to 95% RH (non-condensing)
Ingress Protection (IP) rating	IP54

Chemical resistance

Exposed surfaces are chemically resistant to vaporized hydrogen peroxide (VHP), formaldehyde, chlorine dioxide (clidox), perchloric acid, sodium hypochlorite 3-6% (bleach), quaternary ammonium 7% in 1:128 tap water (ammonia).

Performance

Accuracy RSS	±0.25%
Non-linearity (BFSL)	±0.24%
Hysteresis	±0.05%
Non-repeatability	±0.05%
Span setting tol.	±0.5% Rdg
Zero/span shift % FS	± 0.03% PSI (±0.05% FS)
Overpressure	±1 PSI (15" WC for ≤0.10" WC FS)
Pressure media	Air or non-conductive, non-explosive gases
Pressure fittings	3/16" barbed fittings
Altitude	6562 ft. (2000 m) max.
Position	Housing to be 90° in reference to level surface, ±5°

Specifications subject to change without notice.

Software features

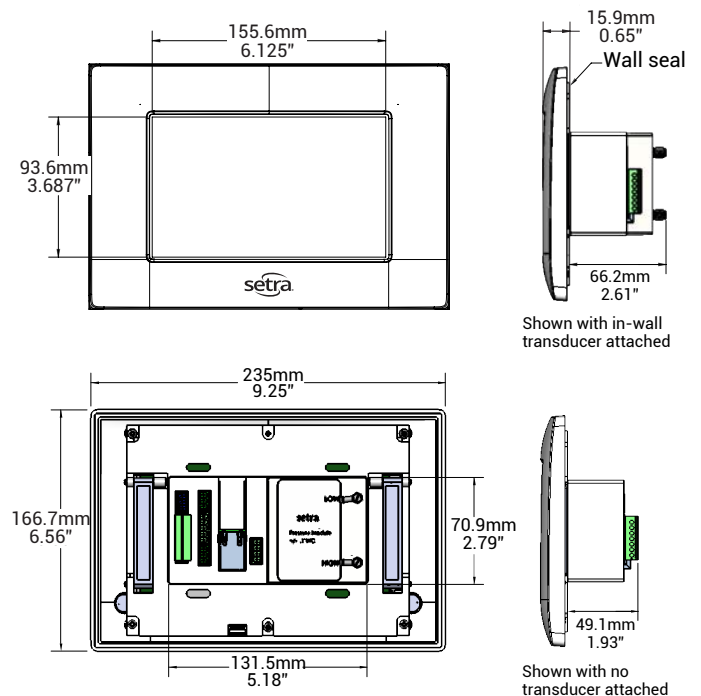
Home screen

Rooms supported (3)	Carousel display to show up to 3 rooms, with monitor and control for each.
Parameters per room (6)	Badges display pressure, temperature, humidity, air change rate, and up to 6 user-defined parameters. Each capable of monitor or control. All information available over BACnet.
Room profiles (4)	Define profiles for room environmental control and monitoring. User-defined text. Used for modes such as occupied, unoccupied, cleaning, or decontamination.
Pressure modes (3)	Positive, Negative, Neutral
Background colors (5)	Green, yellow, blue, red, orange for room condition.
Text (2)	User defined lines text that describe room condition.
Icons (32)	Choose from a palette of icons to represent room condition.
Control	Control loops assignable per device. PI control loop for on-board analog outputs. User-defined set point limits. All information available over BACnet.

Alarming

Parameters per room (6)	Visual and audible alarms for pressure, temperature, humidity, air change rate, and up to 6 user-defined parameters.
Visual	Green = normal, Red = alarm, Yellow = warning
Audible	Dual buzzers
Disable	One-touch all alarms disable function.
Silence	Selectable 0 - ∞ seconds
Delay	Selectable 0 - 1200 seconds
Latch	Alarm option to hold alarm state until manually reset by operator.
Remote	Remote annunciation to dedicated unit (p/n SRAN) or to multi-unit room monitor.

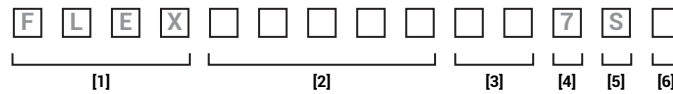
Dimensions



Ordering information

Example part number: FLEX0R1WBRM7S4

Setra Flex, $\pm 0.10''$ W.C., Room monitor only with pre-configured badges P, T, RH, ACH, and 2 user-defined badges, 7 inch display, Setra logo on faceplate, 4 pressure snubbers:.



[1]	[2]	[3]	[4]	[5]	[6]
Model	Pressure transducer range for on-board sensor	Monitor or controller type	Display	Faceplate	Pressure snubber²
FLEX Setra FLEX™	R05WB $\pm 0.05''$ WC OR1WB $\pm 0.10''$ WC R25WB $\pm 0.25''$ WC OR5WB $\pm 0.50''$ WC 001WB $\pm 1.00''$ WC Z02LB ± 12.5 Pa O25LB ± 25 Pa O50LB ± 50 Pa 100LB ± 100 Pa 250LB ± 250 Pa NNNN No transducer	RM Monitor only, no control operation RC Control and monitoring, full control operation CN' Configurable monitor only, no control option. All 6 badges are user defined	7 7" screen	S Setra logo	N Quantity 0 1 Quantity 1 2 Quantity 2 3 Quantity 3 4 Quantity 4 5 Quantity 5 6 Quantity 6

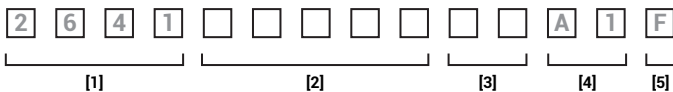
¹Model CN must be ordered with off-board sensor option NNNNN.

²Stainless steel pressure pickup port, 2.75" x 4.5", mounts in standard single-gang wall box. Typically 2 are required for each room.

Model 264 Pressure Transducer

Example part number: 2641R25WB11A1F

Model 264, $\pm 0.25''$ WC bidirectional pressure range, 4-20 mA output, 1/2 in. conduit enclosure, $\pm 0.25\%$ FS accuracy:

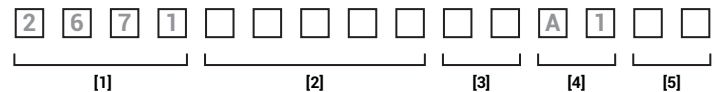


[1]	[2]	[3]	[4]	[5]
Model	Pressure range (bidirectional)	Output	Electrical Termination	Accuracy
2641 Model 264	R05WB $\pm 0.05''$ WC OR1WB $\pm 0.1''$ WC R25WB $\pm 0.25''$ WC OR5WB $\pm 0.5''$ WC 001WB $\pm 1''$ WC	11 4-20 mA 2D 0-5 VDC	A1 1/2 in. conduit enclosure	F $\pm 0.25\%$ FS

Model 267 Pressure Transducer

Example part number: 2671R25WB11A1FD

Model 267, $\pm 0.25''$ WC bidirectional pressure range, 4-20 mA output, 1/2 in. conduit enclosure, $\pm 0.25\%$ FS accuracy with LCD display:

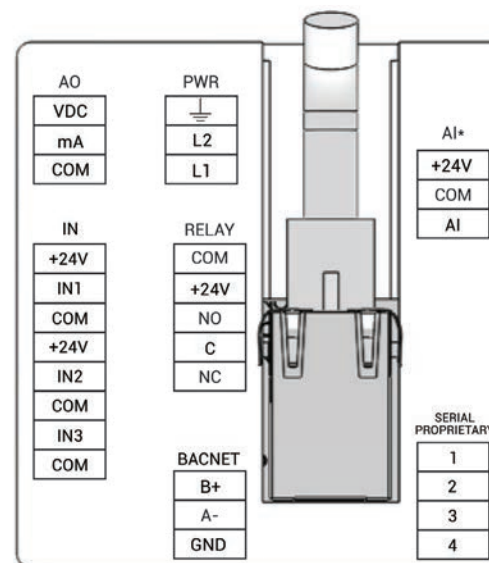


[1]	[2]	[3]	[4]	[5]
Model	Pressure range (bidirectional)	Output	Electrical Termination	Accuracy
2671 Model 267	R05WB $\pm 0.05''$ WC OR1WB $\pm 0.1''$ WC R25WB $\pm 0.25''$ WC OR5WB $\pm 0.5''$ WC 001WB $\pm 1''$ WC	11 4-20 mA 2D 0-5 VDC 2E 0-10 VDC	A1 1/2 in. Conduit Enclosure	FN $\pm 0.25\%$ FS, no LCD display FD $\pm 0.25\%$ FS, w/ LCD display

Inputs & Outputs

Universal inputs (3)	0-5 VDC, 0-10 VDC, or 4-20 mA input signal* Configurable for either Analog or Digital signals. Use external sensors for pressure, temperature, humidity, or any suitable application. Use as digital input for door, HVAC filter DP, or duct static DP pressure switch.
Analog input (1)	Dedicated for use as input for either on-board pressure transducer, or general AI input. Used only when no transducer is purchased on unit.
Analog output (1)	0-5 VDC, 0-10 VDC, or 4-20 mA output signal. Use as PI control loop to modulate reheat valves or other analog driven devices, pressure output signal, or mirror an input signal. Can be assigned to any room parameter.
Relay output (1)	24 VDC SPDT NO/NC Relay. Use as remote alarm annunciator or other NO/NC applications. Contact rating 2.0A @ 30 VDC
Wire	Stranded shielded twisted pair, 16-24 AWG .14-1.5 mm ² cross sectional area

*Installer must provide 250Ω resistor required for 4-20mA signal

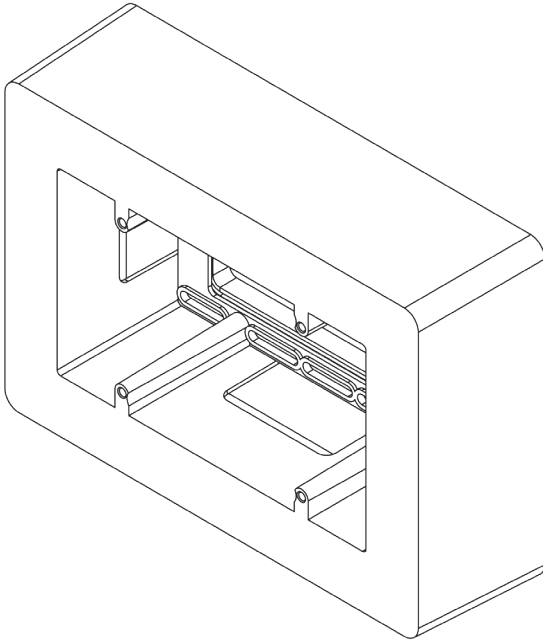


*AI for on-board transducer or general AI input.

