

# CÔNG TY TNHH KỸ THUẬT QUỐC TẾ THẾ LONG

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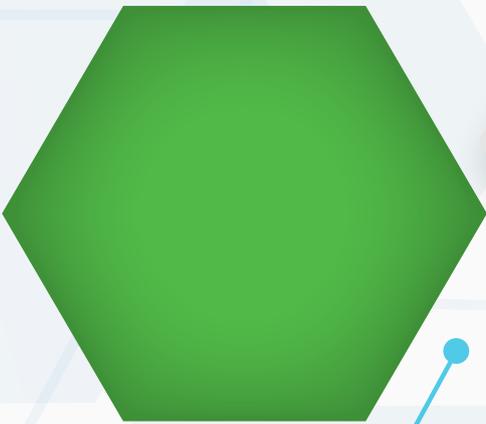
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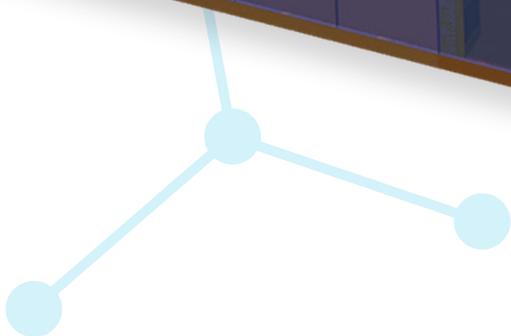
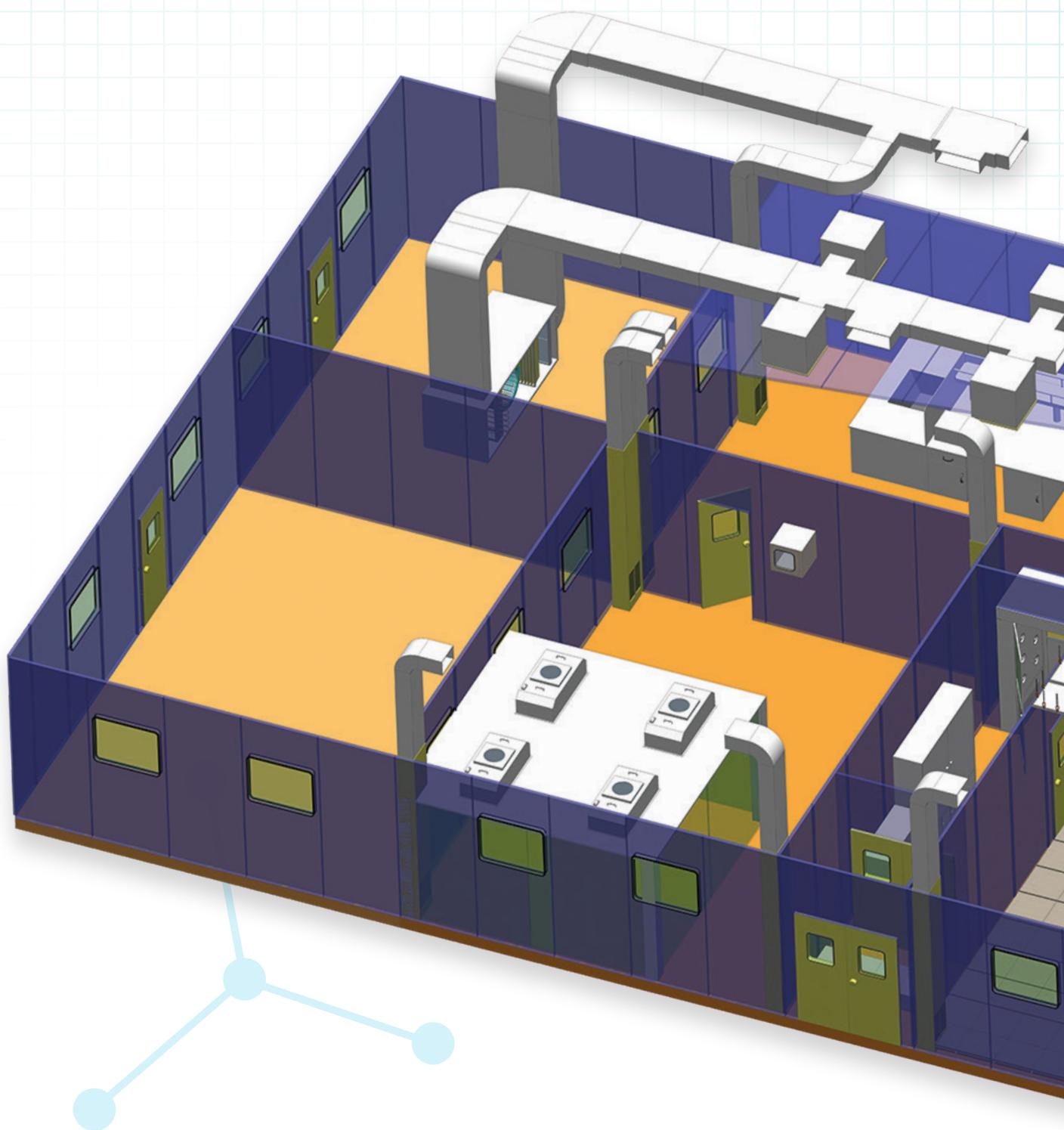
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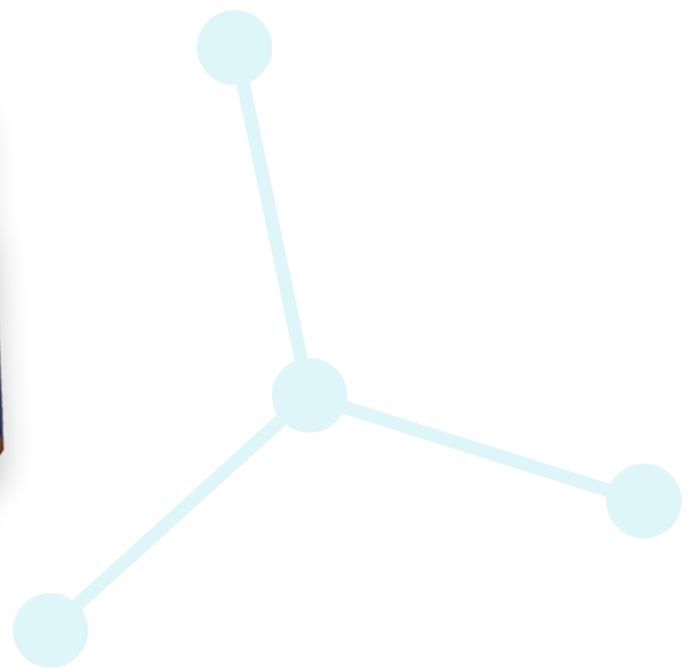
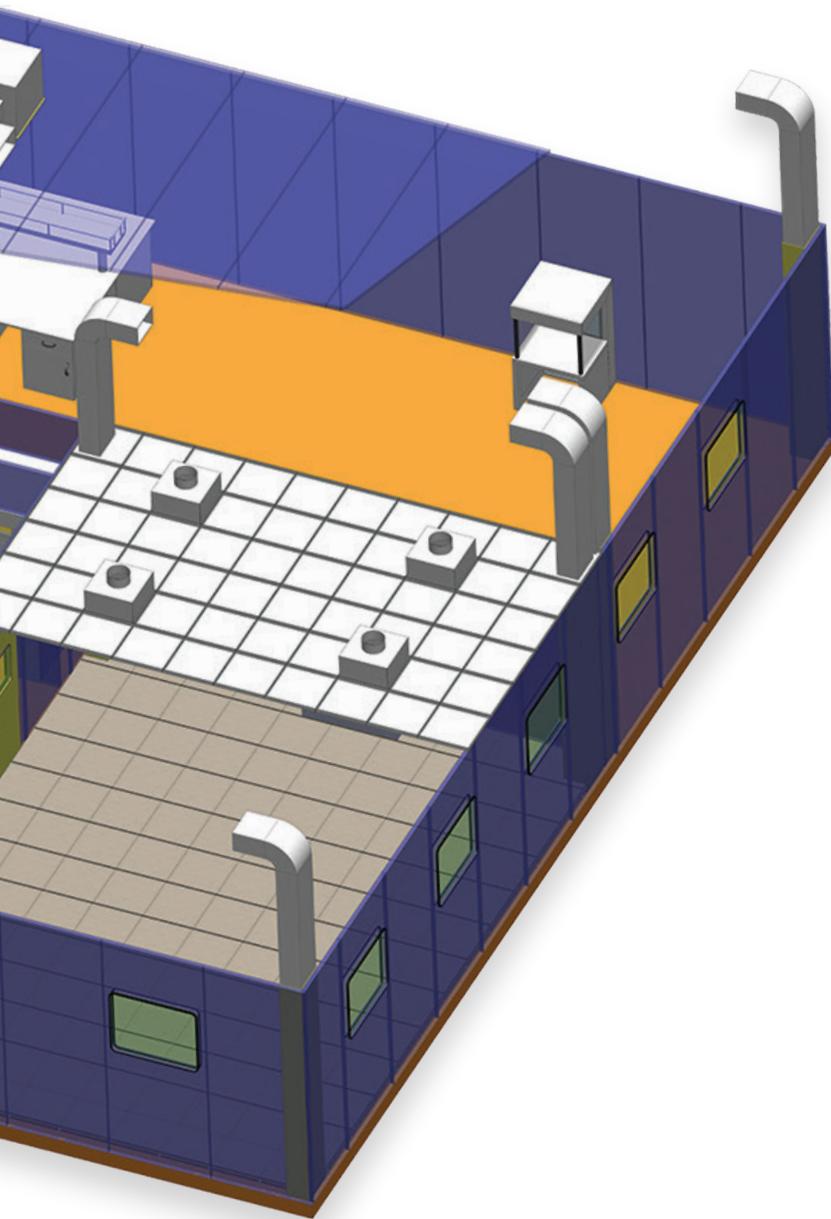
# THELONG<sup>®</sup> GROUP





**THELONG INTERNATIONAL TECHNOLOGY CO.,LTD** provides professional design, manufacture, test and technical support for micro-electronic, pharmaceutical, semi-conductor, hospital operation room, laboratory, healthcare products, LCD & LED display, optics, food and beverage and etc.

We are a professional provider of air filter, cleanroom project and cleanroom equipment, experienced in desingning, producing and marketing. We are one of leading manufacturers in cleanroom industry on scale and technology in Vietnam according to ISO14644, FS209E and GMP requirements. In our effort to continuously improve our manufacturing process and production quality, we were awarded ISO 9001:2008 certification for quality system management in manufacturing. Our company is committed to total quality management to ensure a constant high level of quality and services for our customers.





Văn phòng Hà Nội

Nhà máy Hưng Yên

Văn phòng Hồ Chí Minh

Nhà máy Hồ Chí Minh



Ha Noi transaction office

Hung Yen factory

HCM representative office

Ho Chi Minh factory

# AIR SHOWER

**AIR SHOWERS** chambers are specialised antechambers which personnel need to pass through before entering cleanrooms in order to decontaminate. This is done so by clearing off dust and dirt particles from bodies of cleanroom personnel to minimize contamination of equipment or products.

**Application:** The air shower are typically installed between the change room area and the cleanroom and are used for demanding applications in the pharmaceutical, semiconductor, animal research and food processing market.

## MODEL AND SPECIFICATION:

### MANUAL SINGLE LEAF SWING DOOR



MODEL		TL - AS - 1000	TL - AS - 2000	TL - AS - 3000
External dimension ( WxDxH) (mm)		1400 x 1000 x 2150	1400 x 2000 x 2150	1400 x 3000 x 2150
Internal works zone ( WxDxH) (mm)		800 x 930 x 1950	790 x 1930 x 1950	790 x 2930 x 1950
Body construction		All SUS / Outside : Powder coated steel, inside : SUS304		
Person per cycle		1 - 2 persons	3 - 4 persons	5 - 6 persons
Air shower duration		Default 15s ( 0 -99s adjustable )		
The power of fan		380V / 50Hz / 1100W ( 1 fan )	380V / 50Hz / 1100W ( 2 fans )	380V / 50Hz / 1100W ( 3 fans )
Air velocit of fan (m <sup>3</sup> /h)		1300	1300	1300
Fan run ( r/min )		2800	2800	2800
Nozzle	Quantity ( Pcs )	12	24	36
	Material	SUS304	SUS304	SUS304
	Air speed ( m/s )	>= 25	>= 25	>= 25
Wind speed (m/s)		18 - 25	18 - 25	18 - 25
Noise level (dBa)		< 65 dB	< 65 dB	< 65 dB
Hepa filter	Size (mm)	610x610x70 (1PC)	610x610x70 (2PCs)	610x610x70 (3PCs)
	Efficiency	99,99%@0.3µm	99,99%@0.3µm	99,99%@0.3µm
	Air celocity (m <sup>3</sup> /h)	1000	1000	1000
	Initial resistance (Pa)	249	249	249
Pre filter		No - Woven	No - Woven	No - Woven
Power supply		380V / 50Hz	380V / 50Hz	380V / 50Hz
Light		20W / ( 1PC )	20W / ( 2PCS )	20W / ( 3PCS )
Door discription		Doors are also made form Stainless stell SUS304 and 1/4" tempered glass which are used at the entry and exit of the Air Shower		

# AIR SHOWER



## Feature and description:

- Main body construction: Stainless steel 304, Optional powder coating to a range of colours to suit customer specifications.
- Door: There are several kinds of door are available in Thelong Air shower series to meet the private requirement of clients
- Touch screen: Programmable microprocessor control system include a PLC controller with touch screen display. The touch screen plays total shower usage, shutdown time, cycle progress and operational status.
- Nozzles are arranged on walls and ceilings in a uniform pattern to ensure effective distribution of - filtered air. The closed loop circulation design directs contaminated air downward through grills and hollow walls of the air shower and back to the filter, which removes 99.99% of all particles down to 0.3 microns.

