

# Laminar Flow Clean Bench



# LAMINAR FLOW CLEAN BENCH

**MyLab+** series of laminar flow clean benches are designed to prevent contamination of product, and used when there is no generation of biohazardous materials and user protection is not required.

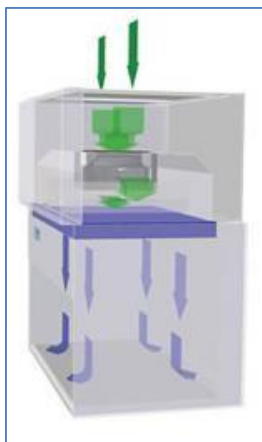
The units provide a clean environment ideal for the Medical, Pharmaceutical, Electrical, Food and Industrial fields for sterile manipulations, miniature mechanisms assembly and production of optical preparations, in fact any applications requiring clean conditions to protect the product from airborne contaminants.



## PRINCIPAL OF OPERATION

To achieve these conditions, the unit operates by drawing air from the room via a pre-filter mounted on top of the unit. This filter takes out large particles to preserve the life of the main HEPA or ULPA filter.

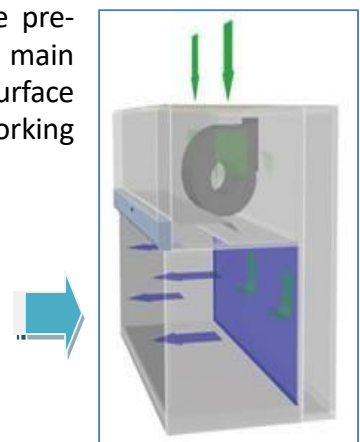
**MyLab+** series laminar flow clean benches are manufactured in **Horizontal** and **Vertical** laminar flow configurations.



Vertical Laminar Flow

For **Vertical Laminar Flow** Clean Benches, the pre-filtered air is directly dispersed through the main filter in a vertical direction towards the work surface to give vertical laminar air flow above the working area.

For **Horizontal Laminar Flow** Clean Benches, a fan mounted directly below the pre-filter draws the air into a plenum at the rear of the cabinet, behind the main filter. The pressure created in the plenum forces the air through the main filter to give horizontal laminar air flow over the working area.



Horizontal Laminar Flow

VERTICAL & HORIZONTAL MODELS



*Vertical Laminar Flow Clean Bench*

Standard control systems consist of;

- Switches for a UV-C germicidal lamp, centrifugal fan and fluorescent light.
- Minihelic II series differential pressure gauge that monitors the main filter performance.
- Two 13A power sockets.
- UV-C germicidal lamp, used to sterilize the interior when the cabinet is not in use.



*Horizontal Laminar Flow Clean Bench*



## MyLab+ Laminar Flow Clean Bench. You've made the right choice. MADE TO LAST

Bench Top, or with Fixed or Mobile floor stand. Stands are available as standing or sitting height.

Sturdy, heavy duty, steel structure.

Chemical resistant epoxy powder coat exterior.

Polished 304 Grade Stainless Steel Worktop.

Scratch and abrasion resistant tempered glass side panels enhance visibility and create a more comfortable work environment for the operator.

UV-absorbing high strength polycarbonate front viewing window.

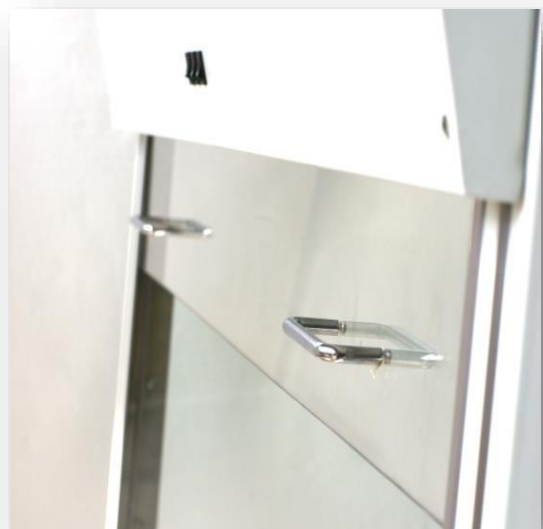
MyLab+ series laminar flow clean benches are designed for installation on standard laboratory benches, or supplied with an optional fixed or mobile floor stand.