Surface mount adapter boxes

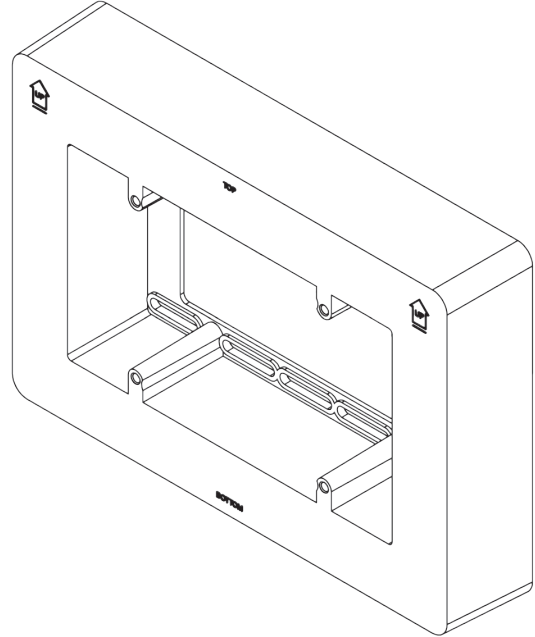
229971

(For FLEX with on-board pressure module)

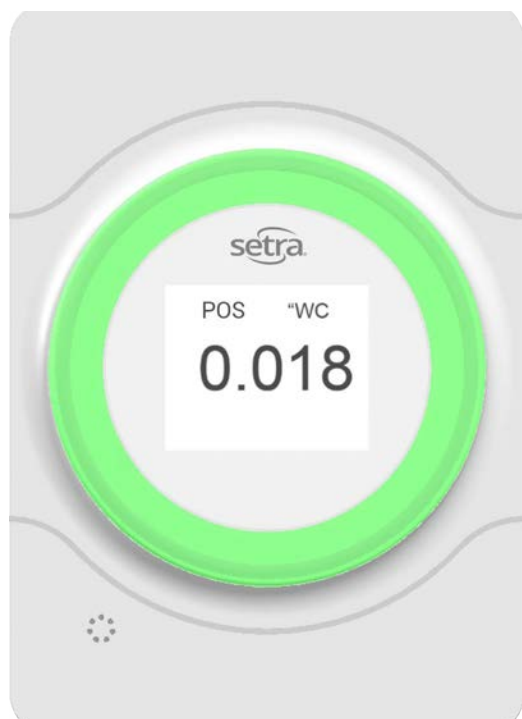


229973

(For FLEX without on-board pressure module)



Mounting hardware included with adapter box.



setra^{lite}TM

Visual Pressure Monitor

Features

- Simple single-room pressure indication for all pressurized spaces
- Sleek and attractive single wall plate
- Multiple installation options
- Simple to install in minutes
- Visual alarm via red/green light ring
- Configurable audible alarm
- Offset light pipe that can be seen at an angle or down a hallway
- Digital display can be always-on or momentary
- Is easy, using just 3 buttons
- Analog configuration output provides pressure reading to BMS system
- Works with Setra FLEX to serve rooms with multiple doors
- Available in White or Black

Accurate measuring & display

Setra Lite provides a simple, cost-effective, and accurate way to measure and display room differential pressure for spaces that currently require manual verification. For local staff managing an area, Setra Lite has a light ring that is green or red and an optional audible alarm providing clear indication of room conditions. For facility using Setra Lite means the frequency of preventative maintenance walk-by inspections can be reduced because Setra Lite is monitoring the space.

Setra Lite features

Setra Lite has many features found only in larger, more complex room pressure monitors. Including a bright light ring that can be seen at an angle or down a hallway, a digital display of the pressure value that is always-on or momentary, an alarm delay for door entry, and POS or NEG room mode. The Setra Lite sensor has Setra's accuracy and reliability you know you can trust.

Simple installation

Setra Lite is about the size of a standard light switch, and just as a simple to install. It fits in a single-gang US electrical box, international 86-box or international round back-box, and is powered by 24VAC or 24VDC. The reference side pressure pickup is integral with the Lite faceplate. An analog output provides the building management system with the pressure signal for any additional trending or alarming needed.

The Setra Lite also integrates seamlessly with the Setra FLEX environmental monitor. Mount Setra Lite at additional doors that enter the space, and use an on-screen badge to display its value.

Applications

- Sterile processing
- Sterile storage
- USP 800 compliance
- Endoscopy
- Bronchoscopy
- Laundry
- Protective patient rooms
- Isolation rooms (All)
- Emergency ICU tents
- Recently Reconfigured spaces
- Critical & Non-critical ASHRAE-170 spaces
- Replacement of ball/tube through the wall pressure indicators



Pressure indication



Simple green status



Red indicates alarm



Specifications

Physical description

Dimensions	See Table on next page
Mounting	See Table on next page
Position	See Table on next page
Case	Fire-retardant plastic UL94 V-0
Weight	See Table on next page
Display	Color: RGB, 65K Resolution: 128x160, backlight: LED
Alarm indication	Visual: Red illuminated LED light ring, 11mm standoff from faceplate, viewable at 90° angle from side
Audible	2 secs on 1 sec off, audible from up to 150ft (30m)

Performance

Accuracy ¹	±0.5% FS
Non-linearity (BFSL)	±0.44% FS
Hysteresis	±0.10% FS
Non-repeatability	0.05% FS
Span Tolerance	±1% Rdg
Thermal effects ²	
Zero shift %FS/°F (°C)	±0.033 (±0.06)
Span shift %FS/°F (°C)	±0.033 (±0.06)
Long-term stability	±0.5% FS per year
Overpressure	±1 PSI (15" WC for <0.10" WC FS)
Pressure media	Air or non-conductive, non-explosive gases
Pressure fittings	3/16" barbed fitting

Environmental data

Operating temp. °F (°C)	32 to 120 (0 to 50)
Storage temp. °F (°C)	-20 to 160 (-30 to 70)
Operating humidity	5 to 95% RH (non-condensing)
Ingress protection (IP) rating	IP54

¹ RSS of non-linearity, non-repeatability, and hysteresis

² Units calibrated at nominal 70°F maximum thermal error computed from this datum

³ Zero tolerance negated by zero push button

Display

Light ring	Green, red, yellow, or off
Numeric value	4 digits

Features

Re-zero	Single press-and-hold to re-zero sensor
Alarm thresholds	Set numeric threshold in "WC or Pa
Door delay	Set door alarm delay for 0-999 seconds
POS or NEG indicator	Set display to show POS, NEG, or off
Display on/off	Set display to always-on, or momentary press to show pressure value
Significant digits	1,2, or 3 after decimal point, POS or NEG
Light ring	Set LED ring to: 1). steady green, steady red if alarm 2). Green OFF, and steady red if alarm 3). always off
Units	Set units on the display to show "WC or Pa

Electrical

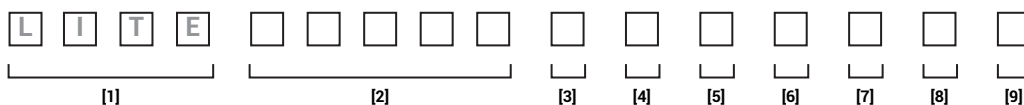
Power	24 VAC (+/-10%) 24VDC (18-32) 50-60 HZ
Power draw	2W max, 1W typical
Analog output ³	Set for 0-5V, 0-10V, or 4-20mA signal
Wire	Stranded unshielded twisted-pair, 18-24 AWG
Terminals	Fixed, non-removable

Regulatory compliance

CE, RoHS

Ordering information

Example part number: LITE-R25WB-D-W-L-V-O-A-N



[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Model	Transducer Range	Accuracy	Color	Orientation	Alarm	Mounting Location	Communication	Accessories
LITE Setra Lite	R25WB ±0.25" WC OR5WB ±0.5" WC 001WB ±1" WC 003WD 0-3" WC 050LB ±50 Pa 100LB ±100 Pa 250LB ±250 Pa 750LD 0-750 Pa	D ±0.5% FS	W White B Black	P Portrait L Landscape	V Visual only A Audio and visual	O Outside room I Inside room	A Analog	N No accessories M' Quick-mount kit D Dual alert

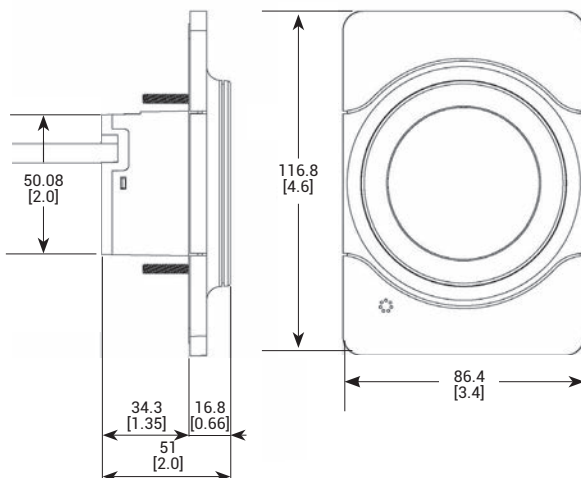
¹Quick-Mount kit only available with portrait orientation

Setra Lite Configurations

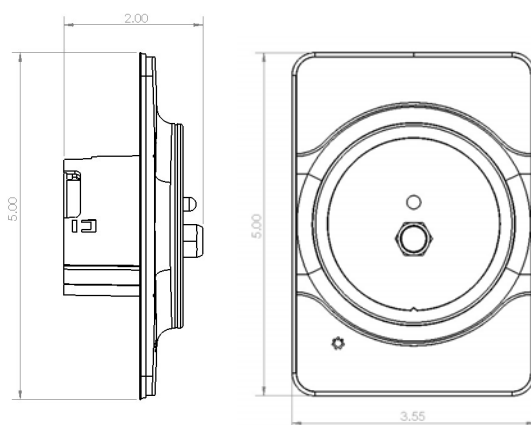
	Monitor Only	Dual Alert	Quick Mount Kit
Use Case	Simple permanent monitoring of airflow	Simple permanent monitoring of air flow where status is desired in both spaces	Simple temporary monitoring of airflow
Set Up	- Flush mount install with 2" holesaw or in std single gange box - Install 24 VAC/VDC wiring	- Flush mount install with 2" holesaw or in (2) std single gang boxes - OR - Flush mount install where previous thru wall monitor - Apply 24VAC/VDC wiring	- Quick mount on a simple hook or screw - Apply 24VAC/VDC via wiring or portable power supply
Kit Includes	Setra Lite Base Unit - Specified by customer - Pressure Pickup Port (Setra RPS) - Mounting Hardware - Elbow Connectors 250ohm resistor (If wiring inputs for 4-20mA current loops)	Setra Lite Base Unit - Specified by customer - LED alarm indicator 18" pigtail prewired - Pressure Pickup Port (Matching Dual Alert Variant) 18" of rubber connecting tubing - Mounting Hardware - Elbow Connectors 250ohm resistor (If wiring inputs for 4-20mA current loops)	Setra Lite Base Unit - Specified by customer - Pressure Pickup Port (Setra RPS) - Battery Pack - AC Adapter with 6-foot cord - Mounting bracket
Mounting	Single-gang US electrical box, China 86 box, European back box, or equivalent interior dimensions Direct to Wall	Single-gang US electrical box, China 86 box, European back box, or equivalent interior dimensions Direct to wall	Temporary mounting plate with single clearance hole
Mounting Position / Orientation	Can be mounted vertical or horizontal. Re-zero after installation	Can be mounted vertical or horizontal. Re-zero after installation	Mount vertically
Dimensions	3.42" W x 4.88"H x 1.83"D (67 mm x 124 mm x 46.5 mm)	3.42" W x 4.88"H x 1.83"D (67 mm x 124 mm x 46.5 mm)	4"W x 7.5"L x 2.5" Deep (102mm x 190mm x 63mm)
Weight	8 oz (0.5 lbs)	8 oz (0.5 lbs)	11 oz (0.7 lbs)

