



GT FLOW



TECHNICAL DATA SHEETS



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DIRECTORY



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GT Flow Pharma **pg 6**



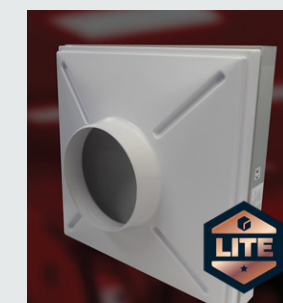
GT Flow Max **pg 8**



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GT FLOW

FAN FILTER UNITS



Guardtech offer a range of filtration solutions to best suit the needs of your application. Whether it's budget, lead time or performance that matters most, Guardtech provide a comprehensive choice of fan filter units (FFUs) to ensure your process requirements are achieved.

Whether it's a more economical energy-saving FFU with reduced power consumption you prefer, or a fan filter unit with the option to perform a Roomside Filter Change, the Guardtech Group's Directors, Design Engineers and Installation team have worked together to carefully select four industry-leading filtration options for your consideration.

Read on to discover the benefits and compromises of the different choices we have, then use this guide to make the most informed FFU choice possible.

Let Guardtech take your operation to the next level.



FLOW PHARMA

GT Flow Pharma is Guardtech's preferred GMP Pharmaceutical filtration solution – a high-integrity gel-seal terminal hood, supplied by an AHU and plenum, delivering HEPA-filtered air for demanding applications.



FLOW MAX

GT Flow Max is a new generation low profile energy-saving EC Fan Filter Unit with superior performance and addressable control systems – featuring Roomside Filter Change as standard and a gel seal.



FLOW PRO

GT Flow Pro is a robust, reliable Fan Filter Unit (FFU) with an efficient EC motor and H14 HEPA filters, which helps to deliver on low energy consumption. This FFU implements a gel seal.



FLOW PLUS

GT Flow Plus is Guardtech's mid-level Fan Filter Unit (FFU) – featuring an efficient AC motor which helps to deliver on low energy consumption and has the option for roomside change.



FLOW LITE

GT Flow Lite is Guardtech's entry-level filtration solution – an economical HEP-Box terminal filtration solution, supplied by an AHU and plenum to provide dependable HEPA-filtered airflow for laboratories.



FLOW FIRE

This product range does not currently include a Fire Rated solution. Please consult a Guardtech rep for more information on your fire safety options.





GT FLOW PHARMA

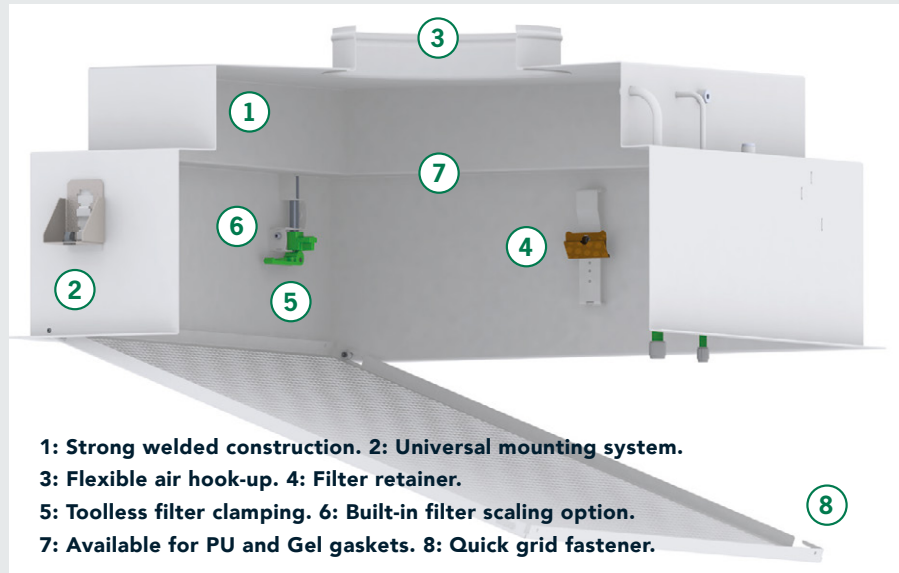
GT Flow Pharma is Guardtech's preferred GMP Pharmaceutical filtration solution – a high-integrity gel-seal terminal hood, supplied by an AHU and plenum, delivering HEPA-filtered air for demanding applications.