The main body of the cabinet is constructed of industrial-grade electro-galvanised steel, and baked epoxy powder coated for chemical resistance and durability.

Transparent tempered glass side panels, as opposed to conventional stainless steel or painted side panels, does not create particulates and is easy to clean.

Each clean bench is factory-tested. To enhance work zone air cleanliness, it is recommended that clean benches are installed in cleanrooms that provides a secondary barrier of protection for the product.

The **Vertical** laminar flow clean bench is fitted with an easy to use, smooth glide vertical sliding viewing window. The window is made from UV absorbing polycarbonate.



The **Horizontal** laminar flow clean bench is fitted with a light weight removable front viewing window, held in place when not in use, by a top magnetic catch and lower bracket.

## GREENTECH EC TECHNOLOGY

Introducing **backward curved fan blades** with a rigid, hybrid design, featuring noise minimization and a further decrease in energy consumption. The impeller with backward-curved blades is made of fibreglass-reinforced plastic, enabling an aerodynamically optimised shape that cuts the noise level in half and reduces power requirements significantly.

Even without special varnish, the impellers are highly corrosion-resistant. Direct solar radiation has no damaging effects on the UV-resistant material.

Fitted with a variable speed controller to maximise airflow control in relation to filter performance, a **GreenTech EC motor** is used in the low-pressure centrifugal fan. Up to 50% less energy consumption can be achieved in comparison with an AC motor.



### GreenTech EC motor

- Unrivalled compactness
- High efficiency
- Economical operation
- Low noise emissions
- Long service life
- Safe operation

### High performance impeller

- High static efficiency
- Low noise emissions
- Low vibration
- Robust design

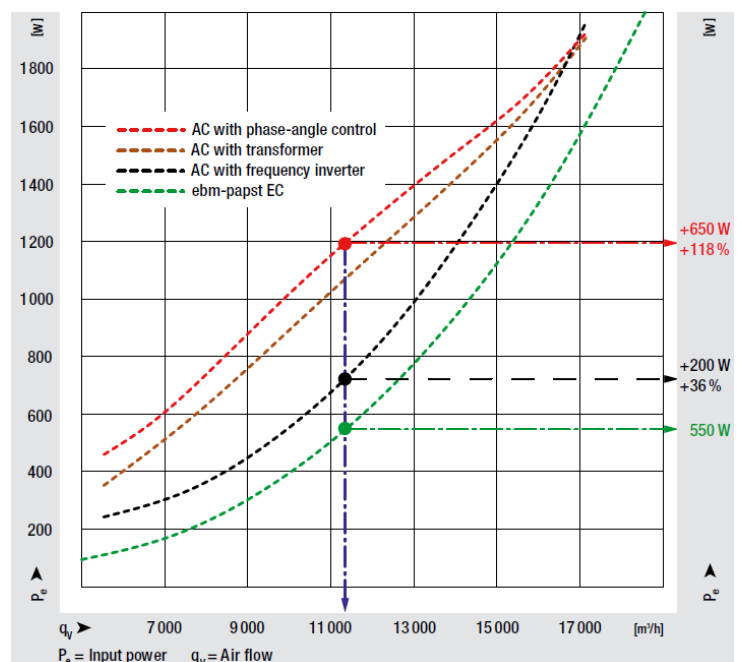
### Electronics

- Versatile
- Universal applicability
- Safe operation
- Simple Commissioning

# 30% savings on average

### Motors with a built-in saving effect.

The most significant advantage of fans and motors employing GreenTech EC technology as opposed to conventional asynchronous motors is that their efficiency level of up to 90% is substantially higher than the 70–80% achieved by AC motors. This means not only better utilisation of primary energy, but also reduced heat loss and hence a longer service life.