Dimensions

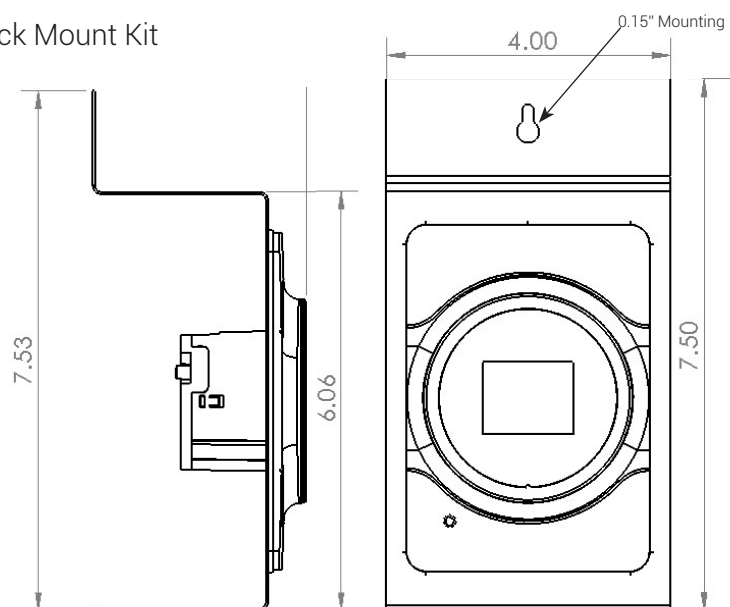
Setra Lite Base Unit



Dual Alert - Room Pressure pick up port



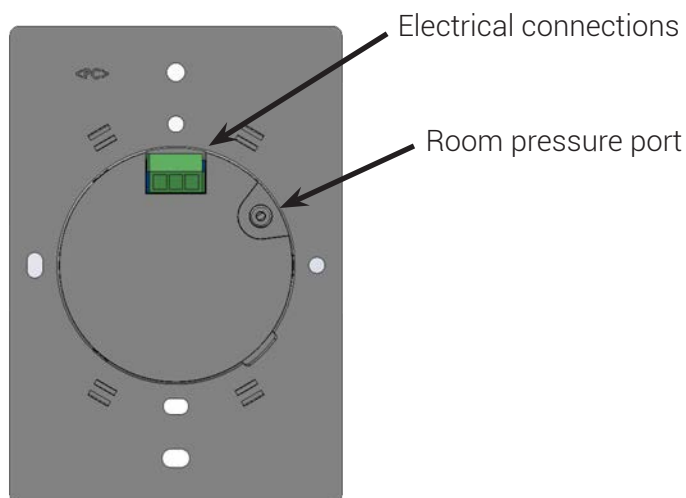
Quick Mount Kit



* For details of the standard room pressure pickup port see Setra RPS documentation

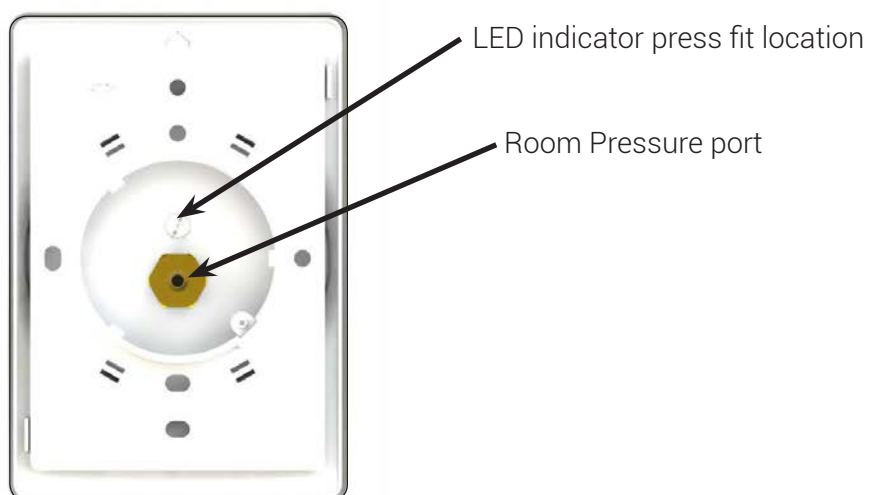
Wiring tubing connections

Setra Lite base unit



Rear view of wiring/
pressure port

Dual alert room pressure pickup port



Kit Contents – What's in the Box

Setra Lite base unit

- Setra Lite Base Unit – As specified by customer
- Setra RPS – Single Gang Filtered Pressure



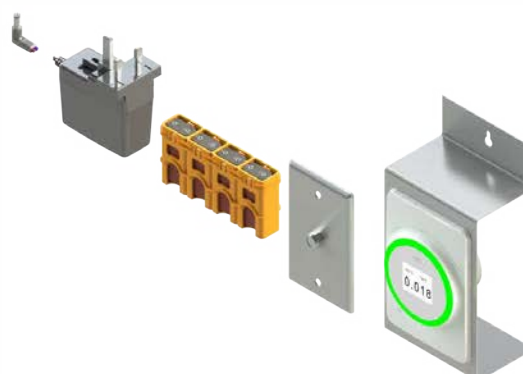
Dual Alert

- Setra Lite Base Unit – As specified by customer with 18" LED alarm indicator 18" pigtail pre-wired
- Matching Dual Alert room pressure pick up port
- 18" of rubber connecting tubing



Quick Mount Kits

- Setra Lite Base Unit – As specified by customer
- Battery Pack
- AC Adapter with 6-foot cord
- Setra RPS – Single Gang Filtered Pressure
- Pressure Port
- Mounting bracket





Reliable. Confident. Environmental Monitoring.

Pharmaceuticals | Life Sciences

Global Good Manufacturing Practices

- Annex 1 (EU, PIC/S, WHO): Manufacture of Sterile Medicinal Products
- FDA Guidance for Industry - Sterile Drug Products Produced by Aseptic Processing

ISO 14644-1:2015, 14644-2:2015
& 21501-4:2018



Reliable. Confident. Environmental Monitoring.

Airborne Particle Counters

Confident Results Matter

- Models for every pharmaceutical environment and application
- ALCOA+ data integrity principles for no-hassle 21 CFR Part 11 compliance
- Leading the way in real-time viable particle detection

- BioTrak® Real-Time Viable Particle Counter**
The Future of Viable Monitoring
 - Reduce or eliminate interventions in Grade A
 - Achieve truly continuous viable monitoring
 - Accelerate investigations with real-time data
- AeroTrak®+ Remote Particle Counters***
Ultra-Reliable Data Collection
 - Protect against network failures with six months of data storage
 - Worry-free cleaning with sealed inlets and VHP resistant options
 - Flexible environmental monitoring system with Wi-Fi® communication
- Remotes with Pump**
- AeroTrak® Handheld Particle Counters**
- AeroTrak®+ Portable Particle Counters***
 - Different sample modes for monitoring, classifying, and root cause investigation
 - Built-in monitoring and classification reports
- Active Air Sampler for Aseptic Environments**
 - Intermittent sampling improves knowledge of conditions during a production run without interventions
 - Protect against network failures with local data storage
- Integrated Environmental Monitoring Probes**

* Unmatched 5 Year Laser Warranty



TSI® Facility Monitoring Software: Reliable Monitoring Systems

Distributed. Flexible. Redundant.

- No single point of failure
- Data available where and when you need it
- Easily scalable
- Pharma 4.0 ready - communication via OPC UA Client/Server



- Monitor: Data Collection**
 - Fault-tolerant design
 - Protects against network failures
 - Hot-standby options
- Client: Interface**
 - Turn data into knowledge with alarming, reports, and trending
 - Does not effect monitor or database functions
 - Multiple clients possible
- Database: Secure Storage**
 - Valuable data is safe and secure
 - Redundancy is standard with a mirror database
 - SQL for high availability and fast access

Environmental
Monitoring
Data

FMS Architecture



Reliable. Confident. Environmental Monitoring.

Environmental Monitoring Products for Pharmaceutical Manufacturing & Life Sciences

Facility Monitoring System

A reliable monitoring system that ensures environmental control and decreases downtime — Pharma 4.0 plug and play functionality via OPC UA Client/Server

Model	Flow Rate	Benefits and Features
Remote Particle Counters Designed for continuous monitoring as part of the Facility Monitoring System		
AeroTrak® 7510	1 CFM (28.3 LPM)	VHP resistant models available, Wi-Fi® capable with optional module
AeroTrak® 6510	1 CFM (28.3 LPM)	Built-in pump, VHP resistant models available

Portable Particle Counters

Versatile instruments suitable for classification and monitoring

AeroTrak® A100 Series	1 CFM (28.3 LPM), 1.77 CFM (50 LPM), and 3.53 CFM (100 LPM) models available	Intuitive interface, manages sampling with workflows, built-in classification and monitoring reporting capabilities
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Handheld Particle Counters

Economical choice for higher class cleanrooms and investigations

AeroTrak® 9306	0.1 CFM (2.83 LPM)	Small and lightweight
----------------	--------------------	-----------------------

Real-Time Viable Particle Counter

A biofluorescent particle counter (BFPC) that provides total and viable particle counts in real-time

BioTrak® 9510-BD	1 CFM (28.3 LPM)	Alternative method to meet Annex 1 requirement for continuous viable air monitoring
------------------	------------------	---

Active Air Sampler

Designed specifically for use in aseptic environments

AeroTrak® 7010	1 CFM (28.3 LPM)	Meets ISO 14698 and EN 17141 requirements with a $d_{p0.5} = 0.8 \mu\text{m}$
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Knowledge Beyond Measure.

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UK	Tel: +44 149 4 459200	China	Tel: +86 10 8219 7688
France	Tel: +33 1 41 19 21 99	Singapore	Tel: +65 6595 6388
Germany	Tel: +49 241 523030		

**Unmatched
5 Year Laser
Warranty**

Additional Options



Life Sciences Solutions

Floor and wall coverings
high performance

Gerflor

Cleanroom Requirements

Controlled environments

A clean room is a space in which **particules or molecular contaminants** are mastered and controlled. In addition, **physical parameters** such as temperature, ESD, humidity or pressure can be controlled. These environments are used for electronic, pharmaceutical or medical equipment productions.

Some sectors will need to ensure an environment **free of bacteria, viruses or other micro-organisms**.



High control environment

Floor & wall protection, focus points to manage



Contamination management



Resistance to external attacks



Cleaning and decontamination



ESD properties



GMP compliance



Floor and wall solutions

Gerflor works with the best international institutes in order to guarantee these customers optimum performance. .



Easy zoning

Cleanroom standards

Gerflor ISO and GMP compliant

Contamination management



ISO 14644-1 specifies the classification of air cleanliness in terms of concentration of airborne particles in cleanrooms and clean zones.

ISO 14644-4 specifies the requirements for the design, construction and start-up of cleanroom facilities.

ISO 14644-8 establishes the classification of air chemical cleanliness (ACC) in cleanrooms and associated controlled environments, in terms of airborne concentrations of specific chemical substances.

ISO 14698 establishes the principles and basic methodology of a formal system of biocontamination control (Formal System) for assessing and controlling biocontamination when cleanroom technology is applied for that purpose.

ISO 22196 specifies a method of evaluating the antibacterial activity of antibacterial-treated plastics, and other non-porous, surfaces of products.

ISO 21702 specifies proper methods for measuring antiviral activity on plastics and other non-porous surfaces of antiviral-treated products against specified viruses.

ISO 846 is a microbiological tests to determine the action of fungi and bacteria on plastics.

Resistance to external attacks



ISO 14644-4 specifies the requirements for the design, construction and start-up of cleanroom facilities.

ISO 14698 establishes the principles and basic methodology of a formal system of biocontamination control (Formal System) for assessing and controlling biocontamination when cleanroom technology is applied for that purpose.

ISO 2812-1 specifies general methods for determining the resistance of an individual-layer or multi-layer system of coating materials to the effects of liquids, other than water, or paste-like products.

Cleaning and decontamination



ISO 8690 Measurement of radioactivity — gamma-ray and beta-emitting radionuclides — Test method to assess the ease of decontamination of surface materials.

ISO 14644-9 establishes the classification of cleanliness levels on solid surfaces by particle concentration in cleanrooms and associated controlled environment applications.

ISO 14698 establishes the principles and basic methodology of a formal system of biocontamination control (Formal System) for assessing and controlling biocontamination when cleanroom technology is applied for that purpose.