GT Flow Pharma is Guardtech's high-integrity terminal HEPA filtration solution for Pharmaceutical and Life Science cleanrooms. Based on CleanSeal technology, it is served by a central AHU and plenum to deliver controlled, filtered supply air.

Combining a robust, fully welded housing with energy-efficient Megalam filtration, the system supports ceiling or wall integration across demanding Pharmaceutical, Biotechnology, Healthcare and R&D applications.

Unlike a self-contained fan filter unit, GT Flow Pharma has no internal fan. Conditioned air is delivered from a central Air Handling Unit through ductwork and a plenum before passing through the terminal HEPA filter. Airflow and environmental conditions are therefore managed centrally.

The fully welded housing minimises leakage and provides dependable performance. A double-layer powder-coated finish improves resistance to decontamination agents, while stainless steel versions are available for high-condensation areas or more demanding cleaning regimes.



der-coated finish improves resistance to decontamination agents, while stainless steel versions are available for high-condensation areas or more demanding cleaning regimes.

GT Flow Pharma accommodates Megalam filters from H13 to U17, with gel-seal or polyurethane gasket options.

Each filter is individually tested and certified to EN 1822.

Tool-free filter clamping, filter-retainer pre-positioning and a hinged diffusion plate simplify servicing. A universal mounting system supports suspended installation or compression mounting within cleanroom panels.

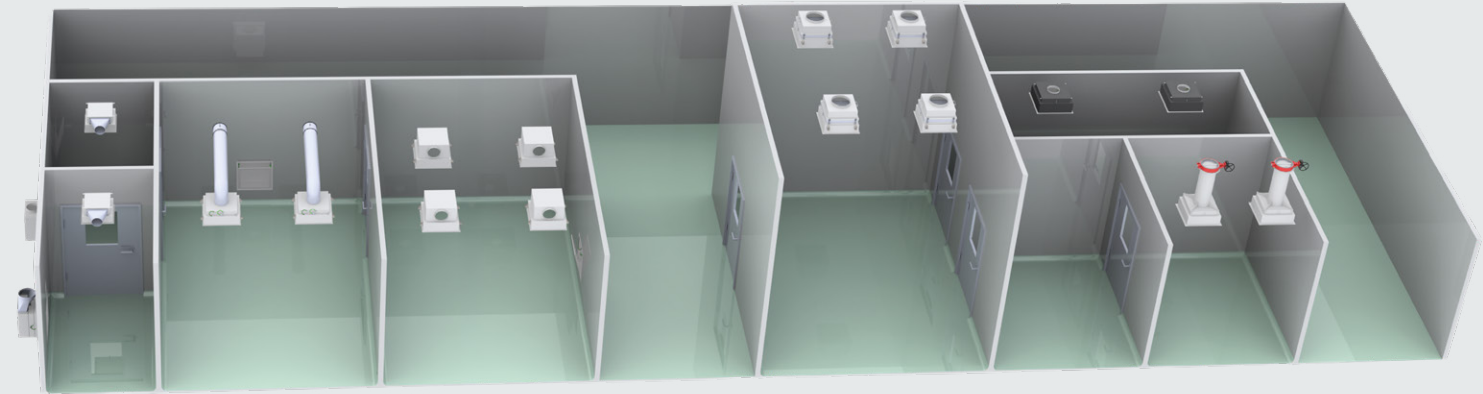
TECHNICAL FEATURES

- Fully welded terminal HEPA filter housing
- Served by a central AHU, ductwork and plenum
- Megalam filtration from H13 to U17
- Gel-seal or polyurethane gasket options
- Individually tested filters certified to EN 1822
- Double-layer powder-coated corrosion protection
- Tool-free filter installation and replacement
- Filter-retainer pre-positioning system
- Universal suspension or panel-compression mounting
- Quick-release hinged diffusion plate
- Flexible connection to different ductwork systems
- Ceiling- or wall-mounted installation

- CleanSeal Integrity filter-testing system
- ISO 14644-3-compliant aerosol distribution
- IntegriPod aerosol injection
- Central IntegriBox control for up to five housings
- Room-side or technical-side aerosol injection
- Manual Integrity Probe for filter scanning
- Top, rectangular-side or circular-side air entry
- Integrated air-volume control damper
- Stainless steel construction
- Armaflex insulation for cold supply air
- Bespoke formats, finishes and ceiling integration
- Alternative diffuser and front-plate configurations