## MODEL AND SPECIFICATION:

### MANUAL SINGLE LEAF SWING DOOR

MODEL		TL - AS12 - 1000	TL - AS22 - 2000
External dimension ( WxDxH) (mm)		1550 x 1000 x 2150	1550 x 2000 x 2150
Internal works zone ( WxDxH) (mm)		800 x 930 x 1930	800 x 1930 x 1930
Persons per cycle		1 - 2 persons	2 - 4 persons
The power of fan		380V / 750W ( 2 fan )	380V / 750W ( 6 fan )
Nozzle in stainless steel		24 PCS	32 PCS
Win speed ( m/s )		18 - 25	18 - 25
Noise level ( dBA )		< 85	< 85
HEPA Filter	Size ( mm )	610 x 610 x 70	610 x 610 x 70
	Efficiency	99.995% @ 0.3 $\mu$ m	99.995% @ 0.3 $\mu$ m
	Air velocity ( m <sup>3</sup> /h )	1000	1000
	Initial resistance ( Pa )	220	220
Pre - Filter	Size ( mm )	640 x 240 x 20	640 x 240 x 20
	Efficiency	G3	G3
	Efficiency	75%@ $\mu$ m	75%@ $\mu$ m
	Initial resistance ( Pa )	60	60
Paramerter	Power supply	380V / 50Hz	380V / 50Hz
	Net power ( Kw )	1.5 Kw	3 Kw

# MANUAL DOUBLE LEAF SWING DOOR



MODEL		TL - AS22 - 2000	TL - AS22 - 3000
External dimension ( WxDxH) (mm)		2300 x 2000 2250	2300 x 3000 2250
Internal works zone ( WxDxH) (mm)		1600 x 1930 x 1950	1600 x 2930 x 1950
Person per cycle		8 persons	12 persons
Air shower duration		Default 15s, adjustable 10 -99s	
The power of fan		380V / 50Hz ( 4 fans )	380V / 50Hz ( 6 fans )
Air velocit of fan (m <sup>3</sup> /h)		1300	1300
Fan run ( r/min )		2800	2800
Nozzle	Quantity ( Pcs )	24	32
	Meterial	SUS304	SUS304
	Air speed ( m/s )	>= 25	>= 25
Wind speed (m/s)		18 - 25	18 - 25
Noise level (dBa)		< 65 dB	< 65 dB
Hepa filter	Size (mm)	610x610x70 (4 PCs)	610x610x70 (6 PCs)
	Efficiency	99,99%@0.3μm	99,99%@0.3μm
	Air celocity (m <sup>3</sup> /h)	1000	1000
	Initial resistance (Pa)	249	249
Pre filter		No - Woven	No - Woven
Power consumption (Kw)		3	4.5
Power supply		380V / 50Hz	380V / 50Hz
Light		20W (1Pc)	20W (2Pcs)
Door discription		Doors are also made form Stainless stell SUS304 and 1/4" tempered glass which are used at the entry and exit of the Air Shower	

# EXAMPLE

## AIR SHOWER PASS BOX WITH CONVEYOR

This style of air shower can use swing doors, vertical-sliding, horizontal sliding, or no doors at all



## AIR SHOWER TUNNEL TYPE

For "large batch" cleaning - if a large number of people will enter and exit as a group - or for "continuous flow" cleaning - where the showering time is determined by how long it takes to walk the length of the tunnel



# EXAMPLE

## ➤ AIR SHOWER WITH SLIDING DOOR



## AIR SHOWER WITH AUTO ROLLING DOOR



## AIR SHOWER WITH L-TYPE DOOR



# PASS BOX



The **PASS BOX** is used to transfer the item in or out between 2 different classes of cleanroom or between cleanroom and grey area. The pass box is designed in such the way that it is able to suit the opening of the wall. It is usually used for convenience of passing the small item in or out cleanroom where the person does not have to enter the cleanroom and gone through the whole garment changing and air shower process.

## Feature and description:

- Thelong provides two types of units: The first type is the non-active pass box (or static pass box) and the second type is the filtrate active pass box (Pass box air shower or sometimes called dynamic pass box). All types with inner surfaces made of 304 stainless steel. Some accessories that accompany the unit are UV lamps and fluorescent light tubes.

In order to safeguard the stability of the cleanroom atmosphere, Thelong boxes feature a high quality interlock system that controls the two opposite doors of the unit and does not allow them to be simultaneously opened.

- The active pass box includes a chamber with a HEPA filter, which is monitored by a central digital controller. The dimensions of Thelong units are flexible, for any shape or size of laboratory. Each Thelong pass box is provided with a 12-month warranty on electronic and mechanical parts

## MODEL AND SPECIFICATION:

### NON-ACTIVE PASS BOX



Model	TL - PB - 500	TL - PB - 600	TL - PB - 700	TL - PB - 800	TL - PB - 900
Int. Dimension (W x D x H) (mm)	500 x 500 x 500	600 x 600 x 600	700 x 700 x 700	800 x 800 x 800	900 x 900 x 900
Ext. Dimension (W x D x H) (mm)	670 x 600 x 640	770 x 700 x 740	870 x 800 x 840	970 x 900 x 940	1170 x 1000 x 1040
Lock type	Mechanical/Electrical				
Light	Optional				
UV lamp	Optional				
Power supply	220V/50 Hz (Mechanical lock with no power)				
Material	All SUS304 / Outside: Powder coated steel, Inside SUS304 Window: Transparent glass / acrylic or No window				

## ▶ ACTIVE PASS BOX



Model	TL - PB - 500 - D	TL - PB - 600 - D	TL - PB - 700 - D	TL - PB - 800 - D
Int. Dimension (W x D x H) (mm)	800 x 800 x 800	900 x 900 x 900	1000 x 1000 x 1000	1100 x 1100 x 1100
Ext. Dimension (W x D x H) (mm)	1000 x 900 x 1400	1100 x 1000 x 1500	1200 x 1100 x 1600	1300 x 1200 x 1600
Lock type	Mechanical/Electrical			
Light	Optional			
UV lamp	Optional			
Hepa filter efficiency	99.99%			
Fan	01 Pcs			
Pre filter	Non-woven			
Power supply	220V/50 Hz			
Nozzle material	SUS304			
Wind speed	≥20m/s			
Material	All SUS304 / Outside: Powder coated steel, Inside SUS304 Window: Transparent glass / acrylic or No window			

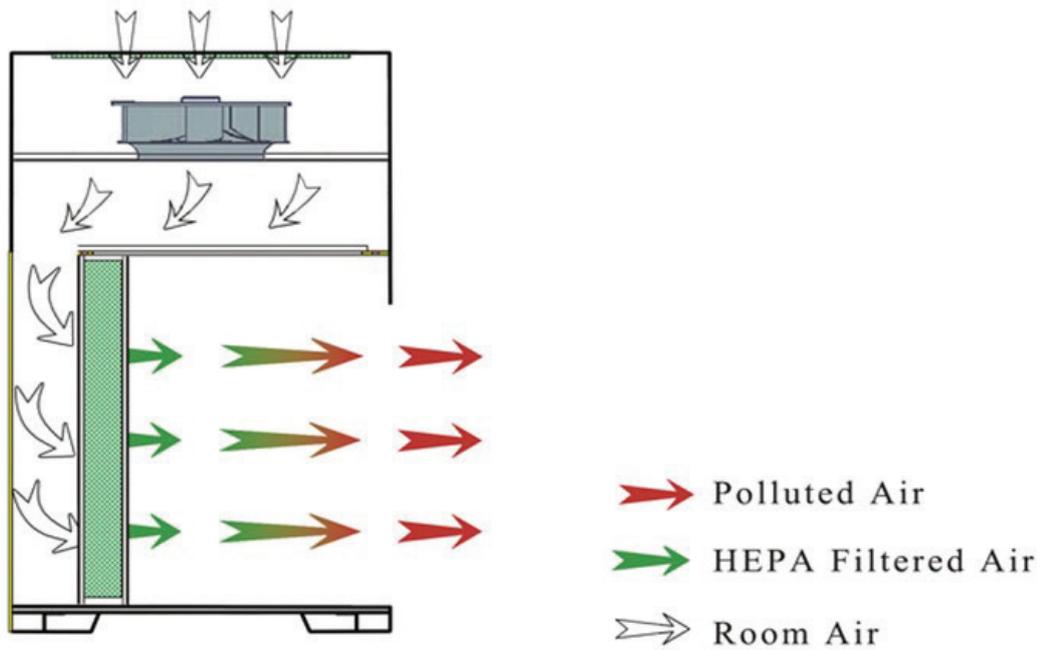
*CUSTOM-BUILD DIMENSION AND SPECIFICATION ARE ALSO AVAILABLE:  
MANY OTHER CUSTOMIZED SIZES AND FEATURES CAN BE PROVIDED. CONTACT US FOR MORE INFORMATION.*

PASS BOX WITH CONVEYOR

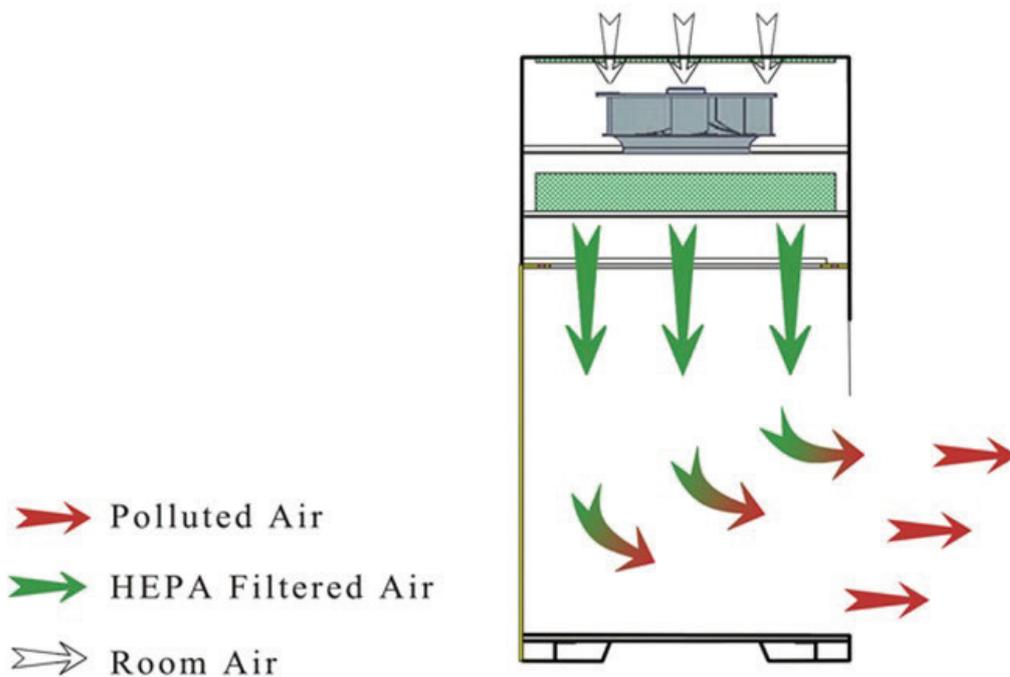


# CLEAN BENCH

**CLEAN BENCHES** are available with horizontal laminar flow or with vertical laminar flow. Both provide a HEPA-filtered environment that protects the sample from airborne contamination. Clean benches do not offer personnel protection.