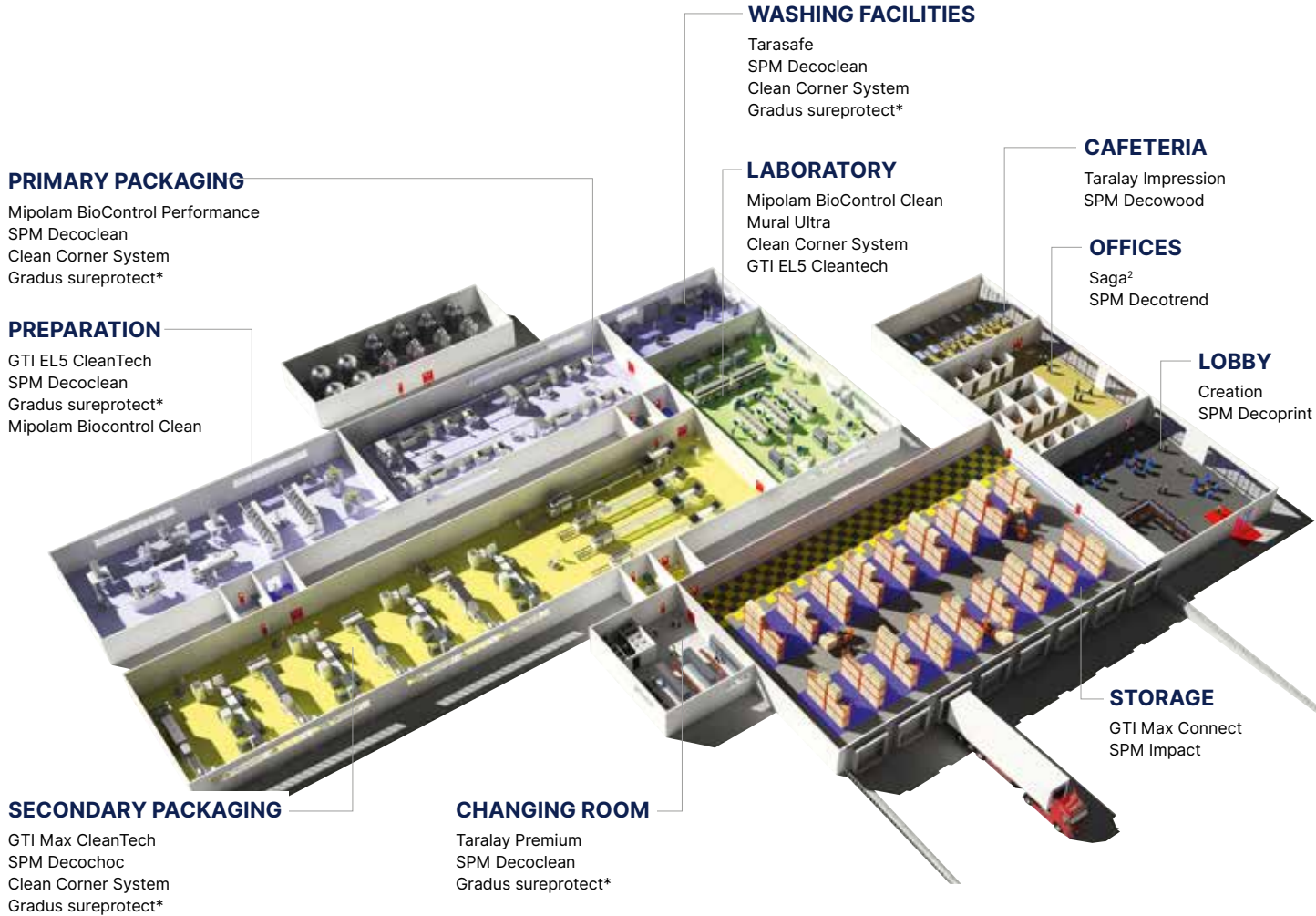
Esd properties



IEC 61340-5-1 Protection of electronic devices from electrostatic phenomena – General requirements.

ANSI/ESD S20.20 provides administrative and technical requirements for establishing, implementing, and maintaining an ESD Control Program to protect electrical or electronic parts, assemblies, and equipment susceptible to damage by electrostatic discharges.

A complete Solution



* UK only

Exclusive solutions
for renovation /
rehabilitation of your
sites

■ A TECHNICAL ASSISTANCE SERVICE
(TAS) SUPPORTS YOU ON YOUR
PROJECTS



Ideal for renovation



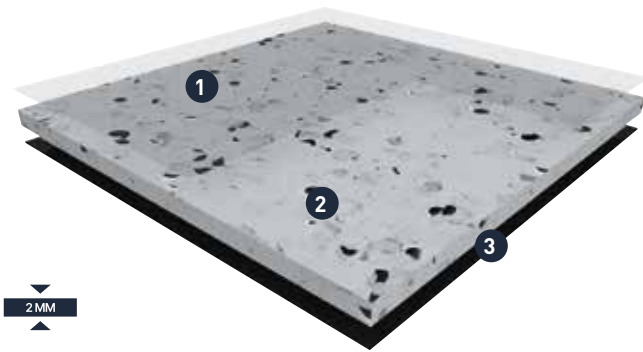
ESD areas



GTI Max Cleantech



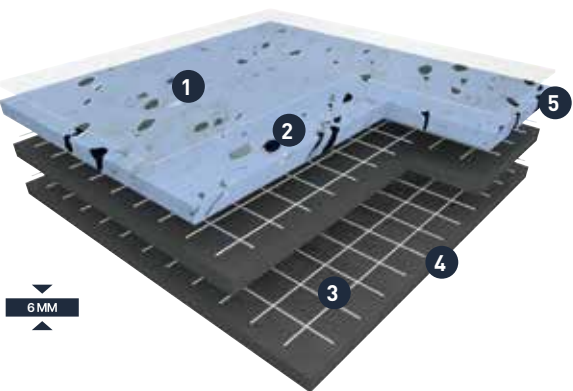
Mipolam Biocontrol EI5



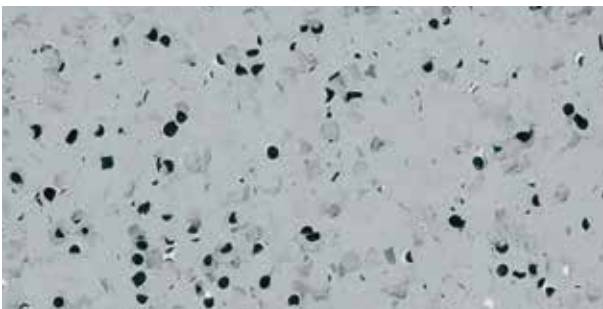
- 1 Conductive surface treatment
- 2 Homogeneous conductive layer with carbon black
- 3 Backing treated with carbon black



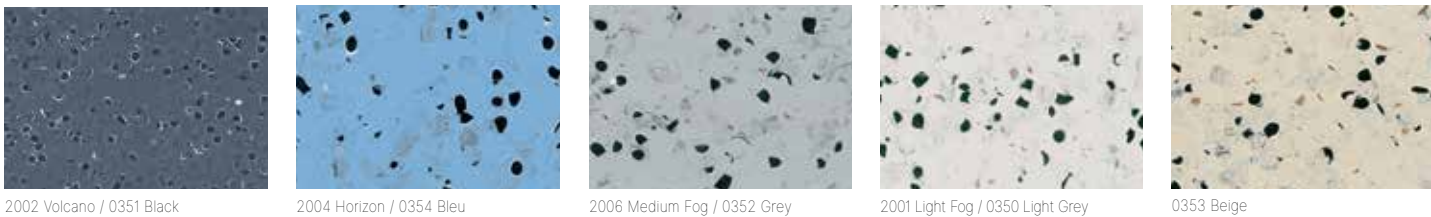
GTI EI5 Cleantech



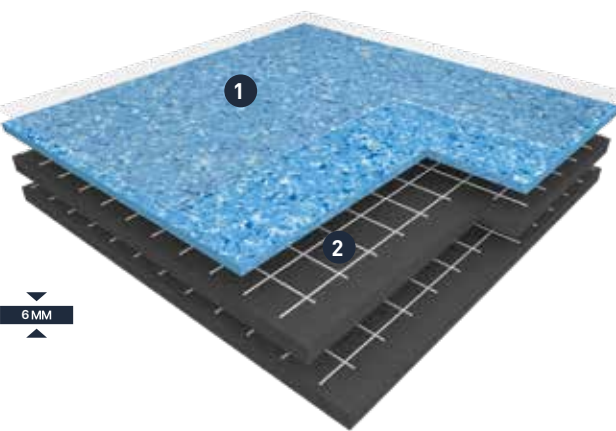
- 1 Static conductive surface treatment
- 2 Static conductive wear layer
- 3 Double fiber glass reinforcing grid
- 4 Static conductive backing
- 5 Straight edges



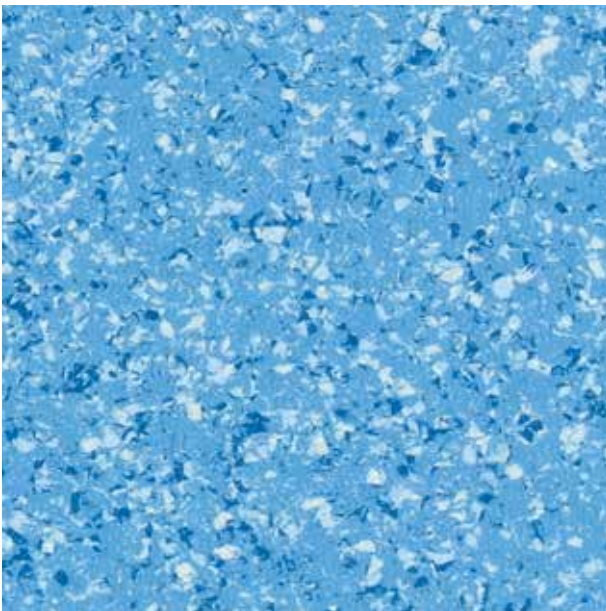
THE HIGH PERFORMANCE FLOOR FOR ESD CLEANROOMS