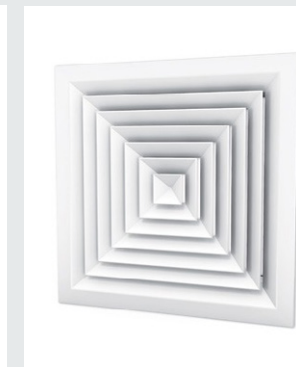
TECHNICAL DRAWINGS



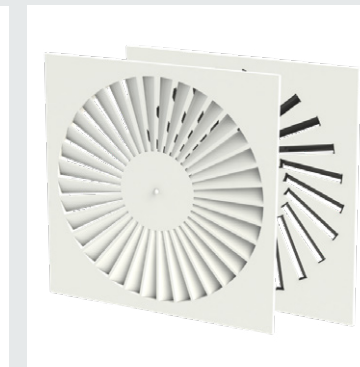
DIFFUSER OPTIONS



Perforated



Four-Way Throw



Spiral



Filter Housing

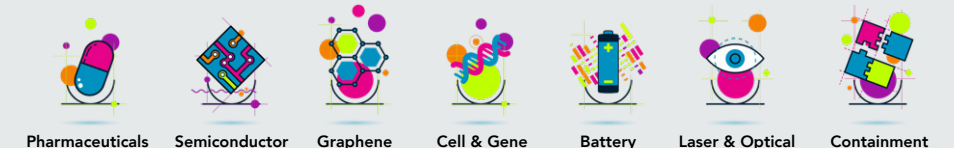
BENEFITS

- Fully welded unit minimises leakage risks
- Gel-seal filtration supports high-integrity rooms
- Low-energy Megalam filters can reduce AHU energy demand
- Tool-free clamping simplifies filter replacement
- Individually tested filters provide documented performance
- Multiple housing sizes suit different airflows

COMPROMISES

- Requires connection to a suitably sized AHU, ductwork and plenum
- Air volume is controlled centrally rather than by an onboard fan
- Integrity-testing features and specialist finishes are optional upgrades
- Higher specification and cost than a basic terminal filter box

APPLICATIONS



GT Flow Pharma suits the most demanding of applications, typically where particulate needs to be controlled to extremely tight tolerances. This often includes cleanrooms with an ISO5 or 6 classification, as well as those required to comply with cGMP conditions outlined in EU GMP Annex 1, ISO 14644-1 and US FS209E.



GT FLOW MAX



GT Flow Max is a new generation low profile energy-saving EC Fan Filter Unit with superior performance and addressable control systems – featuring Roomside Filter Change as standard and a gel seal.

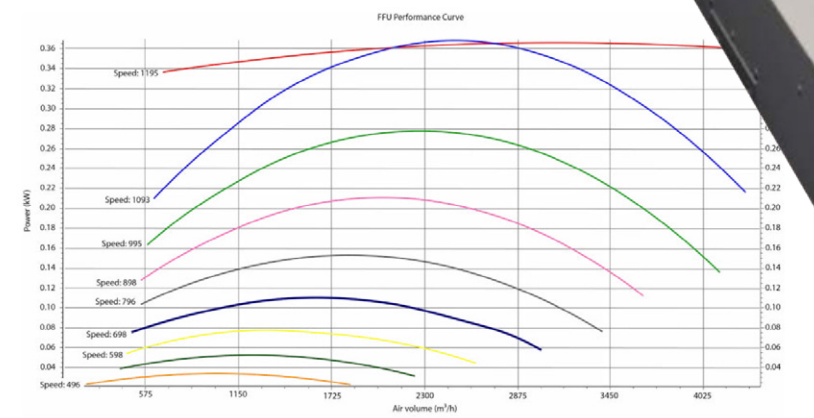
GT Flow Max Fan Filter Units (FFUs) are specifically designed for applications with limited space that require a low-profile fan filter unit – such as the Guardtech Group's range of award-winning portable shipping container Cleancube Mobile Cleanrooms.

These EC slimline units have their own EBM controller mounted on the casing and can also be connected to intelligent Airflo control systems which can be installed by Guardtech.