Power consumption for various control methods

LIGHTING



A single **high intensity T5 fluorescent light** is protected by an easy to clean and flush fitted glass cover. Changing the light is a simple step.

*Energy saving T5 electronic ballast fluorescent light. Instant flicker free operation over a wide voltage range (160V to 250V).*

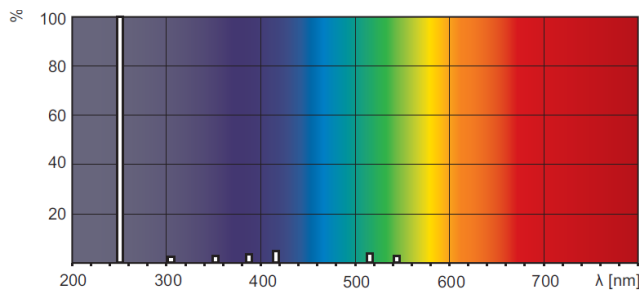
**25% ENERGY SAVINGS** compared to a T8 batten.



UV-CLAMP

User safety is of paramount importance.

**MyLab+** UV Germicidal lamps are from the only manufacturer that offers a complete in-house manufactured package of UV lamps, drivers and sleeves, ensuring optimum performance. The UV lamp is doped so that any short wave UVC light below 254 nm will not be released, eliminating the dangerous presence of ozone.



TUV



FILTER PERFORMANCE

With the housing molded from mineral and glass filled nylon and the lens molded from acrylic, the gauge will withstand rough use and exposure as well as high total pressure. Overpressure protection is built into the Minihelic II<sup>®</sup> gauge by means of a blow-out membrane.



**Highly accurate, Minihelic II Differential Pressure Gauge to monitor main filter performance.**

**FILTRATION**

**PRE-FILTER**

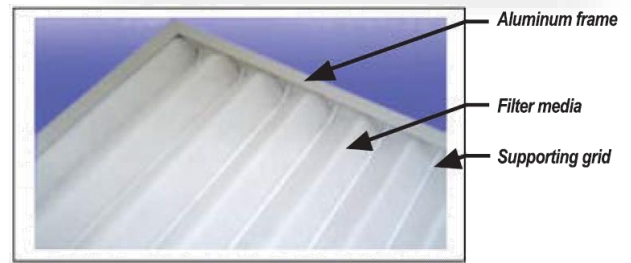
An American Air Filter (AAF) **Pleated Pre-filter** traps large particles in the inflow air prior to reaching the main filter, protecting the main filter against damage and prolonging its life. The pre-filter can be removed for ease of cleaning and replacement.



**G4 rated to EN779**



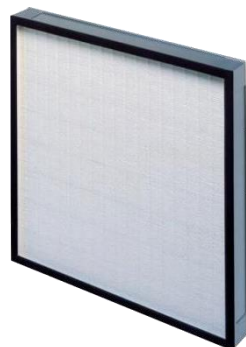
- Light weight aluminium frame
- Easy to install and replace
- Washable synthetic fibre media
- High dust holding capacity
- Long service life
- Reduce the risk of fire
- Low initial resistance



**HEPA & ULPA FILTERS, PRE-TREATED WITH A BROAD SPECTRUM ANTI-MICROBIAL**

An American Air Filter (AAF) **Mini-Pleat HEPA (H14) or ULPA (U15) filter** meets the demanding airflow and efficiency requirements of the semiconductor, healthcare, pharmaceutical, biotech, food processing, and other industries in which airborne contaminants must be carefully controlled. As an option, HEPA and ULPA filters can be pre-treated with a durable, low toxicity, broad spectrum **Anti-Microbial** that inhibits the growth of bacteria and fungi on surfaces.