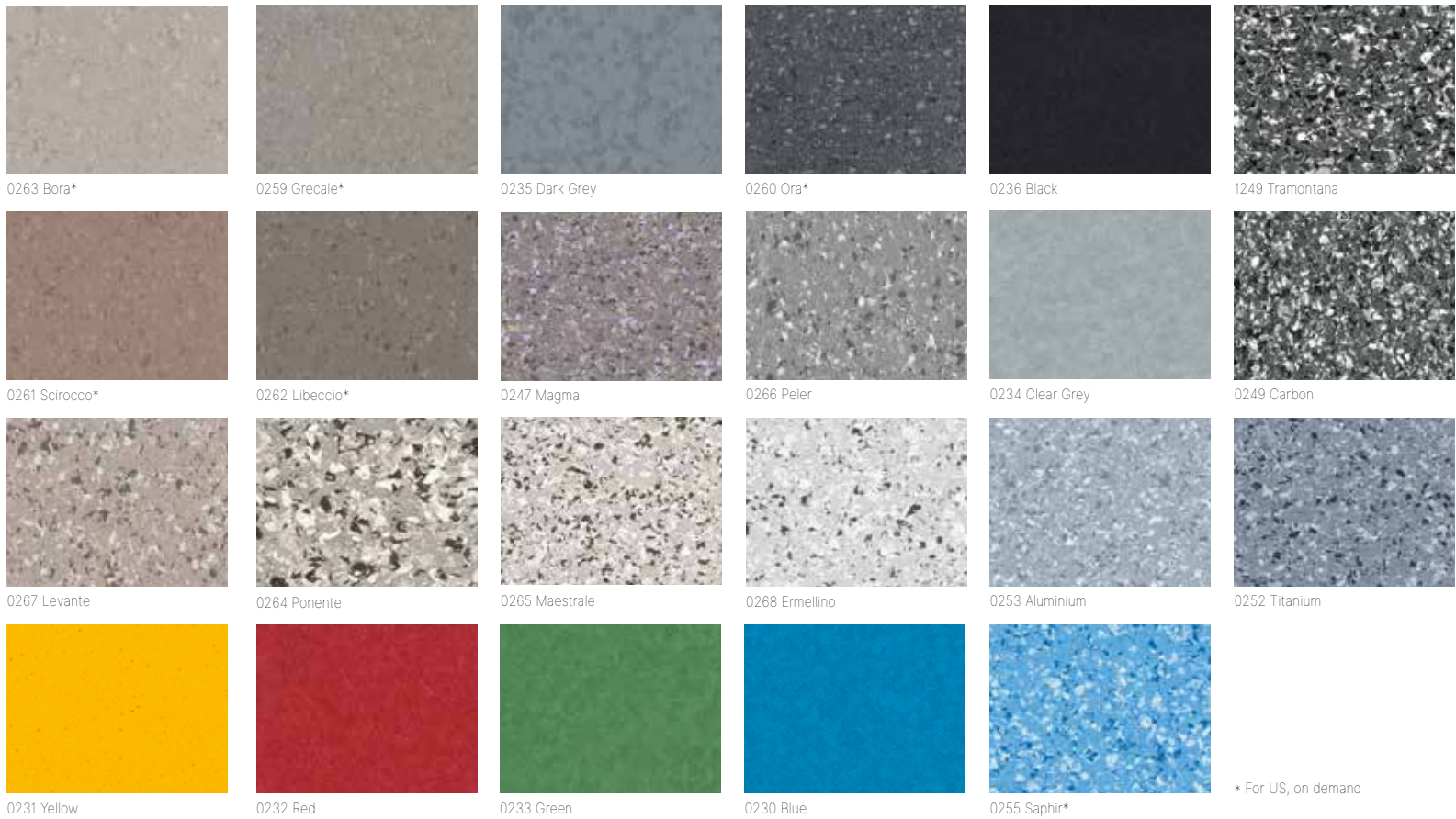
2002 Volcano / 0351 Black 2004 Horizon / 0354 Bleu 2006 Medium Fog / 0352 Grey 2001 Light Fog / 0350 Light Grey 0353 Beige



- 1 Patented surface treatment
- 2 Double fiber glass reinforced grid



THE EXCLUSIVE SOLUTION FOR RENOVATION OF CLEANROOMS WITH HIGH TRAFFIC



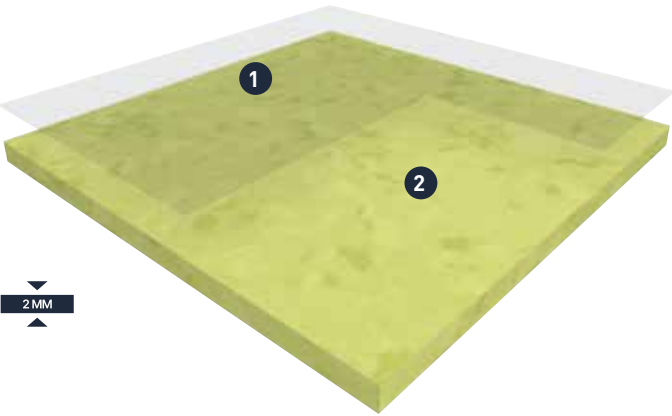
0263 Bora* 0259 Grecale* 0235 Dark Grey 0260 Ora* 0236 Black 1249 Tramontana 0261 Scirocco* 0262 Libeccio* 0247 Magma 0266 Peler 0234 Clear Grey 0249 Carbon 0267 Levante 0264 Ponente 0265 Maestrale 0268 Ermellino 0253 Aluminium 0252 Titanium 0231 Yellow 0232 Red 0233 Green 0230 Blue 0255 Saphir* * For US, on demand

Mipolam Biocontrol performance

ISO 3

GMP-Class A

H₂O₂ RESISTANT



- 1 Surface treatment
- 2 2 mm calendared PVC single layer



- HIGH PERFORMANCE SOLUTION FOR CLEANROOMS
- 17% PLANT-BASED CONTENT

Sold in rolls of 20 x 2 m

Resistant to micro biological attacks

H₂O₂ RESISTANT

Resistant to decontamination process

Resistant to heavy load

Resistant to chemical spills

6009 Grey Stone

6039 Pebble

6029 Cloud

6043 Wood

6044 Sea Storm

6008 Calico

6041 Clay

6031 Breeze

6001 Cotton

6032 Sunshine

6025 Tangelo

6075 Cardinal

6036 Oceania

6006 Blue Sky

6027 Accacia

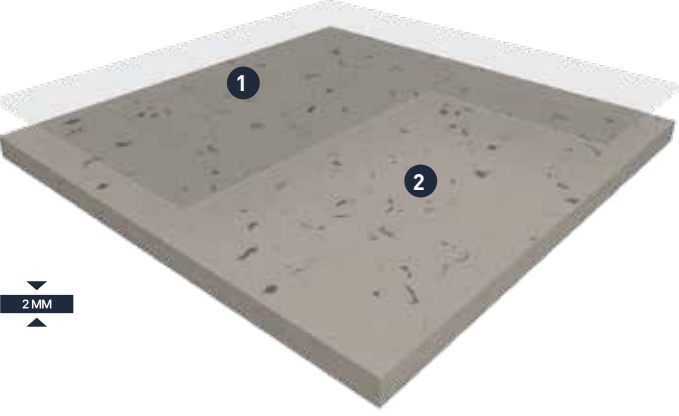
* More colours available

Mipolam Biocontrol clean

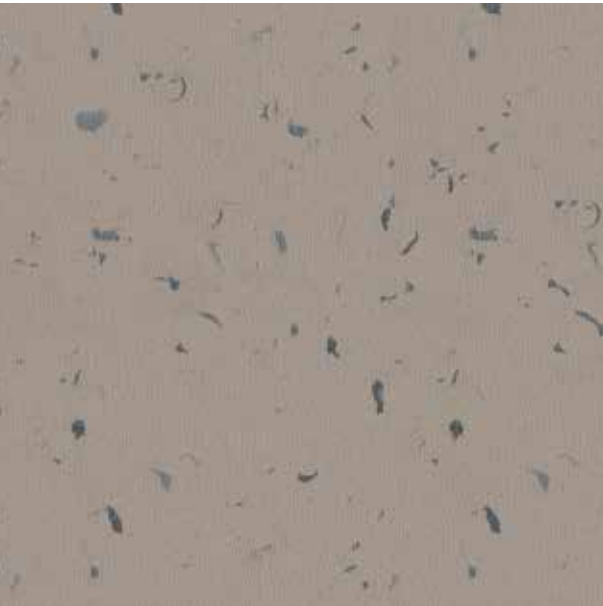
ISO 3

GMP-Class A

H₂O₂ RESISTANT



- 1 Surface treatment
- 2 2 mm calendared PVC single layer



- THE REFERENCE FOR CLEANROOMS

Sold in rolls of 20 x 2 m

H₂O₂ RESISTANT

Resistant to decontamination process

Resistant to heavy load

Resistant to chemical spills

5445 Tree Bark

5443 Wood Path

5441 Clay Soil

5412 Moon Stone

5404 Vanilla Sky

5459 Stormy Cloud

5430 Sideral Grey

5413 Rain Fall

5420 Stone Powder

5408 Chalk Dust

5436 Tiger Eye

5406 Moqui

5427 Green Zest

5455 Lava Flow

5432 Sun Stone

5417 Foggy Hill

5456 Intense Indigo

5475 Intense Ruby

Decoclean wall panel system

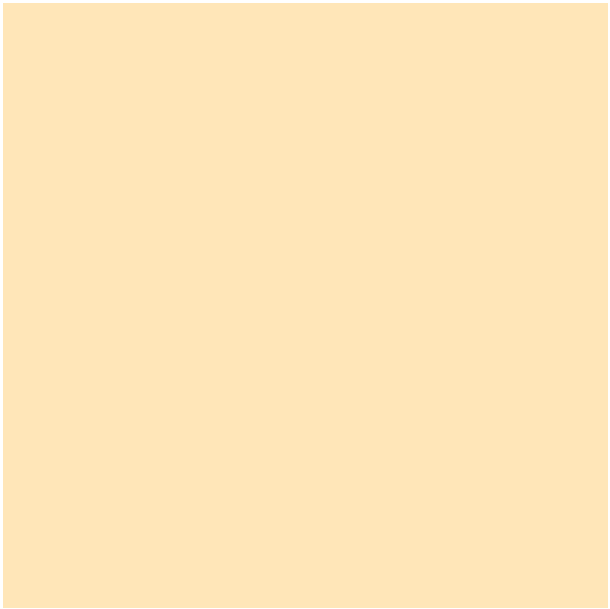
ISO 5

GMP-Class A

H₂O₂ RESISTANT



1



WALL PROTECTION SOLUTION IDEAL FOR RENOVATION



Sold in tiles of 1.3x3 m



Withstands impacts and shocks



Watertight system

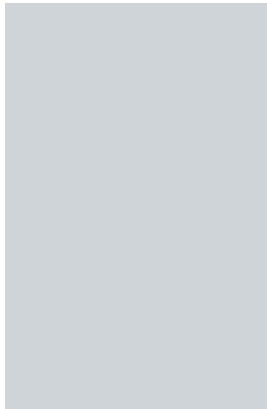


Resistant to chemical spills

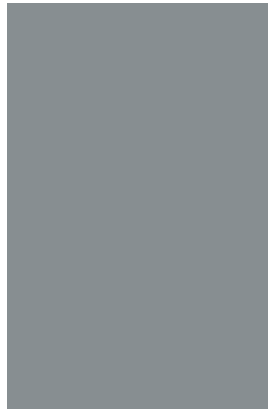
- **ANTIBACTERIAL HOMOGENEOUS** resilient wall panels PVC, tinted in the mass, thickness 2 mm
- **EASY TO INSTALL:** delivered with a peel-off protective film to avoid having to do a systemic cleaning after installation
- **LOW MAINTENANCE:** can be welded to floor for continuous floor-to-ceiling watertight room and resistant to chemical spills
- **RESISTANT TO NUCLEAR DECONTAMINATION** according to ISO 8690
- **BACTERIOLOGICAL RESISTANCE** according to ISO 22196, Class 1 (Bs2d0)
- **SUSTAINABLE:** REACH-compliant, GREENGUARD certified, low VOC, 100% recyclable, Phthalates-free, non polluting / non-toxic material, no heavy metals



0001 Chalk



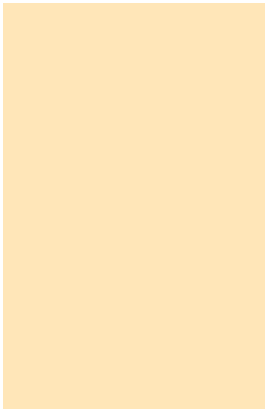
0011 Pebble



0004 Granite



0006 Ivory



0007 Wicker

Clean corner system



Gerflor floor-to-ceiling smooth transition





1

2

1 Clean Corner internal floor angle

2 Clean Corner external floor angle

- **COMPLIANT WITH GMP**
- **EASY COVING**
- **ULTRA RESISTANT BI-MATERIAL CORNER PROFILES**
- **QUICK AND EASY CLEANING AND DECONTAMINATION**

Watertightness control system

- **VALIDATION:** the quality of the installation and the sealtightness of the flooring is checked before commissioning.
- **RELIABILITY:** Periodic checks of the integrity of the flooring during service stoppages.
- **QUALITY:** Any defects can be repaired before commissioning. Any moisture-related problems are identified.
- **DECONTAMINATION:** Prevents a contamination zone from forming.