As used in:



Cleancube
mobile cleanrooms



PRODUCT FEATURES

SPECIFICATION

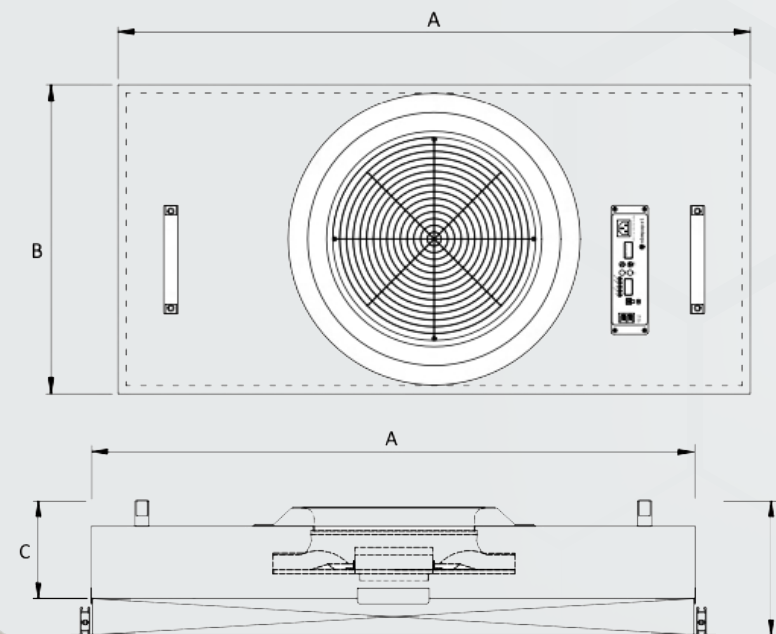
- EC (electronically commutative) motors for reduced energy consumption
- H14 filter – 99.995% efficient at 0.3 micron particle size
- EBM Controller mounted on Fan Filter Unit (FFU)
- Backward Curved Fan
- Aluminium casing with anodised finish
- Low energy consumption



CONTROLS

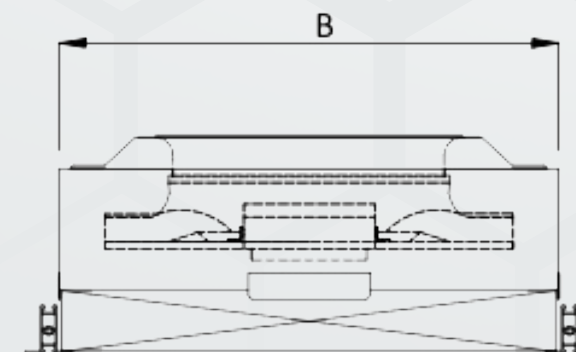
GT Max is designed to be operated by a digital fan speed controller. The is a standalone monitoring and control unit for up to 200 fans, offering easy access to two separate, free configurable and individual operating closed loop cycles (Volume, Pressure, Temperature). The units can be wall-mounted or recessed.

TECHNICAL DRAWINGS



GT FLOW MAX OPTIONS

- Airflo PLC for intelligent FFU control and monitoring (see page 6)
- ULPA filters – 99.9995% efficient at 0.12 micron particle size
- RFC (Roomside Filter Change) Gel filter is replaced from the roomside
- Bespoke Guardtech air inlet spigot connection



FFU SIZES (MM)	AIR VOLUME (M3/H)	TSP (PA)	MAX POWER (W)	WEIGHT (KG)	A	B	C	D
870 x 570	735	360	360	14	870	570	192	277
1170 x 570	976	360	360	15	1170	570	192	277

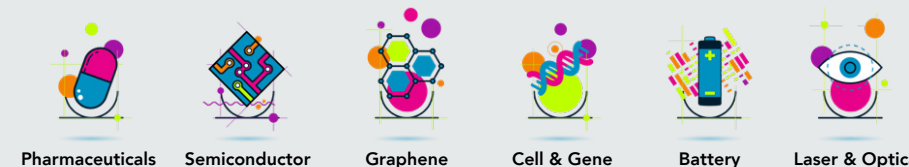
BENEFITS

- Unique low profile slimline design provides extra space above/void space
- Reduced power consumption thanks to high-performance EC motor
- Constructed to allow for roomside filter change
- Superior gel seal
- Acoustic insulation offers most superior noise level performance in GT Flow range

COMPROMISES

- Higher price point
- Potentially longer lead times
- Potentially longer waiting periods for maintenance and repairs

APPLICATIONS



GT Flow Max suits the most demanding of applications, typically where particulate needs to be controlled to extremely tight tolerances. This often includes cleanrooms with an ISO5 or 6 classification, as well as those required to comply with cGMP conditions outlined in EU GMP Annex 1, ISO 14644-1 and US FS209E.