**Classified under UL900, UL586 & FM**



- Mini-pleat design features maximum media cleaning potential
- 7½ - 8 pleats per inch allows the greatest amount of media in the shallowest depth
- Requires no foreign or organic separators such as adhesive or strings
- Lightweight and compact. Easy installation – no corrugated separators
- Lowest possible pressure drop reduces operating costs
- Anodized extruded aluminium frame
- Neoprene gasket seal

**Ribbons of media maintain pleat separation which significantly increases airflow.**

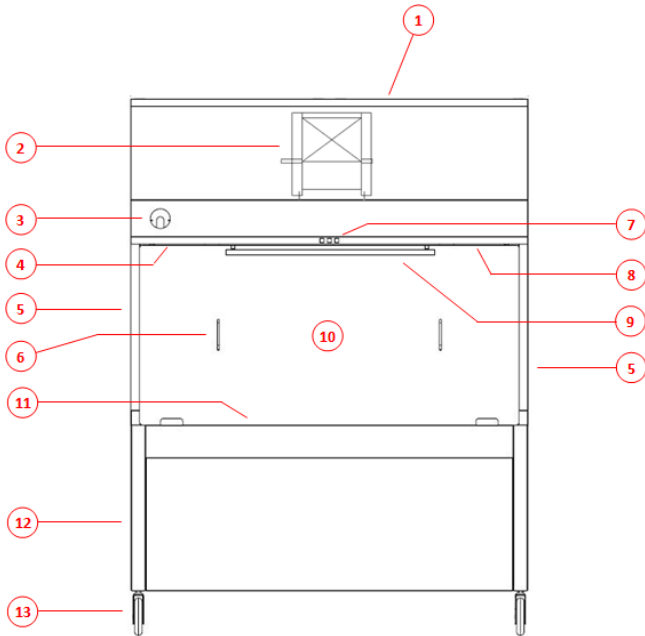


**HEPA Filter Media**  
99.99% minimum efficiency on 0.30 micrometer particles.

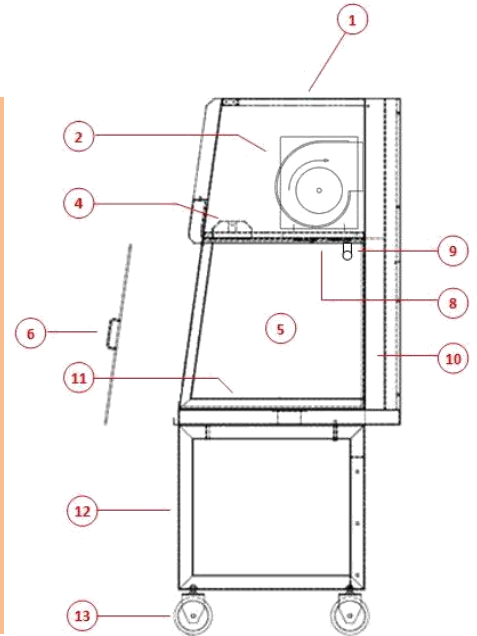
**ULPA Filter Media**  
99.9995% minimum efficiency on 0.10 to 0.20 micrometer particles.

## QUICK VIEW

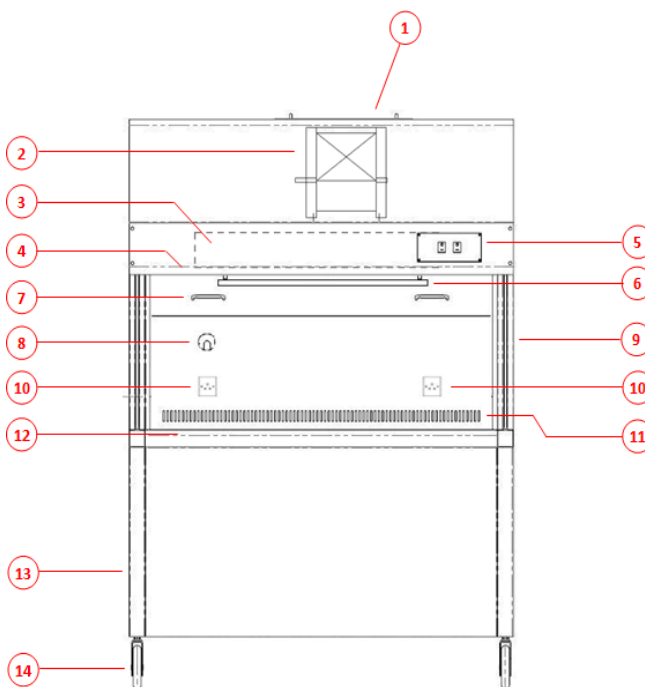
### HORIZONTAL LAMINAR FLOW CONFIGURATION