MIPOLAM BIOCONTROL PERFORMANCE	MIPOLAM BIOCONTROL CLEAN	GTI MAX CLEANTECH	GTI EL5 CLEANTECH	MIPOLAM BIOCONTROL EL5	DECOCLEAN
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PERFORMANCES IN CLEANROOM

Particulate emission	Fraunhofer method	ISO 14644-1	-	ISO3	ISO3	ISO3	ISO5	ISO5	ISO5
Air cleanliness	ISO 16000-6, -9, -11	ISO 14644-8	(µg/m³/h)	TCOV = unmesurable (23°C) ACCM/AMCm ≤ - 9.6	TCOV = unmesurable (23°C) ACCM/AMCm ≤ - 8.2	TCOV = unmesurable (23°C) ACCM/AMCm ≤ - 8.5	TCOV = unmesurable (23°C) ACCM/AMCm ≤ - 8	TCOV = unmesurable (23°C) ACCM/AMCm ≤ - 7.7	TCOV = unmesurable (23°C) ACCM/AMCm ≤ - 7.7
Anion emission	Fraunhofer method	ISO 14644-8	(µg/m³/h)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)
Amonium N emission	ISO 11732	ISO 14644-8	(µg/m³/h)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)	Unmesurable (23°C)
Static electrical propensity / Body voltage generation	EN 1815	-	kV	Antistatic: < 2	Antistatic: < 2	Antistatic: < 2	Antistatic: < 2	Antistatic: < 2	-
	IEC 61340-4-5 / ASTM 97.2	EN61340-5-1 ESD S2020	V	-	-	-	< 100	< 100	-
Electrical resistance	EN61340-4-1 ESD 7.1	EN61340-5-1 ESD S2020	Ω	Isolating: > 10 ¹¹ Ω	Isolating: > 10 ¹¹ Ω	Isolating: > 10 ¹¹ Ω	< 10 ⁹ Ω	< 10 ⁹ Ω	-
Action of micro-organisms on the floor	ISO 846	BPF / GMP	Classification	Inert and resistant	-	Inert and resistant	Inert and resistant	Inert and resistant	-
Anti-viral activity	VirHealth	ISO 21702	VirHealth	99.7% after 2 h 99.9% after 5 h	99.7% after 2 h 99.9% after 5 h	-	-	99.7% after 2 h 99.9% after 5 h	99,96 % after 2h 99,99 % after 5h
Anti-bacterial activity	Intertek	ISO 22196	INTERTEK	> 99% inhibits growth	99% inhibits growth	-	-	> 99% inhibits growth	> 99 % de réduction
Chemical resistance	ISO 2812-1	ISO 14644-4/BPF	-	Excellent	Excellent	Good	Excellent	Excellent	Excellent
Nuclear decontamination	-	ISO 8690	-	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Resistance to gaseous H ₂ O ₂	Bioquell	ISO 14644-4/BPF	-	No alteration	No alteration	No alteration	No alteration	No alateration	Unmesurable (23°C)
Maximum static load	-	ASTM F970	-	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	- .002" under 250 psi and up to 2000 psi	-
Fire behaviour	-	EN 13501-1	Class	Bfl-S1	Bfl-S1	Bfl-S1	Bfl-S1	Bfl-S1	Bs2d0
Fire rating	-	ASTM E 648	Class	Class 1	Class 1	Class 1	Class 1	Class 1	Class A
Slip resistance	-	DIN 51 130	Class	R9	R9	R10	R9	R9	-
Coefficient of friction	-	ASTM D 2047	-	0.56 (OK)	0.56 (OK)	0.56 (OK)	0.56 (OK)	0.56 (OK)	-
		ASTM C 1028		Meets requirements	Meets requirements	Meets requirements	Meets requirements	Meets requirements	-

DESCRIPTION

Total thickness	-	EN ISO 24346 (EN428)	mm	2 (0.08")	2 (0.08")	6 (1/4")	6 (1/4")	2 (0.08")	2 (0.08")
Roll size	-	EN ISO 24341 (EN426)	m	2 x 20 (6'6 x 66')	2 x 20 (6'6 x 66')	-	-	2 x 20 (6'6 x 66')	-
Tile size*	-	EN ISO 24342 (EN727)	mm	608 x 608 (23.9" x 23.9")	608 x 608 (23.9" x 23.9")	600 x 600 (23.6" x 23.6")	650 x 650 (25.6" x 25.6")	608 x 608 (23.9" x 23.9")	1300x3000 (4.26» x 9.8»)
European classification	-	EN ISO 10874 (EN685)	Classification	34-43	34-43	34-43	34-43	34-43	-
Reference specification	-	ASTM F1913	-	Meets requirements	Meets requirements	Meets requirements	Meets requirements	Meets requirements	-
		EN 14041							

* Measured before installation / ** Measured with ESD shoes compliant with ESD S20.20 and IEC 61340.5.1
(1) Compliance with floor maintenance protocols is the best guarantee against infection.



we care / we act Our Commitments for a Sustainable future



CARBON FOOTPRINT*
-20 % kg CO₂ equivalent/m² between 2020 and 2025



BIOSOURCED CONTENT***
10 % by 2025



RECYCLED CONTENT
30 % by 2025



ADHESIVE FREE**
35 % by 2025



ANNUAL VOLUME RECYCLED
60 000 t by 2025



* Scopes 1 and 2 defined in the GHG protocol *** % of activity with biosourced materials ** % of activity - adhesive free solution

2022

Product Guide



IQ GRANIT SD

Life Science Environments

To keep up with changing expectations both in the marketplace, and among top talent, life sciences and biopharma labs are reinventing the ways they approach building design. Labs of the future will provide endless flexibility with integrated technology, interdisciplinary collaboration, and support for employee wellness. These outcome-driven spaces will mirror the evolving ways we work together, fostering new connections between people that ultimately propel innovation.

Vinyl – Homogeneous Vinyl Sheet

Vinyl flooring combines a broad portfolio of patterns and colorways with high performance for schools, hospitals and other high traffic areas. From heterogeneous sheet composed of several layers, including a printed sheet for limitless design possibilities, to homogeneous sheet and tile with a through pattern, Tarkett's portfolio is high performing and low emitting, contributing to a safe and healthy indoor environment.

- 548 **iQ Optima**
- 551 **iQ Granit and Granit Sense**
- 553 **iQ Eminent**
- 555 **iQ Eminent Unisense**
- 556 **Melodia®**
- 558 **Aria®**
- 559 **Standard Plus**
- 560 **Weld Rod Chart**



iQ OPTIMA

ENVIRONMENTAL DATA

Aria, Melodia, Standard Plus

- FloorScore® certified and meets CDPH 01350v1.2-2017 emissions standards
- GreenCircle certified
- Ortho-phthalate free
- 25% recycled content
- Industry wide EPD
- LEED: Meets LEED v4 material credits
- 100% Recyclable packaging



ORTHO-PHTHALATE
FREE



iQ Granit, iQ Optima

- FloorScore certified and meets CDPH 01350v1.2-2017 emissions standards
- GreenCircle certified
- Product Ingredients disclosed via Manufacturer Inventory (MHS)
- **CERTIFIED asthma & allergy friendly®**
- Ortho-phthalate free
- Product Specific EPD
- 1% recycled content
- LEED: Meets LEED v4 material credits
- Recyclable through Tarkett's ReStart program (without adhesive)
- 100% Recyclable packaging



ORTHO-PHTHALATE
FREE





3242 886 BELUGA W, 3242 873 KOALA BEAR CG, 3242 251 SPENCER'S EYES

Tile sizes: 12x12 nominal (305 mm x 305 mm), 24x24 nominal (610 mm x 610 mm), 12x24 nominal (305 mm x 610 mm)

Roll width: 6'6" nominal (2 m)

Roll length: 82' 7" nominal (25 m)

Thickness: 0.080" nominal (2 mm)

See Adhesives pg. 594

* Suggested Johnsonite colors for finishing borders (wall base)

iQ OPTIMA

HOMOGENEOUS SHEET

VINYL

205 SUMMER MOON W 460 COTTON W *	862 RAW IVORY W 68 WHITE SAND W *	821 FROTHY LATTE CB 31 ZEPHYR CB *	248 FRENCH PASTRY CB 80 FAWN CB *	246 EGYPTIAN SCROLLS 280 SHORELINE CB *	207 PRAIRIE DANCING CB TA8 WELSH CASTLE CB *
899 FLANNEL BLANKET CB 80 FAWN *	898 HEAVY CREAM WG TA4 GATEWAY WG *	261 KETTLE BLACK WG TA4 GATEWAY WG *	244 DARKENED OASIS B 63 BURNT UMBER B *	951 SALT N PEP B 63 BURNT UMBER B *	845 STROKE OF MIDNIGHT B 40 BLACK B *
860 MALT WB 280 SHORELINE	820 COFFEE SHOPPE WB 49 BEIGE WB *	263 OUTLAND TRAILS CB TA8 WELSH CASTLE CB *	264 SPARTAN HELMET CB 283 TOAST CB *	249 FOREST THICKETT WB 47 BROWN *	900 OLD BARK 167 FUDGE *
202 GREYED OPAL CG 21 PLATINUM CG *	886 BELUGA W TB3 DOVER CG *	262 ANGEL KISS WG 460 COTTON W *	245 FOGGY SHORES WG 24 GREY HAZE WG *	206 HAZY VALLEY CG 469 MYSTIFY CG *	873 KOALA BEAR CG 469 MYSTIFY CG *
897 SLATE WG 32 PEBBLE WG *	260 SHARKTAIL WG 32 PEBBLE WG *	242 EBONY ASH WG 48 GREY WG *	204 COBALT SMOKE WG 48 GREY WG *	874 HARDWIRED WG 20 CHARCOAL WG *	875 BEDROCK WG TA4 GATEWAY WG
871 ARCTIC WINTER W 50 WHITE W *	872 SILVER BELL CG 23 VAPOR GREY CG *	853 THUNDERHEAD CG 21 PLATINUM CG *	200 CATHEDRAL WALL CG 38 PEWTER CG *	864 CONCRETE SLAB CG 21 PLATINUM CG *	203 INFUSED ASH CG TA5 COLONIAL GREY CG *
201 CHIMNEY SWEEP CG 38 PEWTER CG *	866 SIDEWALK CG 38 PEWTER CG *	247 ALMOND CREAM WB 49 BEIGE WB *	825 CARAMEL INFUSION WB 461 WICKER WB *	829 PEACH SORBET WB 79 BONE WHITE W *	850 FLAN 129 SILK WB *

iQ OPTIMA
HOMOGENEOUS SHEET

VINYL



824 YELLOW MUSTARD
TG7 CANARY *



826 GOLDENROD
130 SISAL *



831 HOT GINGER
130 SISAL *



258 MONARCH FLYING
VM1 HOT SPICE



861 CLOVER LEAF
151 IGUANA *



251 SPENCER'S EYES
72 HARBOUR *



250 RUSHING WATERS
92 BLUE LAGOON *



857 POPIU BAY
84 BLUE JEANS *



849 BLUE SATIN
18 NAVY BLUE *



255 MOUNTAIN BLUSH
162 SOVEREIGN *



256 VIOLET HILL
VM2 SHORELINE PURPLE

iQ GRANIT & iQ GRANIT SENSE

HOMOGENEOUS SHEET

VINYL



iQ GRANIT: 340 BLUE; iQ EMINENT: 126 WHITE GREY | 906 DUSTY WHITE | 894 PALE YELLOW



527 SOFT WHITE SAND W
460 COTTON W *



325 WHITE BEIGE WB
49 BEIGE WB *



320 WHITE SAND CB
22 PEARL CB *



323 LIGHT SAND CB
22 PEARL CB *



322 WARM SAND WB
09 CLAY WB *



298 SAND WB
129 SILK WB *

Tile sizes: 12x12 nominal (305 mm x 305 mm), 24x24 nominal (610 mm x 610 mm), 12x24 nominal (305 mm x 610 mm)