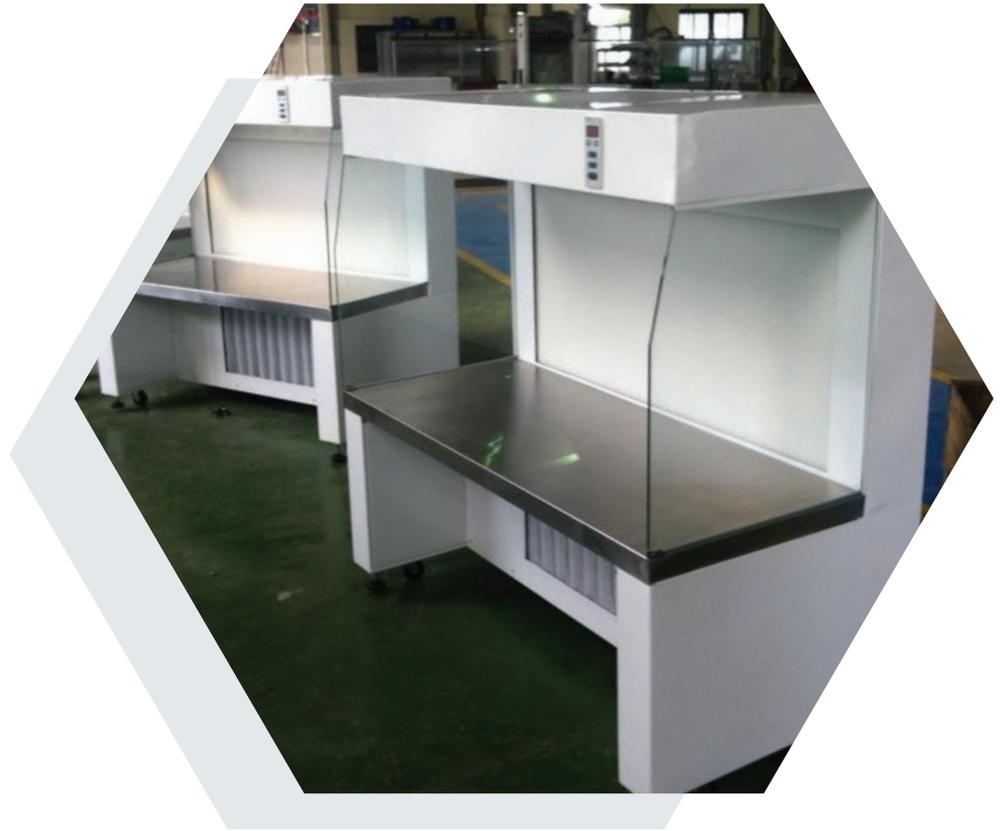


Horizontal Type



Vertical Type

**MODEL AND SPECIFICATION:**  
**HORIZONTAL LAMINAR CLEAN BENCH**



Model	TL-HCB1000	TL-HCB1400
Type	Single	Double
Ext. Dimension ( W*D*H )	1060*800*1690 mm	1460*800*1690 mm
Int. Dimension ( W*D*H )	980*500*600 mm	1400*500*600 mm
Air velocity	0.3 - 0.5 m/s	
Material	Body: Powder coated steel, light grey colour	
	Working table: SUS 304	
	Side window: Tempered glass, T = 5mm	
Pre filter	Polyester, washable	
HEPA filter	Efficiency 99.99% at 0.3 μm	
Noise level	<60dB	
Flourescent lamp	21W*1	28W*1
UV lamp	20W*1	30W*1
Caster wheel	Universal caster wheel	
Power supply	220 V/ 50 Hz	
Standard accessories	FL lamp, UV lamp, Stand, 0 2 electric sockets	FL lamp, UV lamp, Stand, 0 2 electric sockets

## MODEL AND SPECIFICATION: VERTICAL LAMINAR CLEAN BENCH



Model	TL-VCB1000	TL-VCB1300	TL-VCB1600
Type	Single	Double	Double
Ext. Dimension ( W*D*H )	1000*810*1735 mm	1350*760*1735 mm	1600*760* 1735 mm
Int. Dimension ( W*D*H )	800* 700*650 mm	1200*700*650 mm	1400*700*650 mm
Air velocity	0.3 - 0.5 m/s		
Material	Body: Powder coated steel, light grey colour		
	Working table: SUS 304		
	Side window: Tempered glass, T = 4mm		
Pre filter	Polyester, washable		
HEPA filter	Efficiency 99.99% at 0.3 $\mu$ m		
Noise level	<60dB		
Flourescent lamp	18W*1	28W*1	36W*1
UV light	14W*1	20W*1	30W*1
Caster wheel	Universal caster wheel		
Power supply	220V / 50 Hz		
Standard accessories	FL lamp, UV lamp, Stand, 0 2 electric sockets		

# CLEAN BOOTH

## Introduction:

**A CLEAN BOOTH** is one of the most cost-effective investments available for today's manufacturer needing a clean zone. The portable clean booth allows you to quickly establish a clean zone in any facility.

## Application:

- Pharmaceutical
- Medical devices, plastic injection moulding
- Electronic assembly
- Contact lén packing
- Hospital pharmacy
- Biotechnology
- Nanotechnology
- Life sciences
- Aerospace
- Quality control
- Food industries



## Feature and description:

- Soft wall clean booths come with all the features you need to create your own clean space in the configuration that fits the available space. Complete with steel tube frame, anti-static vinyl, lights, fans, HEPA or ULPA filters, and an easy to hook up electrical system, a soft wall clean booth from THELONG is a reliable, compact investment in your air quality control.

## MODEL AND SPECIFICATION:

**The long clean booth is available in Class 100-10000 (FED standard) or from Class 5-7 (ISO Class) clean room environment**

## GENERAL SPECIFICATION

MODEL	TL- CB-CL5	TL- CB-CL6	TL- CB-CL7
<b>SPECIFICATION</b>			
CLEANLINESS	ISO CLASS 5 (CLASS 100)	ISO CLASS 6 (CLASS 1000)	ISO CLASS 7 (CLASS 10000)
AIR CHANGE HOUR	APPROX. 425	APPROX. 160	APPROX. 70
HEPA FILTER EFFICIENCY	99.99% @ 0.3 µm AND ABOVE		
PRE FILTER	NONWOVEN		
CONSTRUCTION	CASING STEEL SHEET METAL		
	ENCLOSURE VINYL CURTAIN		
FINISHING	POWDER BAKED EPOXY FINISHING		
POWER SUPPLY	AC, 1 PH, 230V, 50 / 60 Hz		

## TL-CB-CL5 (ISO CLASS 5) SPECIFICATION

<b>MODEL</b>	<b>2112</b>	<b>2124</b>	<b>2136</b>	<b>4224</b>	<b>4236</b>
<b>SPECIFICATION</b>					
AIR VOLUME	40m <sup>3</sup> /Min	80m <sup>3</sup> /Min	120m <sup>3</sup> /Min	160m <sup>3</sup> /Min	240m <sup>3</sup> /Min
HEPA FILTER QUANTITY	3	6	9	12	18
LIGHT FITTING	(40W * 1Tube)*2	(40W * 1Tube)*4	(40W * 1Tube)*6	(40W * 1Tube)*8	(40W * 1Tube)*10
POWER CONSUMPTION	APPROX. 600W	APPROX. 1200W	APPROX. 1800W	APPROX. 2400W	APPROX. 3600W
POWER SUPPLY (APPROX)	AC, 1 PH, 230V, 50 / 60Hz				
WEIGHT (APPROX)	320kg	640kg	960kg	1280kg	1920kg

## TL-CB-CL6 (ISO CLASS 6) SPECIFICATION

<b>MODEL</b>	<b>2718</b>	<b>2736</b>	<b>2754</b>	<b>5436</b>	<b>5454</b>
<b>SPECIFICATION</b>					
AIR VOLUME	30m <sup>3</sup> /Min	60m <sup>3</sup> /Min	90m <sup>3</sup> /Min	120m <sup>3</sup> /Min	180m <sup>3</sup> /Min
HEPA FILTER QUANTITY	2	4	6	8	10
LIGHT FITTING	(40W * 1Tube)*2	(40W * 1Tube)*4	(40W * 1Tube)*6	(40W * 1Tube)*8	(40W * 1Tube)*10
POWER CONSUMPTION	APPROX. 450W	APPROX. 900W	APPROX. 1350W	APPROX. 1800W	APPROX. 2250W
POWER SUPPLY (APPROX)	AC, 1 PH, 230V, 50 / 60Hz				

## TL-CB-CL7 (ISO CLASS 7) SPECIFICATION

<b>MODEL</b>	<b>2718</b>	<b>2736</b>	<b>2754</b>	<b>5436</b>	<b>5454</b>
<b>SPECIFICATION</b>					
AIR VOLUME	13m <sup>3</sup> /Min	26m <sup>3</sup> /Min	39m <sup>3</sup> /Min	52m <sup>3</sup> /Min	78m <sup>3</sup> /Min
HEPA FILTER QUANTITY	1	2	3	4	5
LIGHT FITTING	(40W * 1Tube)*2	(40W * 1Tube)*4	(40W * 1Tube)*6	(40W * 1Tube)*8	(40W * 1Tube)*10
POWER CONSUMPTION	APPROX. 300W	APPROX. 600W	APPROX. 900W	APPROX. 1200W	APPROX. 1500W
POWER SUPPLY (APPROX)	AC, 1 PH, 230V, 50 / 60Hz				

CUSTOM-BUILD DIMENSION AND SPECIFICATION ARE ALSO AVAILABLE;  
MANY OTHER CUSTOMIZED SIZES AND FEATURES CAN BE PROVIDED. CONTACT US FOR MORE INFORMATION.



# CLEAN SUPPLY UNIT (HFU)



**CLEAN SUPPLY UNIT** comprises of concealed ceiling mount HEPA filter unit. It creates a clean environment which is dust free and bacteria free. It is suitable for cleanroom with turbulent flow.

Two choices: ATTACHED WITH FAN or FILTER ONLY.

Two type of discharge: FLAT or WIDE type.

## CLEAN SUPPLY UNIT WITHOUT FAN

TL - CS - 181W	
AIR VOLUME	18 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	510*510*150 mm
	1PC
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
WEIGHT	39 kg

TL - CS - 281W	
AIR VOLUME	28 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	510*510*150 mm
	1PC
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
WEIGHT	47 kg

TL - CS - 351W	
AIR VOLUME	35 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	510*760*150 mm
	1PC
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
WEIGHT	55 kg

TL - CS - 421W	
AIR VOLUME	42 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	510*915*150 mm
	1PC
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
WEIGHT	61 kg

TL - CSF - 351W	
AIR VOLUME	35 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	610*760*150 mm
	1PC
PRE FILTER	NON WOVEN
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
POWER SUPPLY	AC, 1PH, 230V, 50/50Hz
POWER CONSUMPTION	650 W
WEIGHT	85 kg



# CLEAN SUPPLY UNIT (BFU)

## CLEAN SUPPLY UNIT COMPLETE WITH FAN



TL - CSF - 181W	
AIR VOLUME	1L5:O108 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	610*610*150 mm
	1PC
PRE FILTER	NON WOVEN
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
POWER SUPPLY	AC, 1PH, 230V, 50/50Hz
POWER CONSUMPTION	380/498W
WEIGHT	55 kg

TL - CSF - 181W	
AIR VOLUME	28 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	610*610*150 mm
	1PC
PRE FILTER	NON WOVEN
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
POWER SUPPLY	AC, 1PH, 230V, 50/50Hz
POWER CONSUMPTION	490/525 W
WEIGHT	75kg

TL - CSF - 421W	
AIR VOLUME	42 m <sup>3</sup> /Min
HEPA FILTER	99,99% @ 0,3µm PARTICLE
	610*915*150 mm
	1PC
PRE FILTER	NON WOVEN
CASING MATERIAL	STEEL SHEET METAL
BLOW-OUT SURFACE	PERFORATED STEEL SHEET
FINISHING	POWDER BAKED EPOXY
POWER SUPPLY	AC, 1PH, 230V, 50/50Hz
POWER CONSUMPTION	1060/1085 W
WEIGHT	95 kg

# FAN FILTER UNIT

A **FAN FILTER UNIT** (FFU) is a type of **air filtering** equipment. It is used to supply purified air to **cleanrooms** or microenvironments by filtering out harmful airborne particles from recirculating air. The units are installed within the system's ceiling or floor grid. Large cleanrooms require a proportionally large number of FFUs, which in some cases may range from several hundred to several thousand. Units often contain their own pre-filter, **HEPA** filter and internally controllable fan air distribution.

## Application:

FFU can be used by connecting module. It is widely used at the occasion such as clean room, clean bench, clean production line and partial class 100 clean room.

## Product Features:

1. 3D Airfoil turbo fan High-efficient & Low-noise

A 3D turbo fan made by Compound Engineering plastics which pursued the most suitable design by computer analysis.

2. Flexible change design

The specifications of unit can be designed according to customer's requirements besides our standard models, example for the modification of main filter type, cabinet materials...etc.

3. Convenient design of installation

Pre-filter frame board above unit to make pre-filter easy installation and maintenance.

4. Easy carry/handle friendly design

The transportation and installation of unit is easy with carrying handle and the outlook of units is pretty.