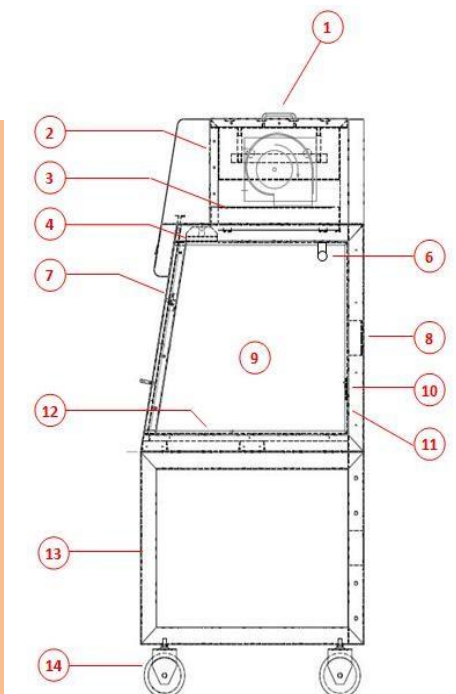
1. Pre-filter
2. EBM Papst Fan
3. Minihelic differential pressure gauge
4. T5 fluorescent lamp
5. Tempered glass side panel
6. Removable polycarbonate screen
7. On/Off switches
8. Electrical sockets
9. UV-C light
10. HEPA or ULPA filter
11. Stainless steel worktop
12. Heavy duty steel stand (Optional)
13. Heavy duty, non marking, lockable castor wheels



### VERTICAL LAMINAR FLOW CONFIGURATION



1. Pre-filter
2. EBM Papst Fan
3. HEPA or UPLA filter
4. T5 fluorescent lamp
5. On/Off switches
6. UV-C light
7. Vertical sliding polycarbonate screen
8. Minihelic differential pressure gauge
9. Tempered glass side panel
10. Electrical socket
11. Air foil slots
12. Stainless steel worktop
13. Heavy duty steel stand (Optional)
14. Heavy duty, non marking, lockable castor wheels





## TECHNICAL SPECIFICATIONS

**MyLab+** Laminar Flow Clean Benches are designed and manufactured to produce an air quality within the clean bench to ISO 14644-1:1999 Class 5 where a HEPA filter is installed and ISO 14644-1:1999 Class 3 where a ULPA filter is installed.