Roll width: 6'6" nominal (2 m)

Roll length: 82' nominal (25 m)

Thickness: 0.080" nominal (2 mm)

Recycled Content: Pre-consumer 25.5%

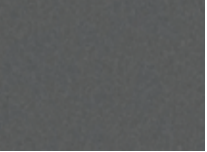
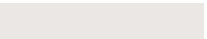
See Adhesives pg. 594

* Suggested Johnsonite colors for finishing borders (wall base)

iQ GRANIT & iQ GRANIT SENSE

HOMOGENEOUS SHEET

VINYL

ENVIRONMENTAL DATA

Granit Safe.T

- FloorScore® certified and meets CDPH 01350v1.2-2017 emissions standards
- Green Circle certified
- Ortho-phthalate free
- Product Specific EPD
- LEED: Meets LEED v4 material credits
- Recyclable through Tarkett's ReStart program (without adhesive)
- 100% Recyclable packaging



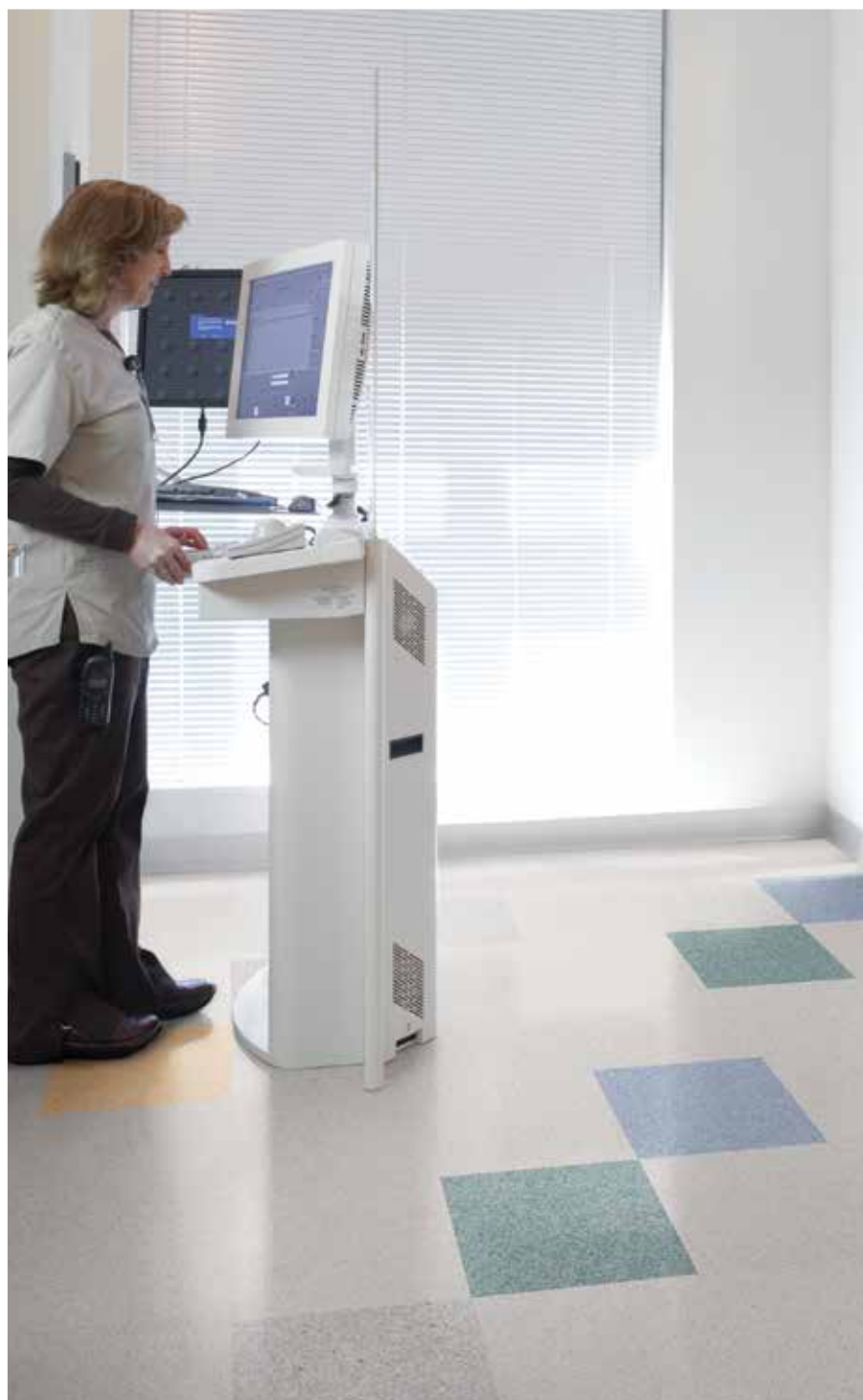
iQ Granit SD

- FloorScore certified and meets CDPH 01350v1.2-2017 emissions standards
- Green Circle certified (iQ Granit SD)
- Product Ingredients disclosed via Manufacturer Inventory (MHS)
- **CERTIFIED asthma & allergy friendly®** (iQ Granit SD)
- Product Specific EPD
- LEED: Meets LEED v4 material credits
- Recyclable through Tarkett's ReStart program (without adhesive)
- 100% Recyclable packaging



iQ GRANIT SD

SPECIALTY APPLICATIONS



710 FULL MOON, 718 COOL BREEZE, 724 TURF, 719 RAW IVORY



710 FULL MOON WG
107 NEUTRALITY



713 KETTLE BLACK
40 BLACK *



714 MISTY WB
80 FAWN CB



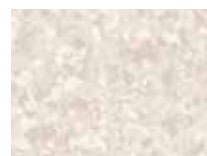
715 TAPESTRY
34 ALMOND W *



716 KAHLUA
TA7 RUSTY NAIL



718 COOL BREEZE
84 BLUE JEANS *



719 RAW IVORY WB
11 CANVAS WB *



721 HOT GINGER
TA7 RUSTY NAIL



722 FLANNEL BLANKET CB
80 FAWN CB *



723 OLD BARK
47 BROWN *



724 TURF
TH1 GLENHAVEN



726 SIDEWALK CG
38 PEWTER CG *

Tile Size: 24x 24 (610 mm x 610 mm nominal)

Roll Width: 6'6" nominal (2 m)

Roll Length: 82'7" nominal (23 m)

Thickness: .080" nominal (2 mm)

See Adhesives pg. 594

* Suggested Johnsonite colors for finishing borders (wall base).



GOGELE RA

Resinous Flooring
Systems



DUR-A-FLEX
INNOVATION FROM THE FLOOR UP



Fast-Track Flooring **Accelera**®

- **Fast curing to reduce downtime**
- **Low odor allows installation anytime**
- **High-performance decorative options**

Dur-A-Flex's Accelera flooring systems offer a unique combination of fast installation and high performance designed to meet the needs of today's 24/7 operations. Its innovative chemistry allows Accelera to deliver the same high performance features as traditional seamless flooring, but without the lengthy installation process or odor.

Seamless resinous flooring has long been the perfect solution for many applications offering excellent chemical and stain resistance, outstanding wear characteristics, and minimal maintenance. Traditional systems tend to come with longer cure times and odor that can make installations in 24 hour, 7 day a week operations nearly impossible. Accelera flooring systems are designed specifically for application in these non-stop facilities.



ACCELERA Standard Series

Accelera standard systems feature proprietary resins throughout for a fast-installing, high performance floor system. Systems include decorative vinyl chip and quartz broadcast designs, as well as solid color broadcast systems for more industrial applications, and a smooth high-gloss system for a showroom appearance.

ACCELERA B

Solid color quartz broadcast

ACCELERA C

Decorative vinyl chip broadcast

ACCELERA Q

Decorative quartz broadcast

ACCELERA S

Solid color smooth

ACCELERA Hybrid Series

Accelera hybrid systems feature the same design options as the standard systems with the added feature of a high-moisture tolerant and self-priming cementitious urethane base coat. Hybrid systems are the ideal choice for fast installations in new construction, installing over concrete as new as 5-7 days old.

ACCELERA HB

Solid color quartz broadcast

ACCELERA HC

Decorative vinyl chip broadcast

ACCELERA HQ

Decorative quartz broadcast

ACCELERA RX Series

Accelera RX systems features a seamless ultra-high solids, single broadcast decorative vinyl chip flooring system. With unique ergonomic features, sound dampening, and reduced application steps resulting in quick installation times. Combining flexibility, UV stability, and excellent chemical resistance it's the ideal choice for high foot traffic environments where reduced fatigue and noise reduction are paramount.

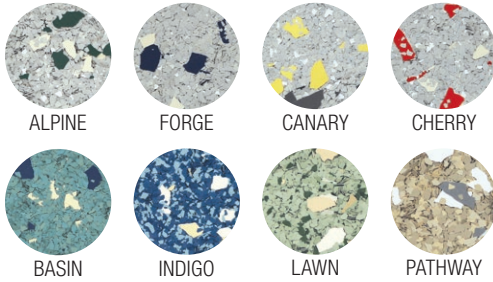
ACCELERA RXC

Ergonomic, sound dampening, decorative vinyl chip, single broadcast system

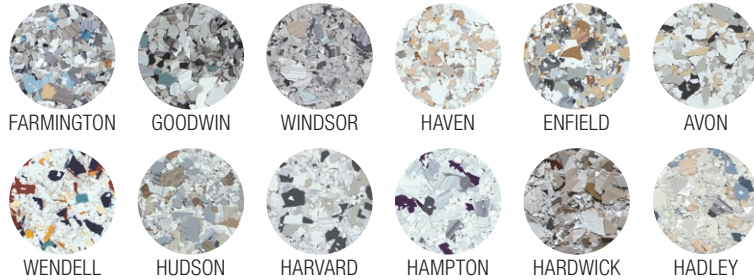


DUR-A-FLEX®
INNOVATION FROM THE FLOOR UP

RX Designer Blends



Claystone Designer Blends



ACCELERA Standard Colors



Accelera flooring systems are available in decorative and solid-color options. Decorative options include standard vinyl and quartz blends as well as unlimited custom blends.

*Accelera B and HB not recommended in White or Bright Yellow. Bright Yellow should only be used for line striping.

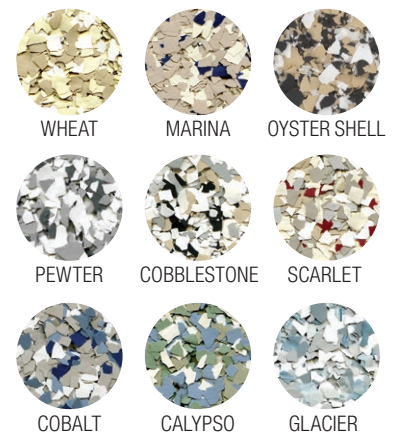
Earthstone Blends



Micro Chip Blends

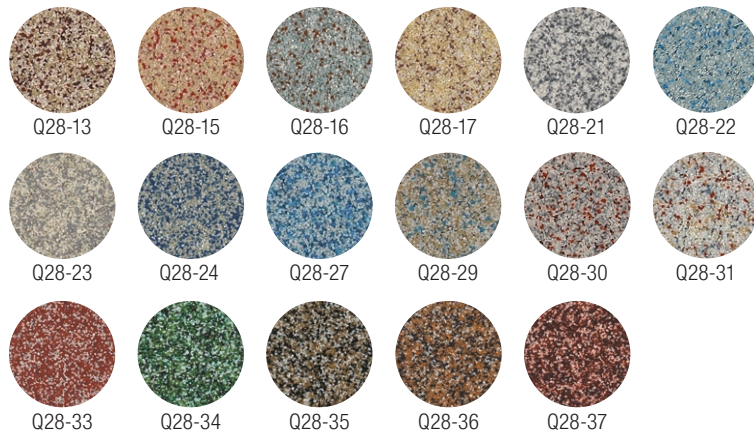


Macro Chip Blends



Available in macro size only.

