



Filter Fan Unit Systems Cleanroom Products

Exyte Technology



Filter Fan Units from Exyte Technology

Exyte Technology has been a pioneer in Filter Fan Unit systems since 1990. During that period more than 700,000 Exyte Technology Filter Fan Units have been installed worldwide. Exyte Technology is developing, manufacturing and qualifying Filter Fan Units.

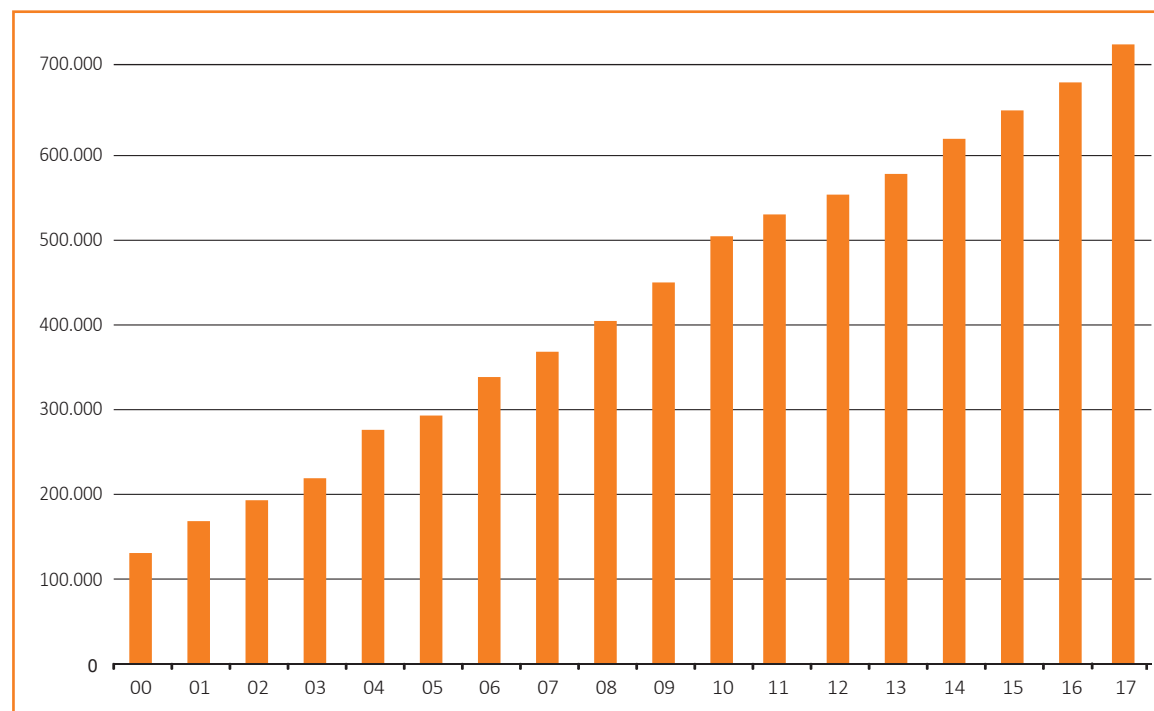
Our extensive experience in this field has given us in-depth understanding of our customers' processes and needs. Specialized products such as FFU-RA (RETURN AIR) and PIFF (plenum integrated Filter Fan) Units are the results of our expertise.

Outstanding patents and innovations testify to the performance of our Technology Center in Renningen. Several types of Filter Fan Units enable our customers to choose the right system for their individual demands to improve productivity, process reliability and profitability.

Units are available with ratings according



Number of installed Filter Fan Units by Exyte Technology, worldwide



All units are available with EC motor versions. Other motor systems are available upon request.

Customized Filter Fan Units – the right Solution for every Challenge

Areas of Application

Manufacturing processes in the semiconductor industry, in nanotechnology and in the production of optical storage media demand a highly purified environment across all areas of the production process. Particle-free air ensures quality and reduces the rejection rate during production. Due to the need for air purity, we develop customized Filter Fan Units in close collaboration with the client.