GT FLOW PRO



GT Flow Pro is a robust, reliable Fan Filter Unit (FFU) with an efficient EC motor and H14 HEPA filters, which helps to deliver on low energy consumption. This FFU implements a gel seal.

GT Flow Pro is a robust, reliable Fan Filter Unit with an efficient EC motor and H14 HEPA filters.

The GT Flow Pro model gives users the flexibility of Roomside Filter Change and implements a gel seal.

Providing outstanding performance, efficiency and value in its class, GT Flow Pro is available with both individual and group control systems and a wide range of further options. Please ask a Guardtech rep for more information.



TECHNICAL FEATURES

EFFICIENT EC MOTORS

BACKWARD CURVED FAN

H14 HEPA FILTER
99.995% efficient at 0.3 micron particle size

DIGITAL SPEED CONTROLLER OPTIONS

AIRFLO PLC CONTROLS
Options for intelligent FFU control and monitoring

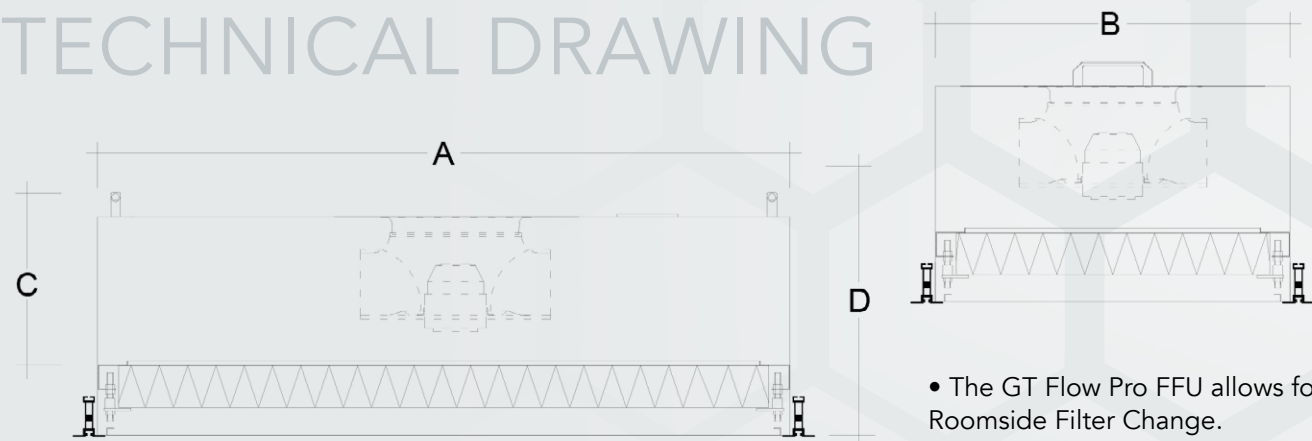
GALVANISED CASING

LOW ENERGY CONSUMPTION

LOW OPERATING SOUND



TECHNICAL DRAWING



DIMENSIONS			
A	B	C	D
570	570	355	490
870	570	355	440
1170	570	355	440
1170	870	355	440
1170	1170	355	440

OPTIONS

- ULPA filters – 99.9995% efficient at 0.12 micron particle size
- AMC (Airborne Molecular Contamination) filter options
- Air inlet spigot connection
- Plug and play wiring options
- G4 Pre-filter

BENEFITS

- Efficient EC motor
- Low energy consumption
- Gel seal
- Constructed to allow for roomside filter change
- Superior noise reduction performance compared to GT Flow Lite and Plus

CONTROLS

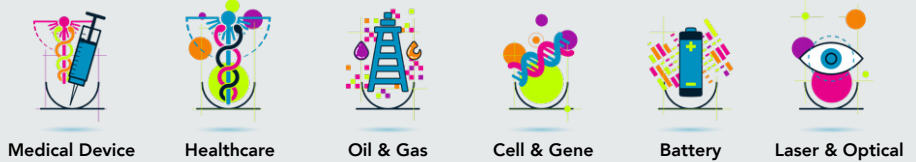


GT Flow Pro can also utilise the Airflo AFC-EC200S digital fan speed controller system, operating up to 200 Fan Filter Units on one unit.