5. Multiple safe protect devices

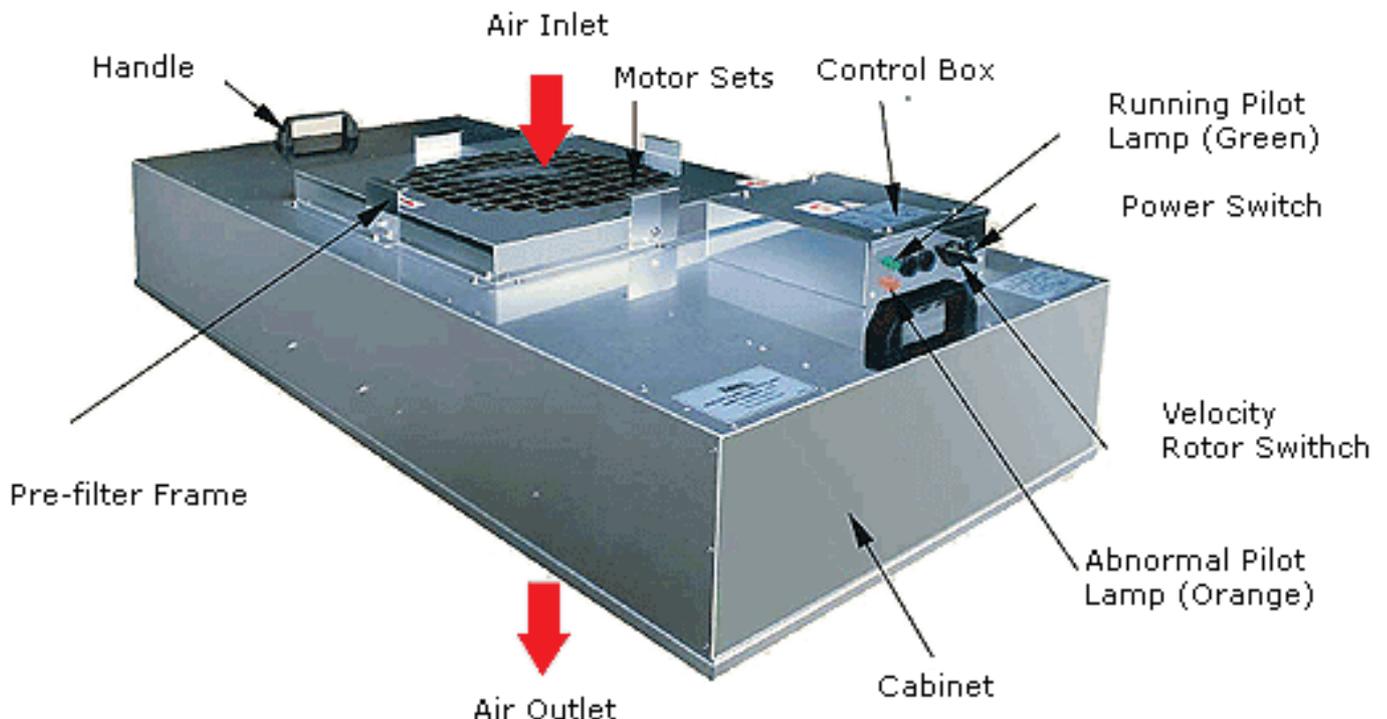
The overload current protection circuit, abnormal pilot lamp, abnormal pilot lamp, temperature overloaded protection...etc. for requirement.

6. DCBL Motor

To reduce running cost and carbon dioxide (CO<sub>2</sub>) discharge by saving energy.

## MODEL AND SPECIFICATION:

### AC - FFU



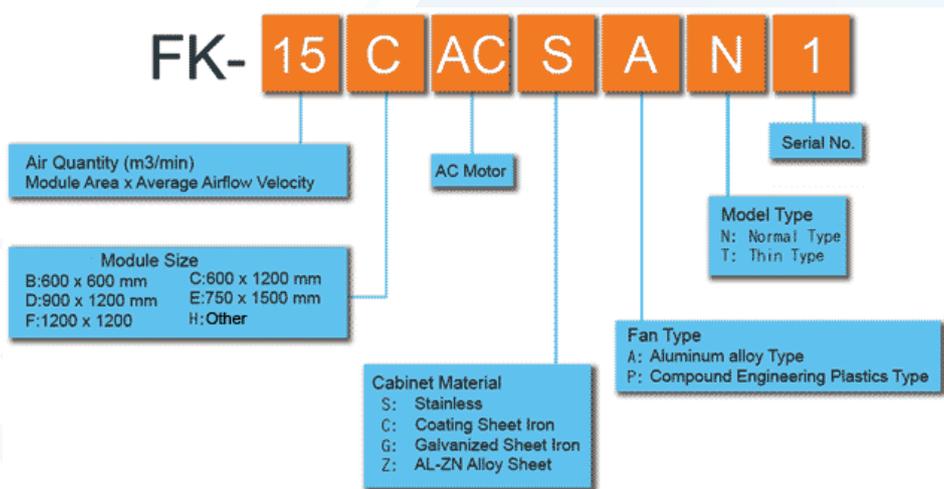
Item	Specification		Remarks
Module Size	600 * 1200 mm		Module size can be designed according to customers requirements besides standard module.
	900 * 1200 mm		
	750 * 1500 mm		
	1200 * 1200 mm		
Air Flow Velocity	1Φ	0.4/0.35/0.3m/s(Hi/Me/Lo)	
	3Φ	0.35m/s	
Main Filter	HEPA	0.3μm Over 99.99%	
	ULPA	0.1μm Over 99.9995%	
		0.1μm Over 99.99995%	
		0.1μm Over 99.999995%	
PTFE	0.1μm Over 99.99		
Main Body	Standard	Stainless Steel (SUS430)	
	Option	Galvanized Sheet Iron	
		Coating Sheet Iron	
Power Supply	Standard	3Φ 220V 60Hz, 1Φ 220V 50Hz, 1Φ 220V 60Hz	
	Option	3Φ 380V 50Hz, 3Φ 380V 60Hz, 3Φ 208V 50Hz, 3Φ 208V 60Hz	
Option	<ul style="list-style-type: none"> <li>Pre - filter</li> <li>Power plug and cable</li> <li>Duct flange for suction air</li> </ul>		As each FFU has over current relay unit, the capacity of switchboard can be applied up on request.

### Filter:

- As demands of cleanliness with process of semiconductor or LCD manufacturer, you are able to choose the fittest filter of particle diameter, dust collection efficiency, etc.
- If you need the filter without B(Boron), We recommend PTFE (Poly Tetra Fluoro Ethylene) filter that is made of material of membrane.
- If you must avoid DOP(Di Octyl Phthalate) for testing filter, please inform us to test with silica without water or atmospheric air.

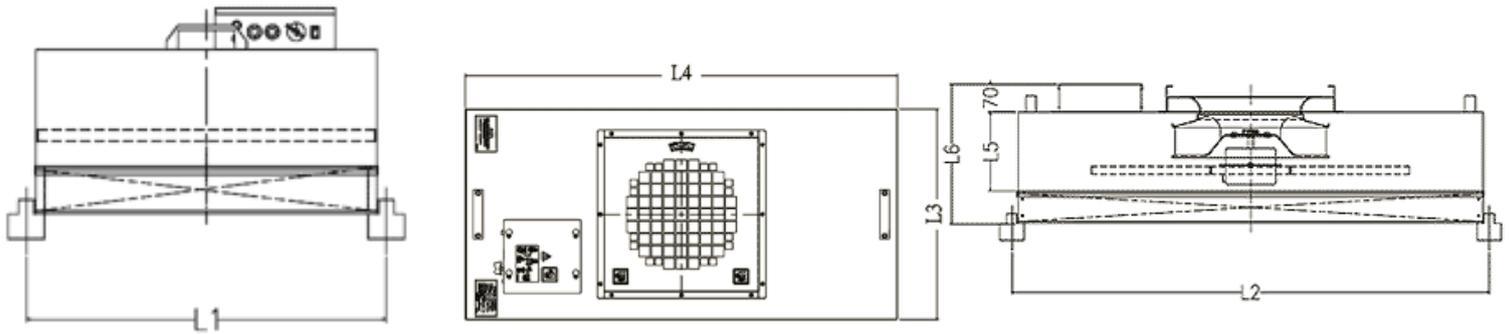
### Model Type:

- As demands of cleanliness with process of semiconductor or LCD manufacturer, you are able to choose the fittest filter of particle diameter, dust collection efficiency, etc.
- If you need the filter without B(Boron), We recommend PTFE (Poly Tetra Fluoro Ethylene) filter that is made of material of membrane.
- If you must avoid DOP(Di Octyl Phthalate) for testing filter, please inform us to test with silica without water or atmospheric air.



## ► OUTSIDE DIMENSION

### STANDARD TYPE



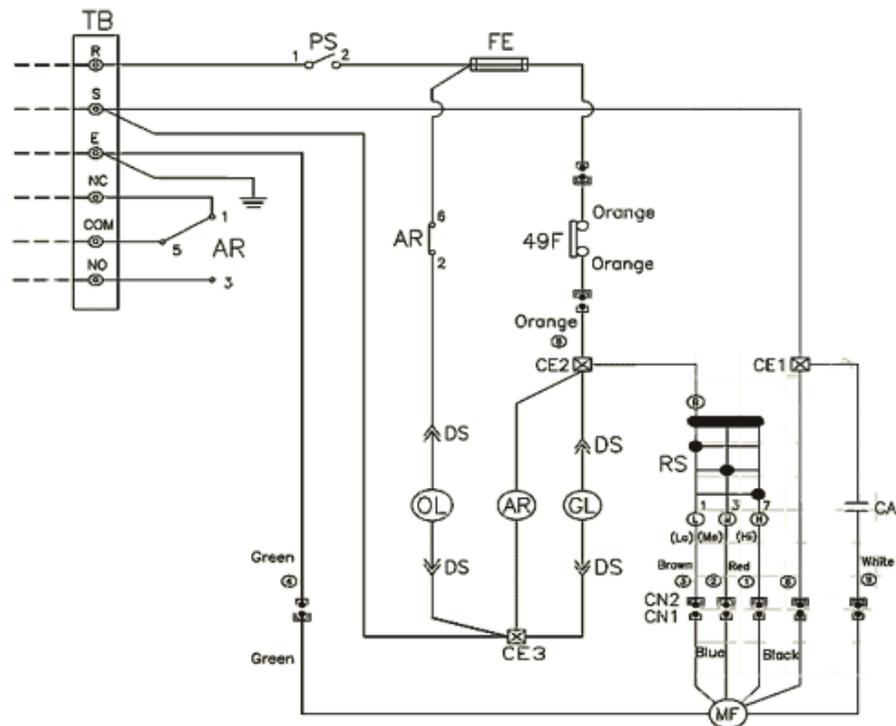
Module Size	Model	L1	L2	L3	L4	L5	L6
C	FK- 15CACSAN1	600	1200	574	1174	265	348
E	FK- 24EACSPN1	750	1500	724	1474	300	383
F	FK- 30FACSPN1	1200	1200	1174	1174	300	383

### PHASE MOTOR

Model Type		FK - 15CACSAN1	FK - 24EACSPN1	FK - 30FACSPN1			
Module size	mm	600 * 1200	750 * 1500	1200 * 1200			
Air quantity	m <sup>3</sup> /min	15	23.6	30			
Average Airflow Velocity	m/s	0.4 / 0.35 / 0.3					
Total static pressure	pa	180 pa (Me step)					
Filter	Efficiency	over 99.99% at particle diameter over 0.3μm					
	Frame	Aluminum					
Fan runner	Quantity	1					
	Type	Airfoil turbo fan runner (Compound Engineering Plastics)					
Power source	-	1Φ 220V,60Hz	1Φ 220V,50Hz	1Φ 220V,60Hz	1Φ 220V,50Hz	1Φ 220V,60Hz	1Φ 220V,50Hz
Electric power consumption	W	130	150	245	220	250	225
Weight	kg	24	24	34	34	41	41
Noise (under 1.5m of filter)	dB(A)	52	52	55	55	57	57

- 1.For aboved performance data is for Specification Types, without notices if any modifying.
- 2.The variable data is according to difference specification for aboved.

## WIRING DIAGRAMS



Mark	Name
MF	Fan Motor
FE	Fuse
AR	Auxiliary Relay
CA	Capacitor
PS	Power Switch
49F	Internal Thermostat for Fan Motor
TB	Terminal Block
RS	Velocity Rotor Switch
GL	Running Pilot Lame (Green)
OL	Abnormal Pilot Lamp (Orange)
CN,DS,CE	Connector

Example for Standard Models (Terminak Base Connection)

Power Source: AC 1 phrase, 220V, 50-60Hz

**Caution:** Please distribute for broken line at building side.

CUSTOM-BUILD DIMENSION AND SPECIFICATION ARE ALSO AVAILABLE:  
MANY OTHER CUSTOMIZED SIZES AND FEATURES CAN BE PROVIDED. CONTACT US FOR MORE INFORMATION.

► **OUTSIDE DIMENSION**  
STANDARD TYPE

**FK- 15 C DC S A N 1**

Air Quantity (m3/min)  
Module Area x Average Airflow Velocity

DC Motor

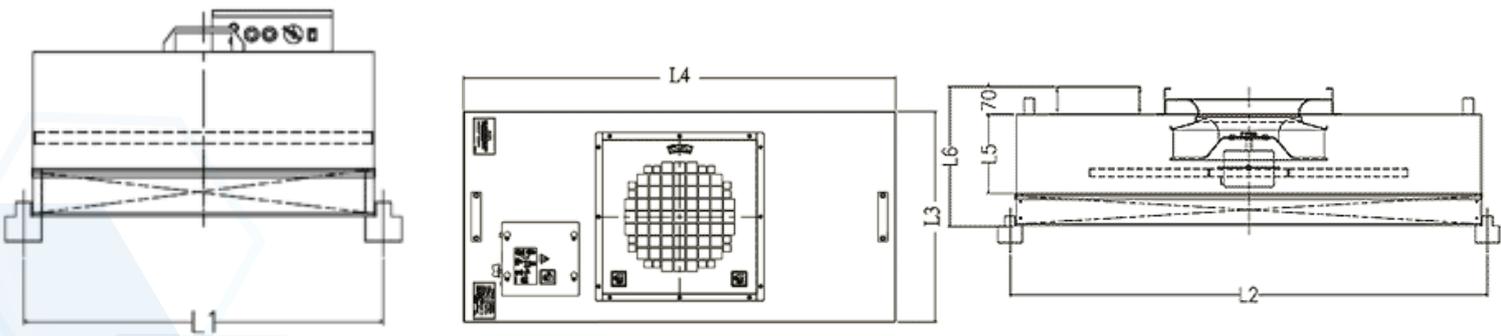
Serial No.