Some outstanding features of these systems are the high level of flexibility in terms of geometric shapes, external dimensions, materials used, desired filter classes, required air flow rates, drive concepts that can be individually implemented and the multitude of options that can be integrated.

Special Features

- Devices that are ready to hook up and use, can be used independently of the power line frequency and supply voltage
- Sound attenuation and vibration isolation for the highest production demands
- Available in stainless steel, aluminum or powder-coated casing in a variety of sizes
- High reserve capacity in a compact design
- Wide range of control and regulation concepts, possibility of integration into client systems
- Pressure regulation, integrated temperature control, AMC filters, LED illumination, ionization are optionally available
- UL and SEMI certification and approval upon customer request
- HEPA/ULPA filter in various efficiencies and materials available

The production of very small surface structures and consistent reproducibility of process results requires ultra-clean process environments.

Photos: © Süss MicroTec AG



Filter Fan Units from Exyte Technology ...

... for precisely controlled Environments

Exyte Filter Fan Units – your applications

Filter Fan Units are widely used in clean production environments to ensure particle free air circulation. The effectiveness of contamination control and the operating costs depend strongly on the design of these units.

Our extraordinary engineering expertise in ultra-clean air and ultra-pure atmospheres ensures that your current and

future manufacturing processes are clean, safe, productive, cost-efficient and environmentally friendly. Our tailor-made OEM accessories include prefilter, AMC-filter, cooling / heating coils and testing equipment. Whether in stainless steel, aluminum or powder-coated, Filter Fan Units from Exyte Technology are the right choice for your application.

Products and Industries for Filter Fan Units

FFU-Types	Semiconductor	Flat Panel Display	Photovoltaics	Battery Cells	Pharma & Biotech	Food & Nutrition	Science & Research	Automotive
SILENT	++	++	++	++	++	+	++	++
ECO2	++	++	++	++	+	+	+	++
LIGHT	+	+	+	+	o	+	o	+
COMPACT	+	+	+	+	o	+	+	+
RETURN AIR *)	++	++	++	++	-	-	+	o
PIFF *)	o	o	o	o	++	++	+	o
CWIC	+	+	+	+	++	++	++	++

*) only turbulent airflow

++ well suited o restricted-use
+ suited - not applicable

More than half of the products of the world's leading wafer fabs are manufactured in environments created by Exyte Technology



Filter Fan Unit Types and Cleanroom Classes

FFU-Types	Uni - directional airflow				Turbulent airflow				
	ISO 14644 Fed.Std.209E	ISO 1	ISO 2	ISO 3	ISO 4	ISO 5	ISO 6	ISO 7	ISO 8
SILENT									
ECO2				1	10	100	1.000	10.000	100.000
LIGHT									
RETURN AIR									
COMPACT									
PIFF									
CWIC									

Standard Sizes

Individual dimensions are available upon request	
Metric	Feet
1200 mm x 1200 mm	4' x 4'
1200 mm x 900 mm	4' x 3'
1200 mm x 600 mm	4' x 2'

Motor Types and Control Systems

Standard fan motor EC
Control terminal CT3
Ultra display
CRiS ^{xt}

Filter Fan Unit COMPACT with cooling coil and prefilter



Filter Fan Units with AMC-filter (V-shape)



Filter Fan Units SILENT/ECO2/LIGHT



Filter Fan Unit SILENT*
FFU-S-EC-1212-T-AU

FFU optimized regarding sound power level and air flow. Particularly suited for:

- uni-directional airflow (laminar) cleanroom areas
- advanced requirements on the uniformity of the uni-directional air flow
- advanced sound pressure level requirements in the room
- cleanroom classes 1–8 according to ISO 14644-1

Applications

- Electronics, Microelectronics	- New Technologies
- Life Sciences	- Food Industry
- High Tech Industries	- Laboratories



Filter Fan Unit ECO2*
FFU-E-EC-1212-T-AU

Effective construction – excellent compromise in terms of power consumption, uniformity of the unidirectional air flow, sound power and price. Particularly suited for:

- non-unidirectional airflow (turbulent) cleanroom areas
- cleanroom classes 3–8 according to ISO 14644-1

Applications

- Electronics, Microelectronics	- New Technologies
- Life Sciences	- Food Industry
- High Tech Industries	



Filter Fan Unit LIGHT
FFU-L-EC-1212-T-AU

Practicable solution for a low budget. Especially suited for cleanroom areas

- with high background sound level due to production noises
- in which sound levels are of secondary importance
- with a less dense filter coverage
- cleanroom classes 5–8 according to ISO 14644-1

Applications

- Electronics, Microelectronics	- New Technologies
- High Tech Industries	- Food Industry

Filter Fan Units RETURN AIR/COMPACT



Filter Fan Unit RETURN AIR*
FFU-RA-EC-1212-T-AU

Exclusively suitable for the application in turbulent cleanrooms. Return-flow areas (raised floor, return-air ducts) in the building can be significantly reduced through the integrated return-air ducts. Local hot-spots can be avoided by closing of individual integrated return-air ducts. Particularly suited for

- turbulent cleanrooms with a maximum of 50% filter coverage
- cleanroom areas with large scale dimensions
- cleanroom classes 5–8 according to ISO 14644-1

Applications

- Electronics, Microelectronics
- High Tech Industries
- New Technologie



Filter Fan Unit COMPACT
FFU-C-EC-1206-T-AU

Filter Fan Unit for the equipment of individual workstations or entire cleanroom ceilings. Especially suited for

- cleanroom areas with a low installation room clearance
- cleanroom areas with moderate sound pressure level requirements
- cleanroom classes 1–8 according to ISO 14644-1

Applications

- Electronics, Microelectronics	- New Technologies
- Life Sciences	- Food Industry
- High Tech Industries	- Laboratories

* These products are protected by patents

PIFF Plenum Integrated Filter Fan/ CWIC® Systems

CWIC® Systems*

CWIC – 1010/ 1020/ 1030/ 1040

The CWIC® System is a versatile system: Individual Filter Fan Units (CWIC® modules) can be connected to form different size cleanroom ceilings, e. g. for machine enclosures, clean benches or clean work cabins. The modular design enables fast and low-cost cleanroom construction that can be suspended from the ceiling or supported from the floor by pedestals. Depending on the load of additional components, a range of 4.800 mm without support pedestals or suspensions is possible.

- cleanroom classes 1 – 8 according to ISO 14644-1 / class: A, B, C or D according to EC Guide (GMP)

Applications

- Pharma & Biotech
- Food & Nutrition
- Science & Research

Plenum Integrated Filter Fan Units*

PIFF 3 - EC-H14

Designed as self-sustaining return air unit with integrated Filter Fan Unit, H14 filter, cooling coil and air grill. No raised floors and return air shafts are needed. Connectable to make-up air or exhaust air in order to pressurize the cleanroom. Especially suited for pharmaceutical laboratories with turbulent airflow.

- cleanroom classes 5 – 8 according to ISO 14644-1 / class B, C and D according EC Guide (GMP)