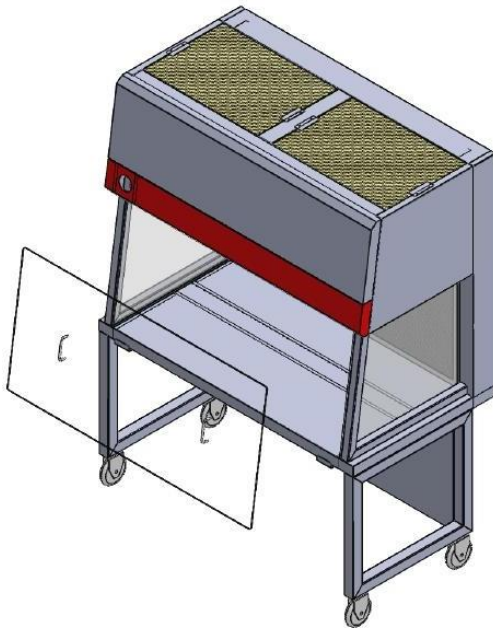


Fig 1: Horizontal Laminar Flow Clean Bench

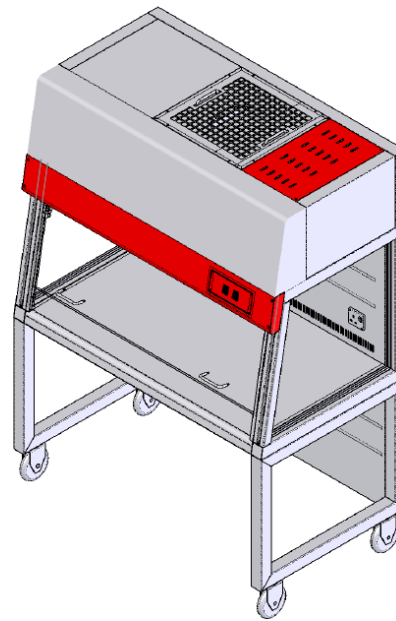


Fig 2: Vertical Laminar Flow Clean Bench

Model	Nominal Size	External Dim (W x D x H) (mm)		Internal Work Area (W x D x H) (mm)	Internal Work Area (m <sup>2</sup> )
		Without Stand	With Stand		
<b>Horizontal Laminar Flow</b>					
600LFH - *	600mm / 2ft	730 x 750 x 1100	730 x 750 x 1820	570 x 630 x 575	0.36 m <sup>2</sup>
900LFH - *	900mm / 3ft	1035 x 750 x 1100	1035 x 750 x 1820	875 x 630 x 575	0.55 m <sup>2</sup>
1200LFH - *	1200mm / 4ft	1340 x 750 x 1100	1340 x 750 x 1820	1180 x 630 x 575	0.74 m <sup>2</sup>
1500LFH - *	1500mm / 5ft	1645 x 750 x 1100	1645 x 750 x 1820	1485 x 630 x 575	0.94 m <sup>2</sup>
1800LFH - *	1800mm / 6ft	1950 x 750 x 1100	1950 x 750 x 1820	1790 x 630 x 575	1.13 m <sup>2</sup>
<b>Vertical Laminar Flow</b>					
600LFV - *	600mm / 2ft	730 x 765 x 1280	730 x 765 x 1990	660 x 700 x 720	0.46 m <sup>2</sup>
900LFV - *	900mm / 3ft	1035 x 765 x 1280	1035 x 765 x 1990	965 x 700 x 720	0.68 m <sup>2</sup>
1200LFV - *	1200mm / 4ft	1340 x 765 x 1280	1340 x 765 x 1990	1270 x 700 x 720	0.89 m <sup>2</sup>
1500LFV - *	1500mm / 5ft	1645 x 765 x 1280	1645 x 765 x 1990	1575 x 700 x 720	1.10 m <sup>2</sup>
1800LFV - *	1800mm / 6ft	1950 x 765 x 1280	1950 x 765 x 1990	1880 x 700 x 720	1.32 m <sup>2</sup>

\* Insert suffix **-H** or **-U** for HEPA or ULPA filter models respectively.