Module Size  
B:600 x 600 mm    C:600 x 1200 mm  
D:900 x 1200 mm    E:750 x 1500 mm  
F:1200 x 1200        H:Other

Model Type  
N: Normal Type

Cabinet Material  
S: Stainless  
C: Coating Sheet Iron  
G: Galvanized Sheet Iron  
Z: AL-ZN Alloy Sheet

Fan Type  
A: Aluminum alloy Type  
P: Compound Engineering Plastics Type



Module Size	Model	L1	L2	L3	L4	L5	L6
C	FK- 15CACSAN1	600	1200	574	1174	265	348
D	FK - 23CDCSPN1	900	1200	874	1174	300	383
E	FK- 24EACSPN1	750	1500	724	1474	300	383
F	FK- 30FACSPN1	1200	1200	1174	1174	300	383

## Features of FFU control system

### 1. Full operational control of multiple units

- Max control number of FFU: 37800 units
- Complete control functions such as: operation setting, alarm, running history, etc.

### 2. Stepless running speed setting

Through the fine RPM adjustment, stepless speed setting fit various application and requirements

### 3. Individual operational control of block and group

- The units can be divided into many blocks and groups for easy operation and setting
- Through the individual operation to each block and group with different loads, the energy as well as running cost can be saved

### 4. Stable operating system

Whenever a power-down or failure happens to the control PC, the FFU continues to state of running as last instructions received before control system stopped. 5 speeds of running adjustment can still be made through the push switch on the PCB

### 5. High reliability and fast responding system

Through Kowa's leading control technology, the control system delivers the features of high reliability and fast response

### 6. Easy read screen monitoring

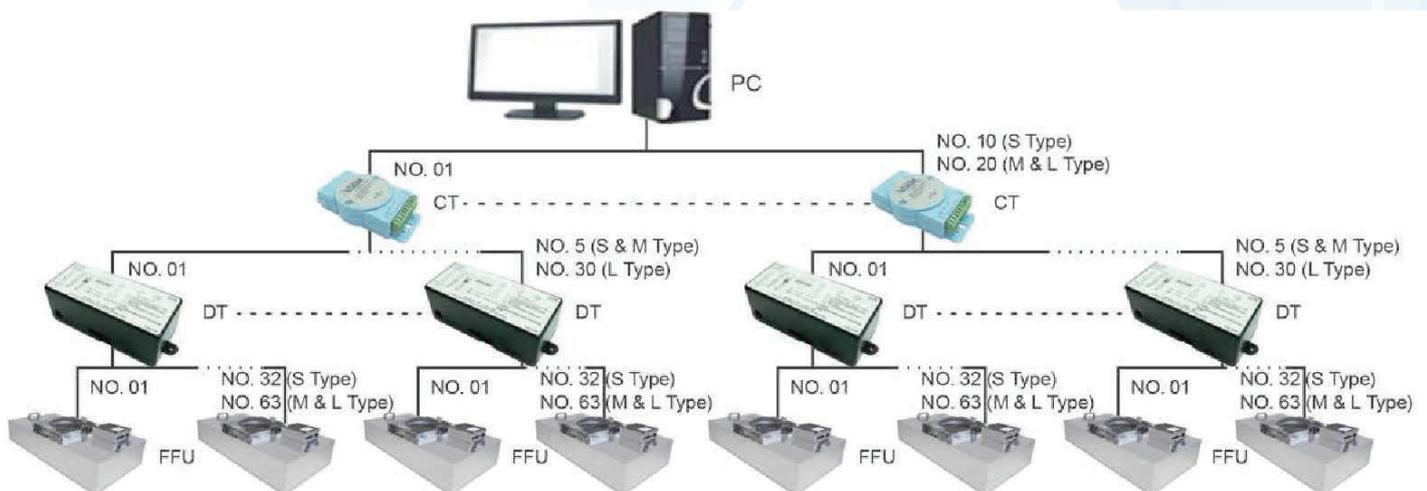
All information of operation setting, alarm and running history is shown on the monitoring screen easy to operate

### 7. Emergency stop function

FFU control system stops the running of FFU immediately in case of emergency (receiving a fire alarm signal, for example.)

### 8. Providing economical running module

The economical running module for fan speed control can be programmed to operate automatically during holidays.



### **L type:**

#### **FFU**

Total Max. controlled FFU No.: 37800 units  
Max. 20 Port x 30 Group x 63 units = 37800 units

### **M type:**

#### **FFU**

Total Max. controlled FFU No.: 6300 units  
Max. 20 Port x 30 Group x 63 units = 6300 units

### **S type:**

#### **FFU**

Total Max. controlled FFU No.: 1600 units  
Max. 20 Port x 30 Group x 63 units = 1600 units

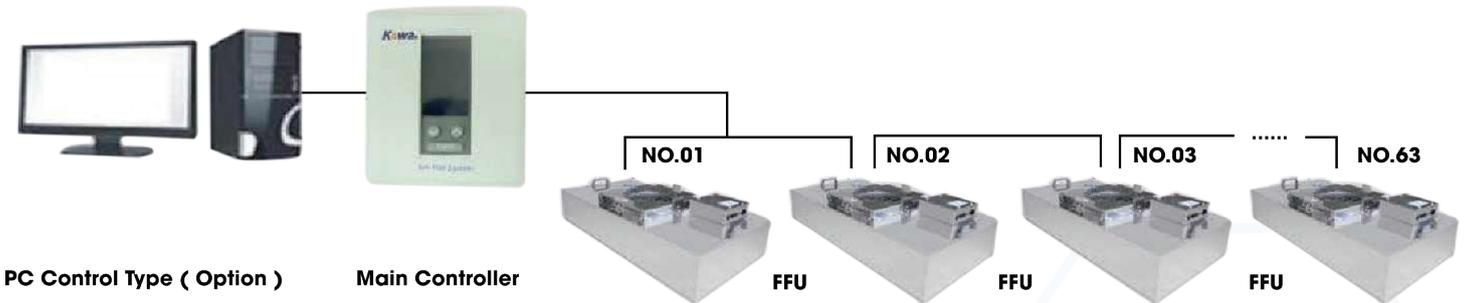
#### **P/S:**

1. PC: Personal computer
2. CT: Communication transmission
3. DT: Data transmission
4. FFU: Fan filter Unit

### **COMPOSITION OF CONTROL SYSTEM**

OS specification of control PC	Window XP/7
Total Max. Controlled FFU units	37800 units (base on PC capability)
Max. connecting cable length	1.2 Km (Recommend 1.0 Km)
Communication interface	RS485
Speed setting	Stepless speed / 5 speeds setting
Group control	Groups can be set freely
System function	unning control: ON / OFF – RPM – Schedule Abnormal Alarm: Motor abnormal indication & control board error Data list: Setting / Running data – Schedule record – Alarm list
Speed of checking scan	5-60 sec (Depend on FFU No. System)
System at Abnormal situation	While the power interruption of control PC, or signal communications is broken down, the units will run continually according to last setting

## ▶ SET-FREE SYSTEM CONTROL SYSTEM



### Introduce:

Set-free system control system for small group control, such as Clean booth, Clean bench, Clean operating room, garment stocker...

### Application:

- Unit/Group setting
- Running control: ON / OFF, speed setting
- Abnormal indication

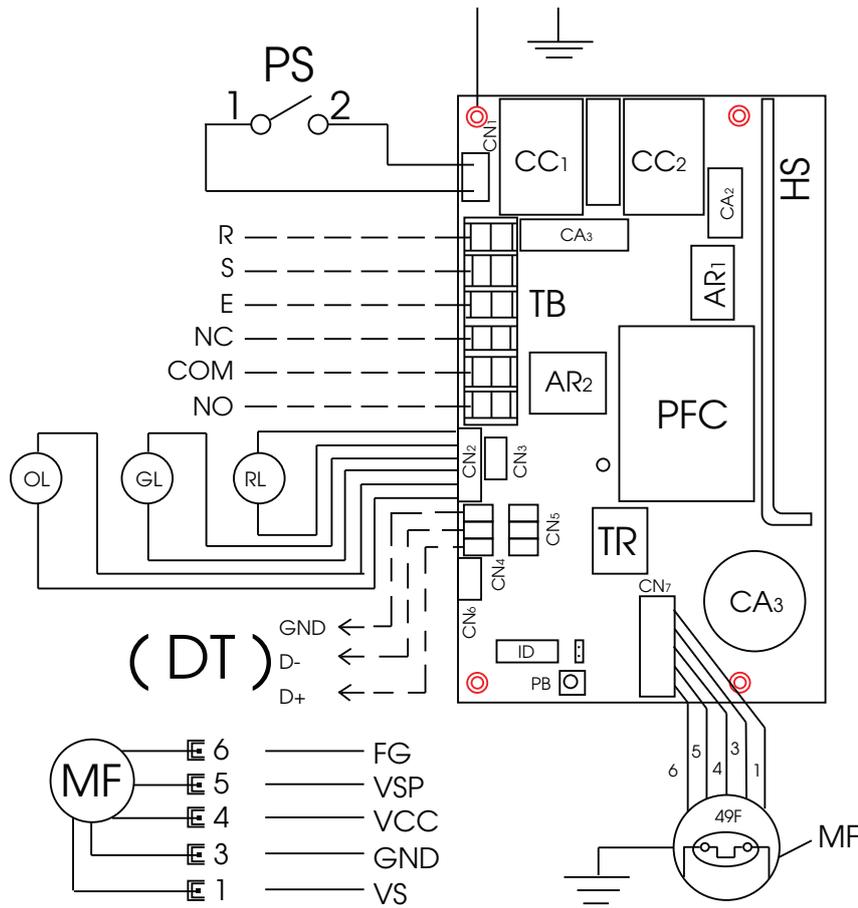
### P/S:

1. For the aboved performance data is for specification types, without notice if any modifying
2. The variable data is according to difference specification for aboved

## DCBL MOTOR TYPE

MODEL TYPE		FK-15CDCSPN1	FK-23CDCSPN1	FK-24EDCSPN1	FK-30FDCSPN1
Module size	mm	600x1200	900x1200	750x1500	1200x1200
Air quantity	m <sup>3</sup> /min	15	22.6	23.6	30
Average airflow velocity	m/s	0.25/0.3/0.35/0.4/0.45			
Total static pressure	Pa	Set point: 180 Pa (140-220 Pa)			
Filter	Efficiency	Over 99.99% at partical diameter over 0.3μm			
	Frame	Aluminum			
Fan runner	Quantity	1			
	Type	Airfoil turbo fan runner (Compound engineering plastic)			
Power source	-	1 phrase 200-240V, 50/60 Hz			
Electric power consumption	W	80	150	150	150
Weight	Kg	24 (21)	37	34	41
Noise ( under 1.5m filter )	dB (A)	52	37	57	57

## WIRING DIAGRAMS



Mark	Name	Mark	Name
AR	Auxiliary	OL	Abnormal pilot lamp (orange)
CA	Capacitor	PB	Push button
CC	Choke coil	PFC	Power factor correction
CN	Connector	PS	Power switch
FE	FUSE	RL	Power pilot lamp (Red)
GL	Running pilot lamp (Green)	TB	Terminal Block
HS	Heat sink	TR	Transformer
ID	ID DIP switch	49F	Internal thermostat for DCBL fan motor
MF	DCBL fan motor	---	Field wire

Example for Standard Models (Terminak Base Connection)

Power Source: AC 1 phase, 220V, 50-60Hz

**Caution:** Please distribute for broken line at building side.

CUSTOM-BUILD DIMENSION AND SPECIFICATION ARE ALSO AVAILABLE;  
MANY OTHER CUSTOMIZED SIZES AND FEATURES CAN BE PROVIDED. CONTACT US FOR MORE INFORMATION.

# BIOLOGICAL SAFETY CABINET

**BIOSAFETY CABINET (BSC)** – A biological safety cabinet is the most commonly used primary containment device in laboratories working with biological agents. Biosafety cabinets are categorized into different classes and types and recommended to be used for different risk levels of infectious agents. The classifications of biosafety cabinets are based on air inflow velocities, percentages of exhausted or recirculated air, directions of airflows inside the cabinets, and pressure differentials between contaminated duct or plenum to the room.

## Application:

There are three classes of BSCs: Class I, II and III. While all three classes afford personnel and environmental protection, only Class II and III cabinets provide product protection thanks to the input of clean air from supply HEPA filters.