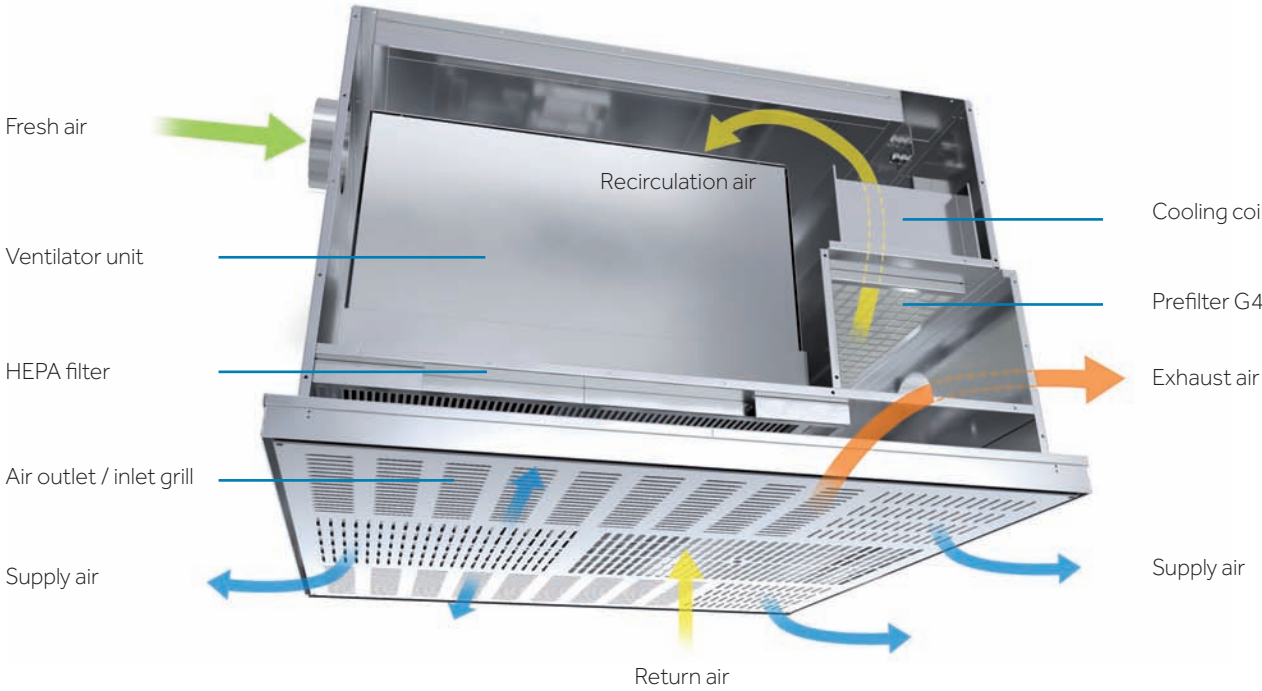
Applications

- Pharma & Biotech labs
- Food & Nutrition

PIFF Design

Local Air Handling Unit (PIFF)

- Modular concept with low effort for design and installation of the equipment
- individual control and monitoring of the every unit by hand terminal or BMS
- easy upgrade, increase of the air change rate or cleanroom class, by installing additional units (e.g. Class D to C)
- maintenance of function elements from cleanroom side (if there is no possibility for a walkable ceiling with plenum)
- Less pressure drop (1/2 x conventional system)
- Lower operation costs



*These products are protected by patents

Customized Filter Fan Units

Applications (Examples)



Customized FFU

Application: Nanotechnology

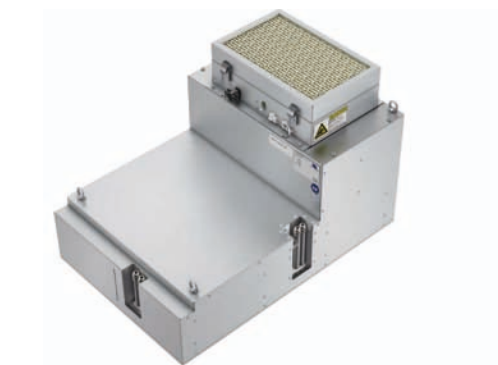
- Stainless steel casing
- Integrated five-stage speed controller
- Modular system in a choice of three standard sizes
- Integrated lighting and process air ionization on the air purification side
- Slot for AMC filter
- CE verified
- In line with SEMI and UL standards



Customized FFU

Application: Optical Industry

- Natural aluminum casing
- Smooth, integrated speed controller
- Extremely high reserve capacity with the smallest possible footprint
- Air purification side laminating unit for optimum flow distribution
- Client interface to allow total monitoring of the Filter Fan Unit
- Wide-range power supply motors of 110–230 V and 50–60 Hz
- CE verified
- In line with SEMI and UL standards