**TECHNICAL SPECIFICATIONS**

HORIZONTAL MODELS		600LFH	900LFH	1200LFH	1500LFH	1800LFH
Average Airflow Velocity		All Models 0.45 m/s (at initial set point)				
Air Volume Movement (+/- 11%)		530 m <sup>3</sup> /hr 312 CFM	815 m <sup>3</sup> /hr 480 CFM	1096 m <sup>3</sup> /hr 645 CFM	1380 m <sup>3</sup> /hr 812 CFM	1665 m <sup>3</sup> /hr 980 CFM
HEPA Filter Typical Efficiency		>99.99% at particle size 0.1 to 0.3 μm (Class H14)				
ULPA Filter Typical Efficiency		>99.9995% at particle size between 0.1 to 0.3 μm (Class U15)				
Differential Pressure Gauge		Minihelic II, Series 5000				
Sound Emission		<59 dBA	<60 dBA	<60 dBA	<62 dBA	<62 dBA
Light Intensity		>1550 lux	>1600 lux	>1800 lux	>1600 lux	>1600 lux
Construction	Main Body	1.2mm (18 gauge) electro-galvanized baked epoxy powder coated steel sheet & steel hollow section tubing				
	Work Zone	1.2mm (18 gauge) grade 304 stainless steel, 4B finish				
	Side Panels	UV absorbing 8mm tempered glass				
	Window	UV absorbing 6mm polycarbonate, removable				
Electrical 220-240 VAC, 50 Hz, Single Phase	Power (W / Amps)	250W / 2A	290W / 2A	330W / 2A	370W / 2A	820W / 5A
	Outlet Fuse (Amps)	5A	5A	5A	5A	5A
	Total Amps	7A	7A	7A	7A	10A
Net Weight (kg) (Without Stand)		100 kg	125 Kg	150 Kg	170 Kg	190 Kg
Shipping Weight (kg) (Without Stand)		135 Kg	165 Kg	195 Kg	230 Kg	260 Kg
Max Shipping Dimension (W x D x H) (Without Stand)		880 x 880 x 1480	1130 x 880 x 1480	1480 x 880 x 1480	1780 x 880 x 1480	2050 x 880 x 1480
Max Shipping Volume (m <sup>3</sup> ) (Without Stand)		1.15 m <sup>3</sup>	1.47 m <sup>3</sup>	1.93 m <sup>3</sup>	2.32 m <sup>3</sup>	2.67 m <sup>3</sup>

## TECHNICAL SPECIFICATIONS

VERTICAL MODELS		600LFV	900LFV	1200LFV	1500LFV	1800LFV
Average Airflow Velocity		All Models 0.45 m/s (at initial set point)				
Air Volume Movement (+/- 10%)		605 m <sup>3</sup> /hr 356 CFM	904 m <sup>3</sup> /hr 532 CFM	1202 m <sup>3</sup> /hr 707 CFM	1505 m <sup>3</sup> /hr 886 CFM	1804 m <sup>3</sup> /hr 1062 CFM
HEPA Filter Typical Efficiency		>99.99% at particle size 0.1 to 0.3 µm (Class H14)				
ULPA Filter Typical Efficiency		>99.9995% at particle size between 0.1 to 0.3 µm (Class U15)				
Differential Pressure Gauge		Minihelic II, Series 5000				
Sound Emission		<59 dBA	<60 dBA	<60 dBA	<62 dBA	<62 dBA
Fluorescent Light Intensity		>900 lux	>1060 lux	>1250 lux	>1100 lux	>1100 lux
Construction	Main Body	1.2mm (18 gauge) electro-galvanized baked epoxy powder coated steel sheet & steel hollow section tubing				
	Work Zone	1.2mm (18 gauge) grade 304 stainless steel, 4B finish				
	Side Panels	UV absorbing 8mm tempered glass				
	Window	UV absorbing 10mm polycarbonate, vertical sliding				
Electrical 220-240 VAC, 50 Hz, Single Phase	Power (W / Amps)	350W / 2A	370W / 2A	380W / 2A	400W / 2A	750W / 4A
	Outlet Fuse (Amps)	5A	5A	5A	5A	5A
	Total Amps	7A	7A	7A	7A	9A
Net Weight (kg) (Without Stand)		105 Kg	125 Kg	150 Kg	170 Kg	225 Kg
Shipping Weight (kg) (Without Stand)		141 Kg	169 Kg	205 Kg	233 Kg	295
Max Shipping Dimension (W x D x H) (Without Stand)		880 x 880 x 1500	1130 x 880 x 1500	1480 x 880 x 1500	1780 x 880 x 1800	2050 x 880 x 1500
Max Shipping Volume (m <sup>3</sup> ) (Without Stand)		1.16 m <sup>3</sup>	1.49 m <sup>3</sup>	1.95 m <sup>3</sup>	2.82 m <sup>3</sup>	2.70 m <sup>3</sup>

All **MyLab+** laminar flow clean benches have a **12 MONTHS WARRANTY** on parts and workmanship, excluding consumables. Contact **MDC Planners** or your dealer for warranty details.