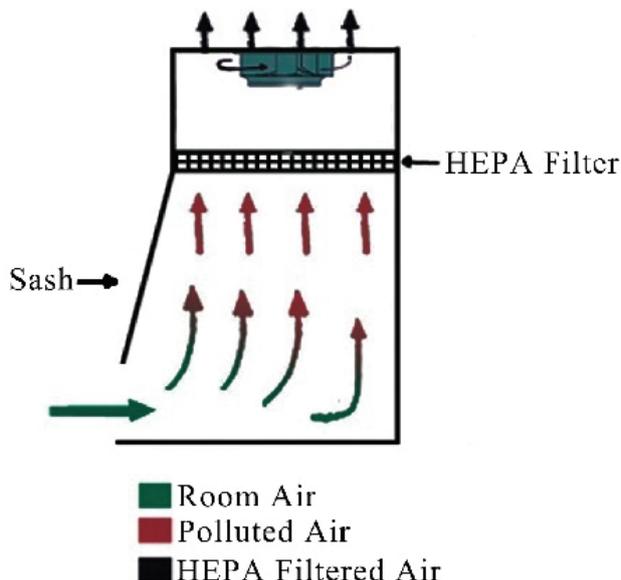
Class I BSCs are suitable for work involving low- to moderate-risk agents. Since incoming air is not filtered, Class I BSCs should not be used with research materials (e.g., cell lines) that must be handled under sterile conditions. Class I cabinets are used specifically to enclose equipment (e.g., centrifuges, harvesting equipment or small fermenters) or procedures with potential to generate aerosols (e.g., cage dumping, tissue homogenization or culture aeration). As outgoing air is filtered, research personnel is protected while using a Class I BSC.

Class II BSCs provide an effective partial barrier system for the safe manipulation of low-, moderate-, and high-risk microorganisms. Class II cabinets, which are the most frequently used in research and clinical laboratories, are divided into four types (Types A1, A2, B1 and B2).

The Class III BSC is a totally enclosed, gas-tight ventilated cabinet, and provides the highest level of personnel, environmental and product protection. Operations within a Class III BSC are conducted through attached rubber gloves.

## MODEL AND SPECIFICATION:

### BIOLOGICAL SAFETY CABINET CLASS I



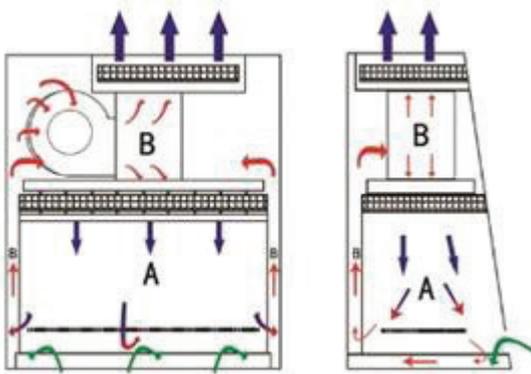


# BIOLOGICAL SAFETY CABINET

## BIOLOGICAL SAFETY CABINET CLASS I

MODEL	TL-BSC-500-CI	TL-BSC-700-CI	TL-BSC-900-CI	TL-BSC-1100-CI
Int. dimension (WxDxH)	550 x 395 x 730 mm	700 x 550 x 900 mm	900 x 695 x 1200 mm	1100 x 695 x 1924 mm
Ext. dimension (WxDxH)	540 x 385 x 440 mm	680 x 540 x 500 mm	768 x 690 x 580 mm	968 x 695 x 630 mm
Hepa filter	Efficiency 99.99%@0.3µm			
Air velocity	0.3 – 0.6 m/s			
Noise	≤ 60dB			
FL lamp	15W	18W	18W	21W
UV lamp	15W	18W	20W	20W
Caster	No	No	No	Yes
Material	Outside: Powder coated steel, inside and working table: SUS304			
Power supply	1Phase, 220V/50Hz			
Standard accessories	UV lamp, FL lamp	UV lamp, FL lamp	UV lamp, FL lamp	UV lamp, FL lamp, base stand

## BIOLOGICAL SAFETY CABINET CLASS II, A2



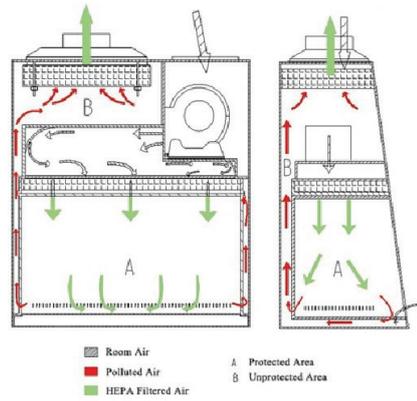
- Room Air
- Contaminated Work Chamber Air
- HEPA Filtered Air
- A Protected Area
- B Un-Protected Area



MODEL	TL-BSC-700-CIIA2	TL-BSC-900-CIIA2	TL-BSC-1100-CIIA2	TL-BSC-1300-CIIA2
Int. dimension (WxDxH)	940 x 600 x 660 mm	1150 x 600 x 660 mm	1350x 600 x 660 mm	1710 x 600 x 660 mm
Ext. dimension (WxDxH)	1100 x 800 x 2200 mm	1300 x 800 x 2200 mm	1500 x 800 x 2200 mm	1870 x 800 x 2200 mm
Tested opening	Safe height ≤ 200 mm			
Hepa filter	Efficiency 99.99%@0.3µm ( 2pcs)			
Inflow velocity	0.53 m/s			
Downflow velocity	0.33 m/s			
Front door	Tempered glass, T = 5 mm			
Noise	≤ 60 dB			
FL lamp	21W x 2	21W x 2	28W x 2	28W x 2
UV lamp	30W x 1	30W x 1	40W x 1	40W x 1
Illumination	≥1000 Lux			
Control system	Micro processor			
Air flow system	70% recirculation, 30% exhaust			
Material	Outside: Powder coated steel, Inside and working table: SUS304			
Caster	Foot master caster			
Power supply	1Phase, 220V/50Hz			
Standard accessories	UV lamp, FL lamp, Base stand, Electric socket			



## BIOLOGICAL SAFETY CABINET CLASS II, B2



MODEL	TL-BSC-1100-CIIB2	TL-BSC-1100-CIIB2	TL-BSC-1100-CIIB2	TL-BSC-1100-CIIB2
Int. dimension (WxDxH)	940*600*660 mm	1150*600*660 mm	1350*600*660 mm	1670*600*660 mm
Ext. dimension (WxDxH)	1100*750*2250 mm	1300*750*2250 mm	1500*760*2250 mm	1820*750*2250 mm
Tested opening	Safety Height ≤200 mm (8")			
Max Opening	420 mm	420 mm	500mm	500mm
Inflow velocity	0.53±0.025 m/s			
Downflow velocity	0.33±0.025 m/s			
Pre-Filter	Washable			
HEPA Filter	Efficiency = 99.999% @ 0.3µm.			
Front Window	Tempered glass, T = 5mm			
Noise	≤60 dB			
UV Lamp	30W× 1	18W× 1	40W× 1	40W× 2
Fluorescent Lamp	21W× 2	21W× 2	28W× 2	40W× 2
Illumination	≥1000Lux			
Waterproof Sockets	Two, total load of two sockets: 500W			
Control System	Microprocessor			
Airflow System	0% air re-circulation, 100% air exhaust			
Exhaust Duct	4 meters PVC duct, Diameter: 250mm			
Material	Work Zone: 304 stainless steel			
	Main Body: Powder coated steel			
Work Surface Height	750mm			
Caster	Footmaster caster			
Power Supply	1 phase 220V/50Hz			
Standard Accessory	Fluorescent lamp, UV lamp*2, base stand, exhaust blower, exhaust duct, waterproof sockets*2,			

# FUME HOOD



The using of **FUME HOOD** brings a lot of advantages for laboratory rooms such as: to remove bad smell, smoke and dust, to efficiency protect operators from harmful particles, to control the air inside the hood chamber to keep dry for tools inside it, to help prevent cross contamination.

**The long fume hoods** have the its outstanding characteristic

- Made from solvent resistance, corrosion resistance materials
- Safety glass doors, sliding smoothly by counterweight
- Air collector hood is designed to ensure that the air is distributed evenly inside the cabinet

## MODEL AND SPECIFICATION:

Model	TL - BFH 1000	TL - BFH 1200	TL - BFH 1500	TL - BFH 1800
Ext. Dimension (W*D*H)	1000*900*2450 mm	1200*900*2450 mm	1500*900*2450 mm	1800*900*2450 mm
Int. Dimension (W*D*H)	800*700*850 mm	1020*700*850 mm	1320*700*850 mm	1620*700*850 mm
Air velocity	0.4 - 0.9 m/s			
Material	Exterior: Powder coated steel, light grey colour			
	Working table: Chemical resistant Phenolic Resin, T = 13mm			
	Interior: Chemical resistant Phenolic Resin			
	Front door: Tempered glass ,T = 5mm			
Filter	Hepa filter or Carbon filter			
Noise	<65dB			
Blower	Built-in centrifugal blower, speed adjustable			
PP basin and water faucet	Yes	Yes	Yes	Yes
FL lamp	21W*1	28W*1	30W*1	36W*1
Exhaust PVC pipe	Diameter 200/250/300mm			
Lamp switch	ON/OFF			
Blower switch	ON/OFF			
Power supply	220V / 50 Hz			
Caster wheel	Universal caster wheel with brake			
Standard accessories	Drawer material resistant phenolic solvent, water / stainless steel / powder coated steel 03 compartment drawer, a technical stop for water the remaining 02 pallets to prevent chemicals and instruments			
Other requirement	As per customer' requirement			



# CHEMICAL STORAGE CABINET

## CHEMICAL CABINET CONTAINS ACTIVATED CARBON FILTER

### Specification:

- 4 doors can work independent
  - Whole structures of this cabinet are made from full plate iron with thickness 1.2mm, that are cut by CNC machine. The door will not have any ripples after making powder coating.
  - Glass frame is beveled consistently curled by CNC cutters.
  - Toughened glass with thickness 5mm on the door can make it easier to observe everything inside.
- This cabinet has 5 decks in each compartment, all the distances between these decks can be changed as required.
- The inside of this cabinet has cover by perforated panels, that helps to distribute the air flow when the exhaust fan is used.
- This cabinet also have the wait-pipe with diameter 60mm that can connect with the exhaust air system.
  - Power supply: 230V / 50Hz,
  - Exhaust fan and auxiliary materials and gas pipelines



Model	TL - BFH 1200	TL - BFH 1500	TL - BFH 1800
Ext. Dimension ( W*D*H )	1200*900*2450 mm	1500*900*2450 mm	1800*900*2450 mm
Int. Dimension ( W*D*H )	1020*700*850 mm	1320*700*850 mm	1620*700*850 mm
No. of desk	2	4	2
No. of desk compartment	4	8	8
Frame's material	Powder coating steel with thickness 1.2mm.	Powder coating steel with thickness 1.2mm.	Powder coating steel with thickness 1.2mm.
Door's material	4mm toughened glass and steel	4mm toughened glass and steel	4mm toughened glass and steel
Filter	Carbon filter	Carbon filter	Carbon filter
Noise	<65dB	<65dB	<65dB
Capacity	90 m3/h	120 m3/h	150 m3/h
Fan	Yes	Yes	Yes
Power	220V/50Hz	220V/50Hz	220V/50Hz

# CHEMICAL STORAGE CABINET

## CHEMICAL CABINET DOES NOT CONTAIN THE ACTIVATED CARBON FILTER

### Specification:

- Glass door makes it easier to observe everything inside, door-knobs are made from stainless steel with recessed key lock.
- Frame is made from iron and white or light grey powder coating steel.
- Cabinet has exhaust fan that can connect with  $\Phi 110$  PVC pipe to absorb the exhaust air inside the cabinet.
- This cabinet has 4 powder coating desks.
- There is 1 tube with dimension 60cm 20W on top of the cabinet.
- Under the cabinet has 2 drawers for storing some danger chemicals.



Model	TL-CSC-2-900	TL-CSC-2-1200	TL-CSC-2-1500
Ext. Dimension (W*D*H)	900-550-1800 mm	1200*550*1800 mm	1500*550*1800 mm
Int. Dimension (W*D*H)	850*500*1600 mm	1150*550*1600 mm	1450*500*1600 mm
No. of desk	2	4	4
No. of desk compartment	4	8	8
Frame's material	Powder coating steel with thickness 1.2mm.	Powder coating steel with thickness 1.2mm.	Powder coating steel with thickness 1.2mm.
Door's material	4mm toughened glass and steel	4mm toughened glass and steel	4mm toughened glass and steel
Filter	None	None	None
Noise	<65dB	<65dB	<65dB
Capacity	90 m3/h	120 m3/h	150 m3/h
Fan	Yes	Yes	Yes
Power	220V/50Hz	220V/50Hz	220V/50Hz

# RAISED FLOOR

## HỆ THỐNG SÀN NÂNG KỸ THUẬT

### SÀN NÂNG HPL

- Sàn nâng HPL/PVC là những tấm sàn nâng thép với những tấm phủ bề mặt bằng HPL/PVC tĩnh điện (dày 1.2mm). Các kích thước sẵn có gồm 600x600x32mm và 600x600x35mm.

Sàn nâng chống tĩnh điện được sử dụng rộng rãi trong rất nhiều cơ quan, văn phòng, trung tâm thương mại, phòng sạch (cleanroom), phòng server, nhà xưởng, bệnh viện...