Quartz Blends - Q28



Standard Colors



The samples shown are only close approximations and should not be used for specification purposes. Contact Dur-A-Flex to obtain actual samples for best color selection.

3/2021



Cleanroom Furniture



Cleanroom Ionization for Life Science Manufacturers

Ionization Solutions

WWW.SIMCO-ION.COM



REDUCE YIELD LOSSES

IMPROVE PRODUCT
QUALITY

SIMCO **ION**TM
An ITW Company



IONIZATION FOR EVERY APPLICATION

TO CONTROL PARTICULATE CONTAMINATION

For Product Assembly or Packaging Areas

Simco-Ion's AirForce Model 6115 Blow-off Gun's substantial power makes the AirForce effective in removing particle contamination and ideal for use in clean process applications such as medical device assembly. The 6115 is the only gun product rated at ISO Class 4 cleanliness. Steady-state DC ion emission provides efficient ionization with an average discharge time of less than 1.0 second.

The AirForce's lightweight, flexible air hose—just 3/8" in diameter—moves with the operator and makes work easier. No high voltage cable means improved operator safety. The gun's ergonomic design—with a light touch trigger and easy-view LED—minimizes fatigue and eliminates wrist hyperextension.



For Cleanrooms

Simco-Ion's family of ceiling emitters & digital controllers are designed to provide uniform ionization throughout a gowning room and the open areas of a cleanroom. Mounted onto the ceiling surface or inside a flush mount channel, our ceiling emitters maintain aesthetics without disrupting cleanroom laminar airflow or compromising the integrity of operating ISO class 1 cleanrooms.

Moreover, our ceiling emitter room system has specifically proved its success in addressing Current Good Manufacturing Practices (CGMP) regarding contamination control by the FDA.



Ceiling Emitters in Gowning Room



Ceiling Emitters in Production

For Mini-Environment & Benchtop Areas

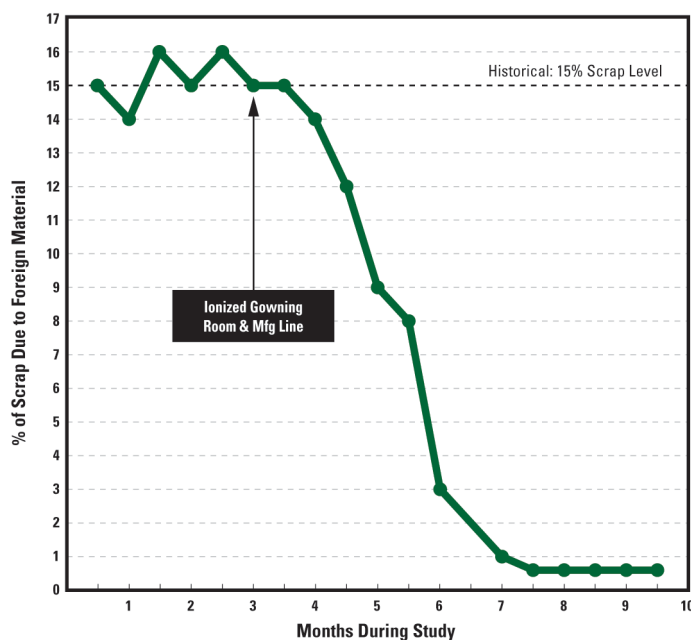
Simco-Ion's Guardian CR2000 Blower is designed specifically for use in cleanroom applications. The Guardian CR2000 features a patented circuit that results in equal delivery of positive and negative ions, which ensures that the targeted area will maintain in a neutralized, stable voltage balance. The Guardian CR2000 is designed to be placed above tables in each step of your product assembly process in final packaging and in inspection areas.

The Guardian CR2000 ensures cleanroom compatibility using specially chosen components and materials. All fan and air bearing surfaces are manufactured free of silicones. Fan assemblies are particle tested to ISO 14644-1 Class 4 (Fed Std. 209E Class 10) particle limits.



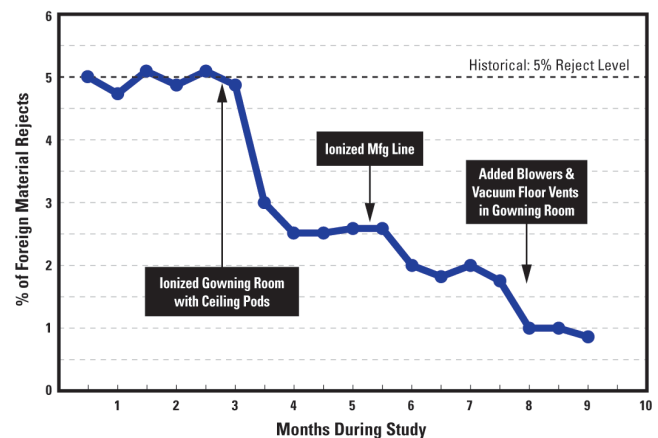
Case Studies: Yield Improvements

Catheter Manufacturer: This is a 9 month case study for a major catheter manufacturer. Historically, their yield losses from particulate contamination were approximately 15%.



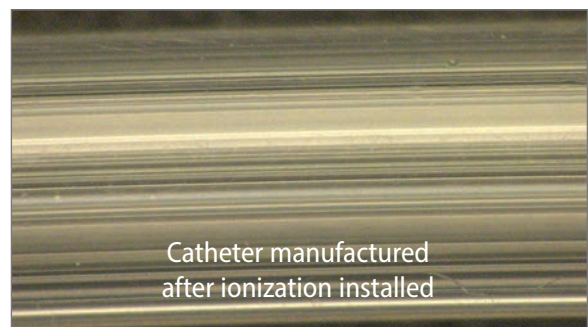
Results: Yield losses reduced to 0.5% level.

Endoscope Manufacturer: This is a 9-month case study for a major endoscope assembly manufacturer. Historically, their rejects from particulate contamination were approximately 5%.



Results: Yield losses reduced to 1.0% level.

Effect of Adding Ceiling Ionization



Technical Audits

For qualified life science customers, Simco-Ion will conduct a no cost audit of the cleanrooms in your manufacturing operations and recommend an ionization solution to address your particulate contamination concerns. Ask your local regional sales manager for details and qualification.

Call Sales Services at (510) 217-0460.

Since 1936 and as a division of ITW, Simco-Ion provides a global perspective with technical support and strategic manufacturing locations in the United States, China, the Netherlands and Japan. Simco-Ion has the ability to deliver years of research, applications engineering, and field experience that add up to a comprehensive understanding of ionization technology for your CGMP manufacturing operations.



An ITW Company

Simco-Ion
Technology Group

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Alameda, CA 94502

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ioninfo@simco-ion.com
www.simco-ion.technology

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Life Sciences Brochure - V2



w o r l d w i d e l e a d e r s i n s t a t i c c o n t r o l

INNOVATIVE

Model 2400

AirStat™ Digital Ceiling Emitter Ionizer



FEATURES

- Innovative Digital Technology
- Pulsed DC Ion Emission
- 4 Digit LED Display
- Audio & Visual LED Alarms
- IR Remote Controller
- Voltage Feedback Monitoring

BENEFITS

- Fast Discharge Time
- ON & OFF Time Operation
- Highly Reliable Quality
- Output Parameter Display
- Large Capacity

APPLICATIONS

Core Insight's innovative AirStat™ Digital Control Model 2400 Ceiling Emitter Ionizer is designed to provide room ionization in the semiconductor wafer process, flat panel display, pharmaceutical and other clean environment applications. High ion output current results in fast discharge time. Digital control system enables accurate adjustment of power output and feedback monitoring capability.

Model 2400 Ceiling Emitter Ionizer is specially suited for open environments such as process bays, ballrooms or other large spaces. Users can accurately set up output parameters such as voltage, and operating time through a remote controller or Model 6300 series controller. With LED display and output audio alarms, users can identify failure status or cleaning cycle time precisely.

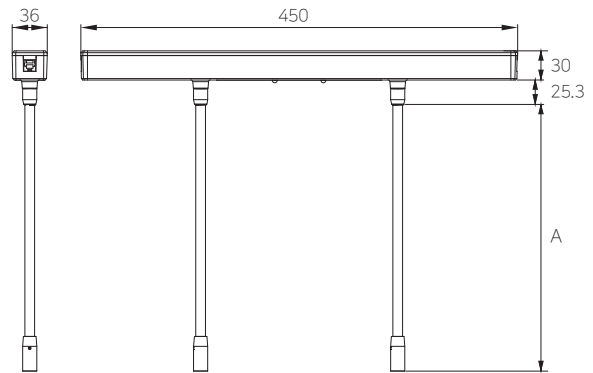
Model 2400 AirStat™ Digital Ceiling Emitter Ionizer



Specifications

Input Voltage	24 VAC, 1.4 W Max.
Output Voltage	±12 kV DC, 100 V resolution adjustment
Ion Emission	Pulsed DC Technology
Display	4 digit LED display
Control	Voltage, On time and Off time are adjusted by Model 5711R or Model 6300 series controller
Timing	ON Time: 0.1 - 15.0 sec / 0.1 sec resolution adjustment OFF Time: 0.1 - 10.0 sec / 0.1 sec resolution adjustment
Connectors	RJ-11 modular terminal
Emitter Points	Single Crystal Silicon or Titanium. All emitter points are replaceable
Cleanliness	Silicon Emitter compatible to ISO 14644-1 Class 1 Titanium Emitter compatible to ISO 14644-1 Class 3
Emitter Rods	125, 300, 450, 600, 750 and 900 mm. Custom length is available.
Alarm	Visual & Audio alarm operates voltage feedback monitoring, cleaning cycle, power, sync and polling failures
Monitoring	RS-485 terminal on Model 6300 series controller
Operation Modes	Pulsed DC, stand-by and individual ON/OFF control
Operating Environment	Temperature: 15 - 35 °C, nominal Humidity: 20 - 60 % RH, non-condensing
Material	ABS plastic, Polycarbonate
Dimensions (mm)	450W x 30H x 36D
Weight	410g (without rods)
Warranty	2 year limited warranty
Certification	CE RoHS

Size & Dimensions (mm)



Lengths 'A' defined below

Rods Lengths (mm)

125	Model 2400-125-XX
300	Model 2400-300-XX
450	Model 2400-450-XX
600	Model 2400-600-XX
750	Model 2400-750-XX
900	Model 2400-900-XX

XX : user select emitter point materials

Related Products

Model 5232ET	Titanium emitter
Model 5233ES	Single Crystal Silicon emitter
Model 5239J	Junction Box
Model 5711R	Remote Controller

Model 6300 Series Controller Specifications

Input Voltage	100 - 240 VAC
Output Voltage	24 VAC
Output Signal	RS-485 signal to facility monitoring or modbus
Capacity	20, 40 and 120 emitters
Display	3 digit LED for 6320 and 6340, 4 digit LED for 6380
Control	Global and individual ON/OFF time adjustment
Alarm	Visual & Audio alarm operates voltage feedback monitoring, cleaning cycle, power, sync and polling failures
Warranty	2 year limited warranty

Model 6320	Capacity	Up to 20 units
Model 6340	Capacity	Up to 40 units
	Dimensions (mm)	240W x 102H x 137D
	Weight	3.7kg
Model 6380	Capacity	Up to 120 units
	Dimensions (mm)	375W x 121.5H x 137D
	Weight	6.8kg





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