COMPROMISES

- Higher price point
- Inferior noise reduction performance compared to GT Flow Max

APPLICATIONS



GT Flow Pro FFUs cover a wide range of applications with a varying degree of air change rate requirements. This version of the dependable all-rounder does include the option for roomside change – giving it far more flexibility than the GT Flow Plus incarnation.



GT FLOW PLUS



GT Flow Plus is Guardtech’s mid-level Fan Filter Unit (FFU) – featuring an efficient AC motor which helps to deliver on low energy consumption and has the option for roomside change.

GT Flow Plus is a robust, reliable Fan Filter Unit with an efficient AC motor and H14 HEPA filters.

Guardtech’s mid-level FFU implements topside change as standard, but has the option for roomside filter change with a gel seal.

Providing outstanding performance, efficiency and value in its class, GT Flow Plus is available with both individual and group control systems as well as a wide range of further options. Please ask a Guardtech rep for more information.



TECHNICAL FEATURES

- EFFICIENT AC MOTORS**

BACKWARD CURVED FAN

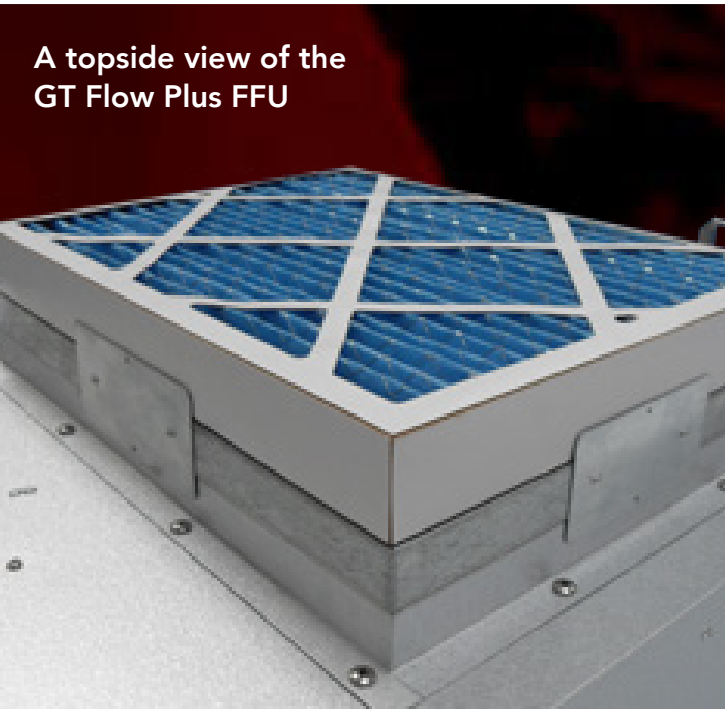
H14 HEPA FILTER
99.995% efficient at 0.3 micron particle size

ANALOGUE SPEED CONTROLLER OPTIONS

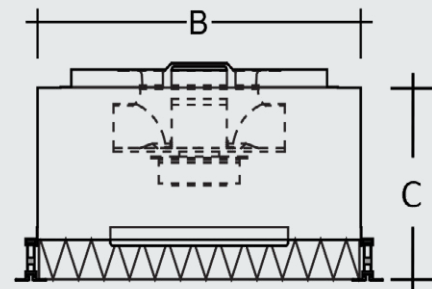
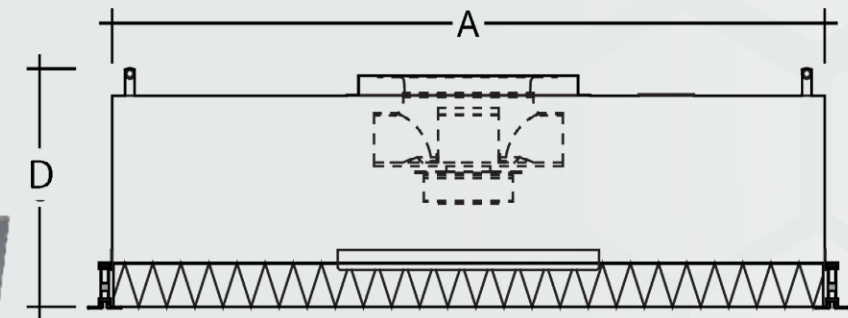
AIRFLO PLC CONTROLS
Options for intelligent FFU control and monitoring
- GALVANISED CASING**

LOW ENERGY CONSUMPTION

LOW OPERATING SOUND
- 



TECHNICAL DRAWING



- The GT Flow Plus FFU allows for Roomside Filter Change.
- This FFU also features a gel seal.
- Topside Filter Change and gasket seal options also available.