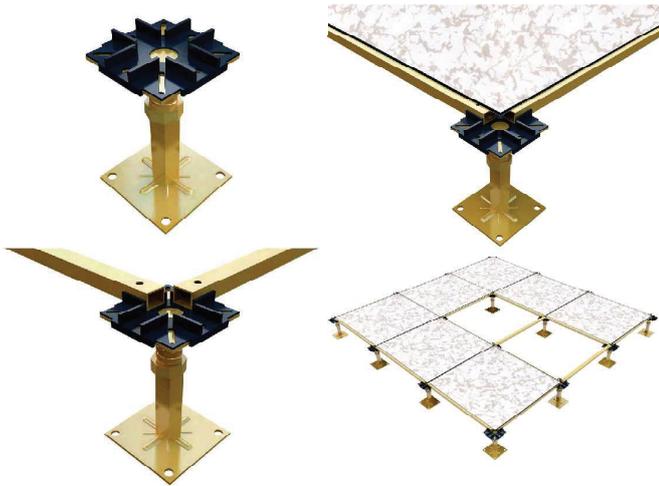
### HUATONG ACCESS FLOOR (CHINA)

#### Tính năng:

1. Hiệu quả chịu tải tập trung cao
2. Các tấm sàn dễ thay thế hoặc thay đổi vị trí cho nhau
3. Với lớp phủ bột Epoxy giúp bảo vệ sàn nâng một cách lâu dài
4. Lõi bê tông giúp sàn nâng chắc chắn và tạo sự yên tĩnh
5. Sức chịu tải tối ưu
6. Hoàn toàn không bắt lửa

#### Thông số kỹ thuật

MODEL	TẢI TRỌNG GIỚI HẠN		TẢI TRỌNG TẬP TRUNG				TẢI TRỌNG RẢI ĐỀU		TẢI TRỌNG VA ĐẬP		TẢI TRỌNG DI ĐỘNG			
			0.100"/2.5mm ĐỘ VÔNG		0.080"/2.0mm ĐỘ VÔNG						10 PASS		10K PASS	
	(Lb)	(kN)	(Lb)	(kN)	(Lb)	(kN)	(Lb/m <sup>3</sup> )	(kN/m <sup>3</sup> )	(Lb)	(kN)	(Lb)	(kN)	(Lb)	(kN)
CCS700	2300	10.224	700	3.112	650	2.889	2500	11.113	100	45	650	2.889	450	2.000
CCS800	2600	11.558	800	3.556	750	3.334	2800	12.447	100	45	750	3.334	550	2.445
CCS1000	3300	14.669	1000	4.445	800	3.556	3500	15.558	150	68	800	3.556	600	2.667
CCS1250	3800	16.892	1250	5.557	1000	4.445	4000	17.781	150	68	1000	4.445	800	3.556
CCS1500	5000	22.226	1500	6.668	1250	5.557	5200	23.115	150	68	1250	5.557	1000	4.445
CCS2000	6000	26.672	2000	8.891	1500	6.668	6200	27.561	175	79	1500	6.668	1200	5.334



## TAKO ACCESS FLOOR (MALAYSIA)

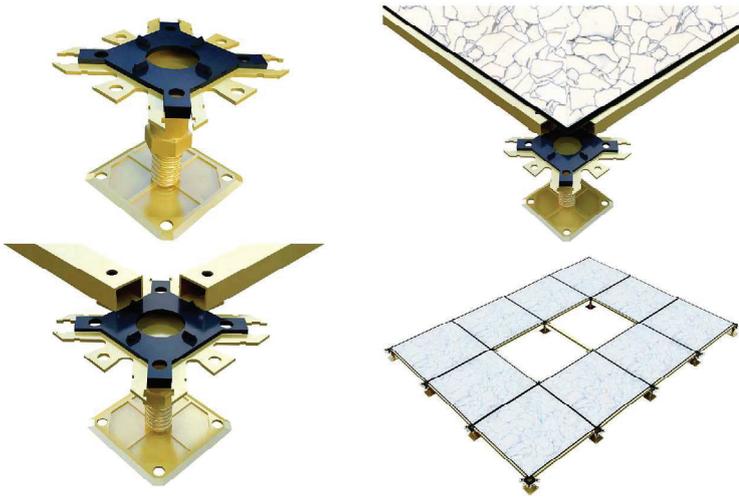
### Tính năng:

1. Có thể điều chỉnh chiều cao tùy ý
2. Khả năng chống cháy hàng đầu
3. Hiệu suất cao, độ biến dạng thấp
4. Có thể tái chế, kinh tế
5. Dễ dàng mở các lỗ
6. Có thể phân tán lực tải trọng
7. Các lỗ thiết kế chính xác



### Thông số kỹ thuật

MODEL	Kích thước	Tải trọng giới hạn	Tải trọng tập trung			Tải trọng đều	Tải trọng va đập	Tải trọng di động	
	( mm )	≥ (N)	≥ (Lb)	≥ (N)	≥ (Kg)	≥ (N/m <sup>2</sup> )	(N)	10 (N)	10000 (N)
TFS800	600*600*30	14.520	800	3700	363	9.600	670	3.560	2.670
	600*600*35								
	610*610*35								
TFS1000	600*600*35	16.720	1000	4500	453	15.000	670	4.450	3.560
	610*610*35								
TFS1250	600*600*35	22.000	1250	5750	567	20.000	670	5.560	4.450
	610*610*35								
TFS1500	600*600*35	26.400	1500	6850	680	23.000	780	6.670	5.560
	610*610*35								
TFS2000	600*600*35	30.800	2000	8950	906	26.000	890	8.880	8.000
	610*610*35								



## ENVA TECH (KOREA)

### Tính năng:

Tính năng:

1. Kích thước: 600x600x35mm
2. Được ép với mật độ cao
3. Dưới cùng được lót 1 lớp thép
4. Các góc/cạnh được bảo vệ chống các tác động

### Tùy chọn bề mặt tấm sàn:

1. Bề mặt phủ vinyl dày 1.2mm
2. Bề mặt được mạ 1 lớp thép bảo vệ



### Thông số kỹ thuật

MODEL	Kích thước	Tải trọng giới hạn (N)	Tải trọng tập trung			Tải trọng đều $\geq (N/m^2)$	Tải trọng va đập (N)	Tải trọng di động	
	(mm)		(Lb)	(N)	(Kg)			10 (N)	10000 (N)
TFS800	600*600*30	14.500	800	3700	345	9.600	670	3.650	2.860
	600*600*35								
	610*610*35								
TFS1000	600*600*35	17.820	1000	4500	465	15.500	670	4.550	3.650
	610*610*35								
TFS1250	600*600*35	22.450	1250	5750	578	21.000	670	5.760	4.750
	610*610*35								
TFS1500	600*600*35	27.100	1500	6850	695	23.500	780	6.720	5.670
	610*610*35								
TFS2000	600*600*35	31.700	2000	8950	910	26.500	890	8.950	8.500
	610*610*35								

## LINDNER ACCESS FLOOR (GERMANY)

### Tính năng:

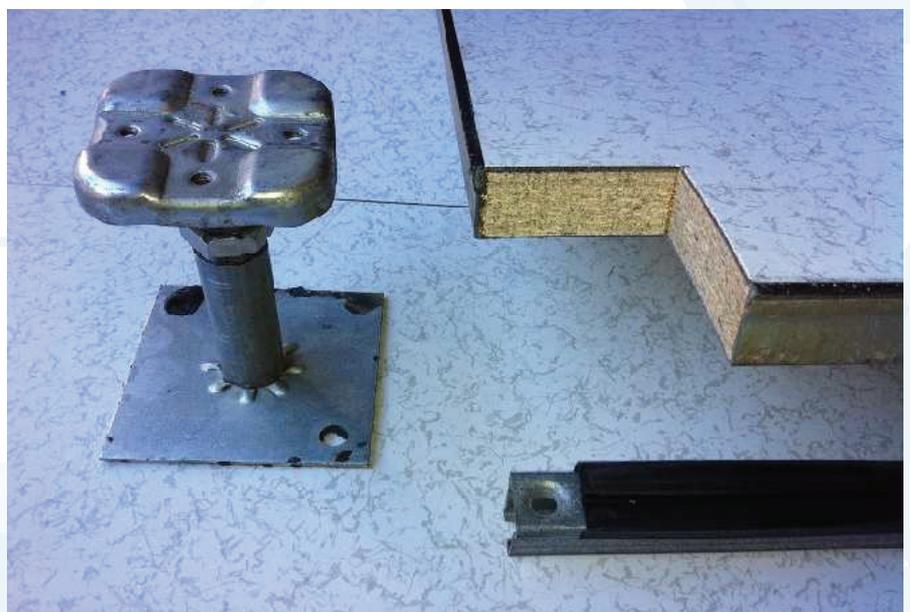
1. Kích thước: 600x600x38mm
2. Được ép với mật độ cao
3. Dưới cùng được lót 1 lớp thép
4. Các góc/cạnh được bảo vệ chống các tác động
5. Lợi ích về kinh tế
6. Tuổi thọ cao
7. Mặt sàn nâng được bảo vệ bởi 1 lớp chống cháy
8. Trọng lượng nhẹ
9. Chịu tải tốt
10. Giảm ồn đáng kể

### Tùy chọn bề mặt tấm sàn:

- 1-Bề mặt phủ vinyl/PVC chống tĩnh điện
- 2-Bề mặt được mạ 1 lớp thép bảo vệ

### Thông số kỹ thuật

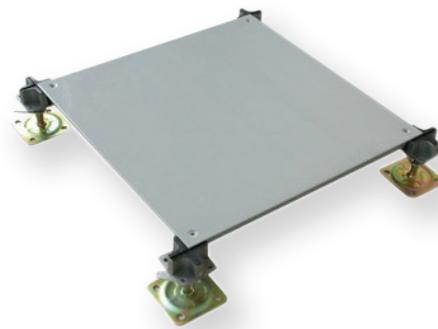
Ký hiệu	Kích thước	Tải trọng tập trung	Trọng lượng	Tải trọng giới hạn	Độ dẫn điện
	(mm)	(Kg)	(Kg/m <sup>2</sup> )	(N)	(S)
H38ALxM	600x600	310	31		>10°
S38ALxM	600x600	400	31		>10°
S38STxM	600x600	540	31		>10°
HE38ALxM	600x600	610	31		>10°



Ngoài ra công ty Thế Long chuyên cung cấp, thi công, lắp đặt các loại sàn nâng kỹ thuật khác



STEEL ANTISTATIC RAISED FLOOR



OA STEEL BARE PANEL



PERFORATED PANEL



CALCORE RAISED FLOOR



HPL RAISED FLOOR





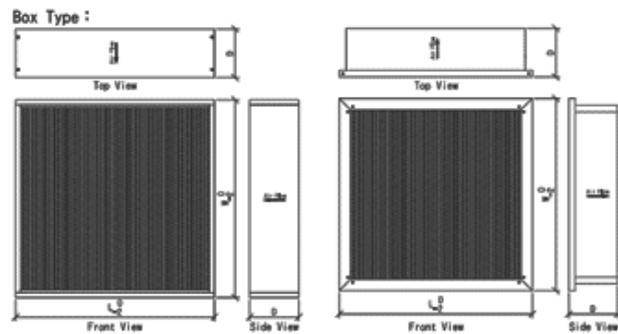
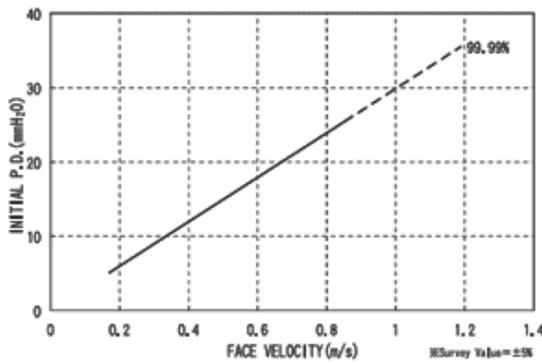
## SEPARATOR STANDARD CAPACITY FILTER

### Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Separator air filter

### Qualified With

- Std. EN 1822 Class H11~H14
- Std. IES RP-CC-001.3 TYPE A / B / C / D



### Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
H4BA305305150	305×305×150 mm	3.9 CMM (138 CFM)	25.4 mmH <sub>2</sub> O (249 Pa)  *face velocity: 0.85 m/s	50.8 mmH <sub>2</sub> O (500 Pa)  *recommend
H4BA305610150	305×610×150 mm	8.1 CMM (286 CFM)		
H4BA610610150	610×610×150 mm	17.2 CMM (607 CFM)		
H4BA760610150	760×610×150 mm	21.6 CMM (763 CFM)		
H4BA915610150	915×610×150 mm	26.2 CMM (925 CFM)		
H4BAC20610150	1220×610×150 mm	35.2 CMM (1243 CFM)		
H4BAF25610150	1525×610×150 mm	44.2 CMM (1561 CFM)		
H4BAI30610150	1830×610×150 mm	53.2 CMM (1879 CFM)	25.4 mmH <sub>2</sub> O (249 Pa)  *face velocity: 1.56 m/s	50.8 mmH <sub>2</sub> O (500 Pa)  *recommend
H4BA305305290	305×305×290 mm	7.1 CMM (251 CFM)		
H4BA305610290	305×610×290 mm	14.9 CMM (526 CFM)		
H4BA610610290	610×610×290 mm	31.5 CMM (1112 CFM)		
H4BA760610290	760×610×290 mm	39.6 CMM (1398 CFM)		
H4BA915610290	915×610×290 mm	48.0 CMM (1695 CFM)		
H4BAC2061 0290	1220×610×290 mm	64.6 CMM (2281 CFM)		