Customized FFU

Application: Semiconductor Industry

- Natural aluminum casing
- Smooth, integrated speed controller featuring LON bus operation
- Special design (L-shape)
- Integrated lighting and process air ionization on the air purification side
- Air purification side laminating unit for optimum flow distribution
- Slot for AMC filter
- Wide-range power supply motors of 100–230 V and 50–60 Hz
- CE verified
- In line with SEMI and UL standards

Control Systems

Control System DC (CSD)

The control electronics is plug-and-play integrated into the Filter Fan Unit. The individual speed control of each Filter Fan Unit allows the adjustment of the air-speed to the local requirements. Automatic monitoring and fast notification of any deviations guarantee a safe operation. The network is clearly structured and completely pre-assembled. Depending on project size, a Control System DC contains the following components:

- Control Terminal
- UltraDisplay
- CRiSxt – Software with PC-workstation

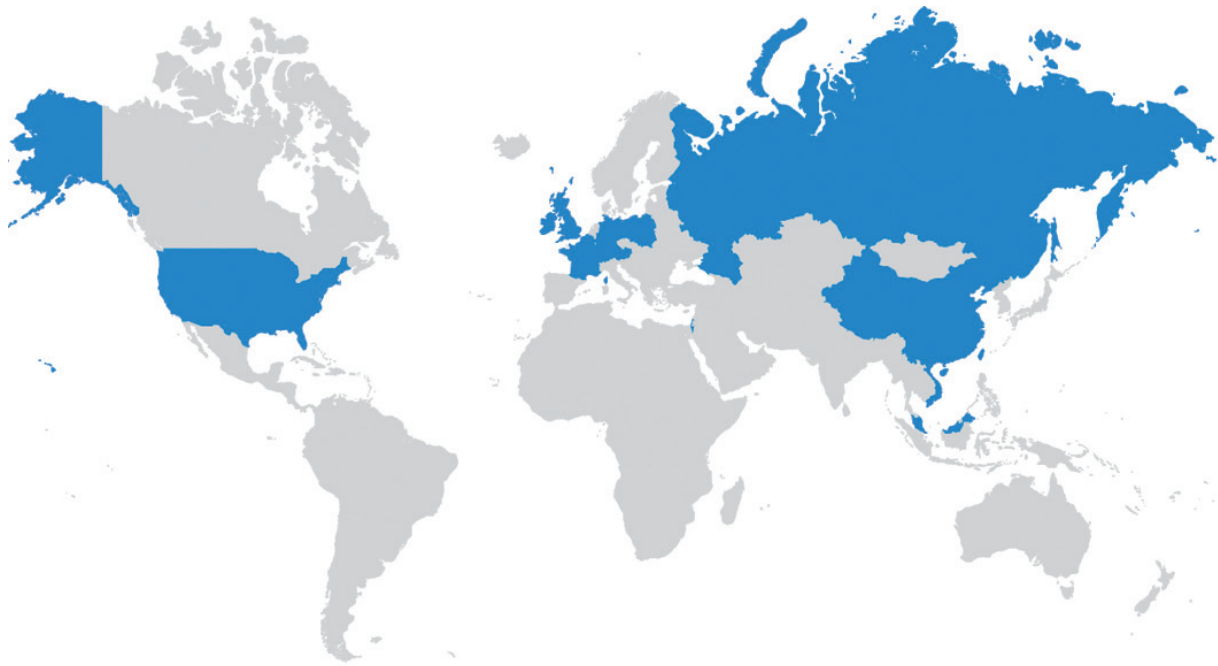
DC control systems can be operated through a standard interface (LON, Exyte Bus). Auto-installation, an interface to Auto-CAD for visualization in actual cleanroom layouts and the ability to handle up to 75,000 units make CRiSxt an unique software solution for uncompromised FFU administration.

Our Filter Fan Units can be operated as a simple power on / off system at a pre-configured speed or air volume. Equipment layouts, process requirements and work shift models often result in the need for a more sophisticated control of the FFU system to ensure energy efficient and process aligned operation.

Exyte Technology offers a wide range of control systems for FFUs, starting with budget oriented solutions for small scale installations and ending with the high-end control software CRiSxt.



Local Support Wherever You Need Us



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