DIMENSIONS			
A	B	C	D
595	595	320	350
1195	595	320	350

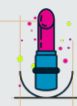
BENEFITS

- Efficient AC motor
- Low energy consumption
- Both Roomside Filter Change and Topside Filter Change options available
- Either gel seal or gasket seal

COMPROMISES

- Comparatively lower price point
- Inferior noise reduction level performance compared to GT Flow Pro and Max
- Not as energy efficient as the EC motors
- No slimline model available (if required, speak to a member of the Guardtech team and an alternative will be provided)



- APPLICATIONS**
- **Cosmetics**
- **Automotive**
- **Horticulture**
- **Digital Printing**
- **Aerospace**
- **Manufacturing**

GT Flow Plus delivers a Fan Filter Unit that can cover a wide range of applications with a varying degree of air change rate requirements. This dependable all-rounder doesn’t include the option for roomside change as standard but it does present a cost-effective alternative to GT Flow Pro.

- OPTIONS**
- ULPA filters – 99.9995% efficient at 0.12 micron particle size
 - AMC (Airborne Molecular Contamination) filter options
 - Air inlet spigot connection
 - Plug and play wiring options
 - G4 Pre-filter



CONTROLS

GT Flow Plus is designed to utilise an analogue speed controller, operating up to 6 FFUs per unit.





GT FLOW LITE



GT Flow Lite is Guardtech's entry-level filtration solution – an economical HEP-Box terminal filtration solution, supplied by an AHU and plenum to provide dependable HEPA-filtered airflow for laboratories.

GT Flow Lite is Guardtech's economical HEP-Box terminal filtration solution, designed to supply HEPA or ULPA-filtered air to cleanrooms, laboratories and other controlled environments requiring dependable vertical airflow.

The HEP-Box does not contain an integral fan or motor. It is served by a central Air Handling Unit, which supplies conditioned air through the facility ductwork to the terminal unit's circular inlet collar. Air enters the integrated plenum, is distributed across the filter and then delivered vertically into the controlled environment.

The terminal frame is manufactured from extruded anodised aluminium and connected to a self-extinguishing, single-block plenum.

The mini-pleated filter media is manufactured from waterproof and fire-resistant micro-glass fibre, using polyurethane-based sealant and continuous thermoplastic separators. A white epoxy-painted, micro-drawn steel protection grille protects the filter face.

GT Flow Lite is available with either an H14 HEPA filter or U15 ULPA filter. Every filter is individually scan-tested and labelled with its test results before supply.



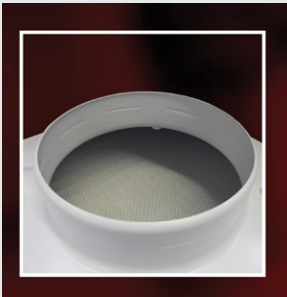
Technical features		
Product	H14 HEP-BOX	U15 HEP-BOX
Efficiency MPPS	99,995 %	99,9995 %
EN 1822:2009 classification	H14	U15
Suggested final pressure drop	400 Pa	400 Pa
Maximum pressure drop	600 Pa	600 Pa
Maximum operating temperature	60 °C	60 °C
Maximum relative humidity	90 %	90 %
CE mark	•	•
ATEX version on request (Aluminum plenum)	•	•

TECHNICAL FEATURES

- Extruded anodised aluminium terminal frame
- Integrated self-extinguishing plenum
- Circular duct connection collar
- H14 HEPA or U15 ULPA filtration
- Mini-pleated micro-glass-fibre filter media
- Waterproof and fire-resistant filter construction
- Continuous thermoplastic separators
- White epoxy-painted steel protection grille
- Individually scan-tested and labelled filters
- Suitable for installation within suspended ceiling systems

GT FLOW LITE OPTIONS

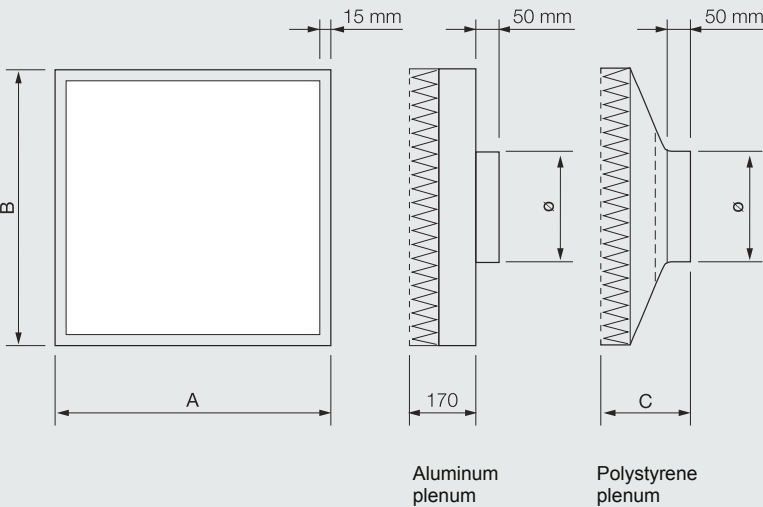
- H14 HEPA or U15 ULPA filtration
- Polystyrene or aluminium plenum, depending upon configuration
- ATEX version available on request with an aluminium plenum
- Alternative system configurations subject to project requirements



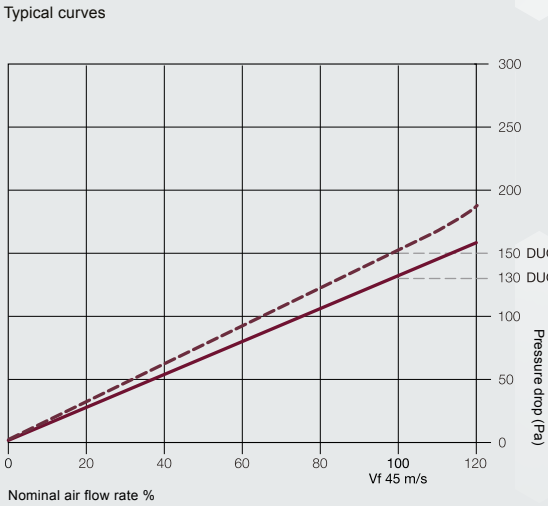
Terminal hood spigot



TECHNICAL DRAWING



NOMINAL AIR FLOW v PRESSURE DROP



Type	Dimensions (mm)		Collar		Nominal air flow rate Q		Filtering surface	Initial pressure drop
HEP-BOX	A	B	C	Ø (mm)	m³/h	m³/s x 10 ⁻³ *	m²	Pa
H-BOX6060-H14*	595	595	220	250	570	159	9.5	130
H-BOX6060-U15*	595	595	220	250	570	159	9.5	150
H-BOX1260-H14**	1195	595	220	315	1146	321	19.1	130
H-BOX1260-U15**	1195	595	220	315	1146	321	19.1	150

*1 m³/s x 10⁻³ = 1 l/s / * = Polystyrene plenum box / ** = Aluminum plenum box

BENEFITS

- Economical terminal filtration solution
- No individual fan or motor to maintain within the terminal
- H14 and U15 filtration options
- Integrated plenum supports even filter loading
- Straightforward suspended-ceiling installation
- Individually tested filters provide documented performance

COMPROMISES

- Requires an appropriately sized central AHU, ductwork and plenum arrangement
- No individual fan-speed control at the terminal
- Airflow adjustment must be managed through the central ventilation system
- Offers fewer construction, coating and diffuser options than GT Flow Pharma

APPLICATIONS



GT Flow Lite suits the least demanding of applications – most commonly laboratories or non-classified controlled environments where considerations on the movement of air and type of airflow is of far less significance.



QUICK-LOOK COMPARISON GUIDE

FEATURES				
EC Motor				
AC Motor				
Gel Seal				
Gasket Seal option				
Roomside Filter Change as standard				
Slimline low profile for extra void space				
H14 HEPA Filters (optional)				
ULPA Filters (optional)				
Low-energy consumption				
Digital fan speed controller				
Superior low operating sound				





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