\* Special dimension can be customized

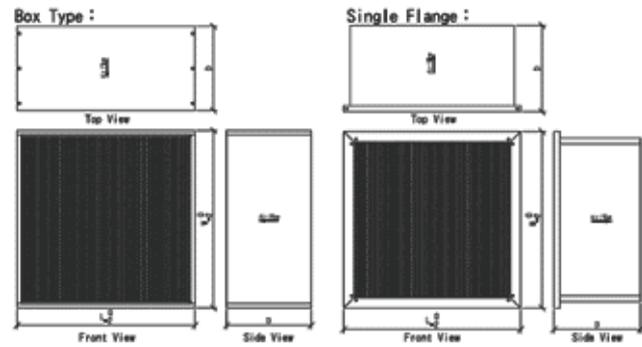
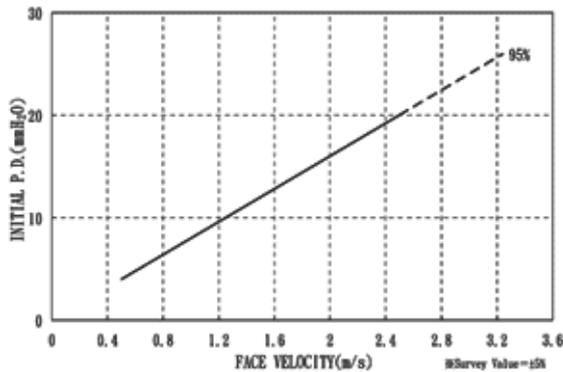
## SEMI-HEPA

### Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Separator air filter

### Qualified With

- Std. EN 1822 Class H10



### Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
S1BA305305150	305×305×150 mm	3.9 CMM (138 CFM)	12.5 mmH <sub>2</sub> O (122 Pa)  *face velocity: 0.85 m/s	25 mmH <sub>2</sub> O (250 Pa)  *recommend
S1BA305610150	305×610×150 mm	8.1 CMM (286 CFM)		
S1BA610610150	610×610×150 mm	17.2 CMM (607 CFM)		
S1BA760610150	760×610×150 mm	21.6 CMM (763 CFM)		
S1BA915610150	915×610×150 mm	26.2 CMM (925 CFM)		
S1BAC20610150	1220×610×150 mm	35.2 CMM (1243 CFM)		
S1BAF25610150	1525×610×150 mm	44.2 CMM (1561 CFM)		
S1BAI30610150	1830×610×150 mm	53.2 CMM (1879 CFM)	12.5 mmH <sub>2</sub> O (122 Pa)  *face velocity: 1.56 m/s	25 mmH <sub>2</sub> O (250 Pa)  *recommend
S1BA305305290	305×305×290 mm	7.1 CMM (251 CFM)		
S1BA305610290	305×610×290 mm	14.9 CMM (526 CFM)		
S1BA610610290	610×610×290 mm	31.5 CMM (1112 CFM)		
S1BA760610290	760×610×290 mm	39.6 CMM (1398 CFM)		
S1BA915610290	915×610×290 mm	48.0 CMM (1695 CFM)		
S1BAC20610290	1220×610×290 mm	64.6 CMM (2281 CFM)		

\* Special dimension can be customized

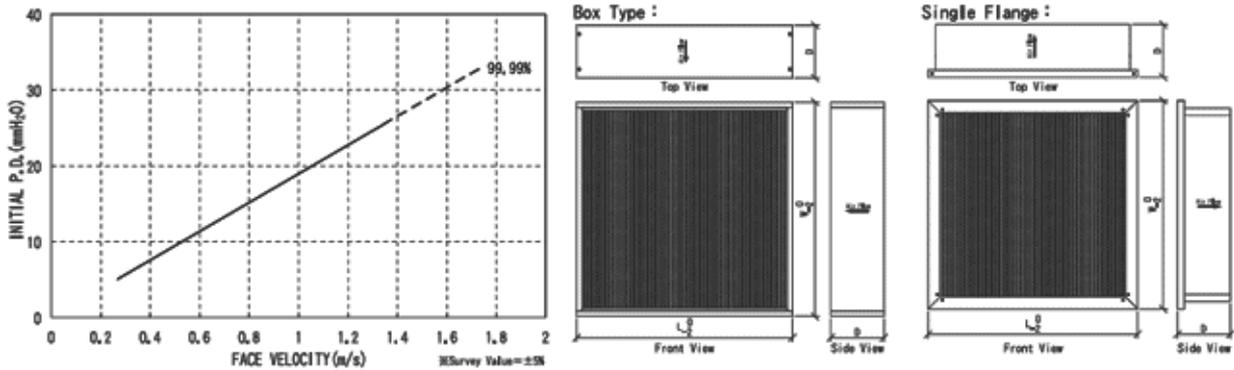
# SEPARATOR HIGH CAPACITY FILTER

## Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Low pressure drop separator air filter

## Qualified With

- Std. EN 1822 Class H11~H14
- Std. IES RP-CC-001.3 TYPE A / B / C / D



## Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
H4BA305305150	305×305×150 mm	6.1 CMM (215 CFM)	25.4 mmH <sub>2</sub> O (249 Pa)  *face velocity: 1.34 m/s	50.8 mmH <sub>2</sub> O (500 Pa)  *recommend
H4BA305610150	305×610×150 mm	12.8 CMM (452 CFM)		
H4BA610610150	610×610×150 mm	27.0 CMM (953 CFM)		
H4BA760610150	760×610×150 mm	34.0 CMM (1201 CFM)		
H4BA915610150	915×610×150 mm	41.3 CMM (1458 CFM)		
H4BAC20610150	1220×610×150 mm	55.5 CMM (1960 CFM)		
H4BAF25610150	1525×610×150 mm	69.7 CMM (2461 CFM)		
H4BAI30610150	1830×610×150 mm	83.9 CMM (2963 CFM)	34.0 mmH <sub>2</sub> O (333 Pa)  *face velocity: 2.8m/s	50.8 mmH <sub>2</sub> O (500 Pa)  *recommend
H4BA305305290	305×305×290 mm	12.7 CMM (448 CFM)		
H4BA305610290	305×610×290 mm	26.9 CMM (950 CFM)		
H4BA610610290	610×610×290 mm	56.6 CMM (2000 CFM)		
H4BA760610290	760×610×290 mm	71.2 CMM (2514 CFM)		
H4BA915610290	915×610×290 mm	86.3 CMM (3047 CFM)		
H4BAC20610290	1220×610×290 mm	116.2 CMM (4103 CFM)		

\* Special dimension can be customized

# SEPARATOR HIGH TEMPERATURE FILTER

## Operating Conditions

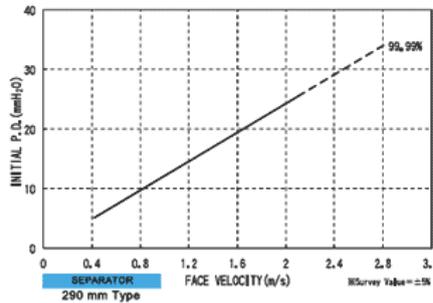
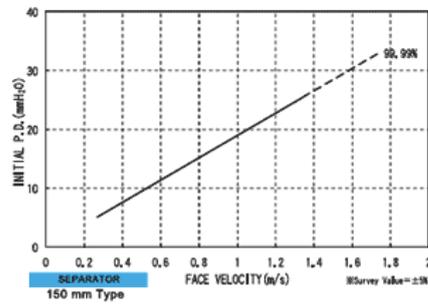
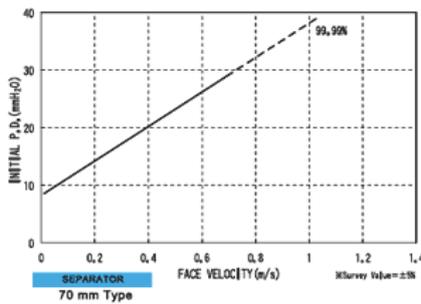
- Aluminum Separator type filter
- Std. EN 1822 Class H11~H14
- Std. IES RP-CC-001.3 TYPE A / B / C / D

## Qualified With

- From 100°C ~ 150°C
- From 150°C ~ 200°C
- From 200°C ~ 300°C

## Condition

- High temperature filter can be used in baking machinery in electronics, such as painting room for automobiles.
- High temperature frame is mostly made of SUS material, Galvanized steel and aluminum board.
- High temperature filters are durable under high condition to provide a clarified and satisfied environment.



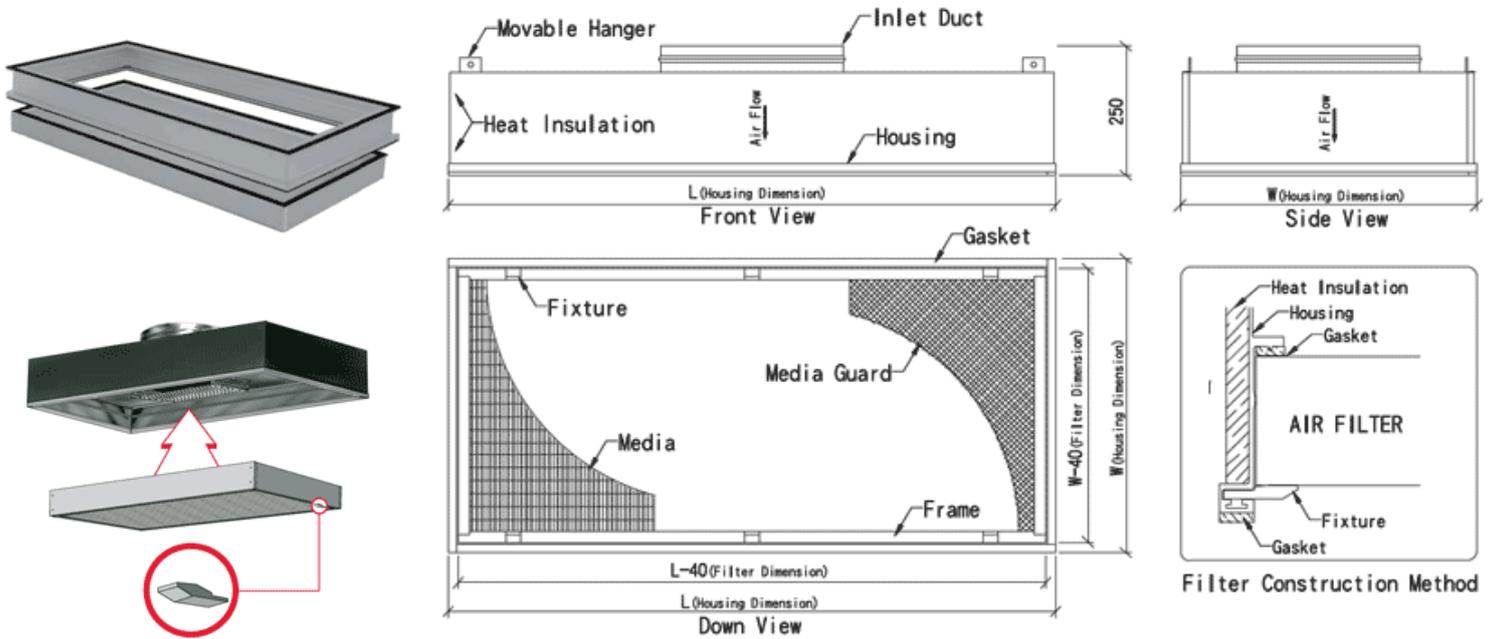
## Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
H4HA305305070	305x305x70 mm	3.5 CMM (124 CFM)	25.4 mmH <sub>2</sub> O (249 Pa) *face velocity: 0.48 m/s	50.8 mmH <sub>2</sub> O (500 Pa) *recommend
H4HA610610070	610x610x70 mm	15.5 CMM (547 CFM)		
H4HA915610070	915x610x70 mm	23.7 CMM (837 CFM)		
H4HA305305150	305x305x150 mm	6.1 CMM (215 CFM)	25.4 mmH <sub>2</sub> O (249 Pa) *face velocity: 1.34 m/s	
H4HA610610150	610x610x150 mm	27.0 CMM (953 CFM)		
H4HAC20610150	1220x610x150 mm	55.5 CMM (1960 CFM)		
H4HA305305290	305x305x290 mm	12.7 CMM (448 CFM)	34.0 mmH <sub>2</sub> O (333 Pa) *face velocity: 2.8m/s	
H4HA610610290	610x610x290 mm	56.6 CMM (2000 CFM)		
H4HAC20610290	1200x610x290 mm	116.2 CMM (4103 CFM)		

\* Special dimension can be customized

## ROOM SIDE REPLACEABLE FILTER UNIT

This type of filter is mainly used in Class 1,000 to 100,000 C/R which can replace the traditional **HEPA BOX** type filter. It's easy to replace and more economical than Box Type, which makes it a desirable choice for construction engineers.



### Filter Unit Compare Table

	Construction Cost	Construction Cost	Construction Cost	Construction Cost
Room Side Replaceable Filter Unit	○	◎	◎	◎
Disposable Filter Unit	◎	X	X	△
Conservative Filter UnitUnit	X	△	△	△

### Operating Conditions

#### **Economical and Cost-Efficiency:**

Easy replaceable filter unit can reduce the cost and it is more efficient.

#### **Easy and Convenient to Replace:**

Clip-on filter fixture. Filter can be replaced from roomside. Quick installation and convenient to replacement.

#### **Widely Multi-Functional Design:**

Fit for all kinds of ceiling grid, heavy duty T-bar, light duty T-bar, and ceiling panel.

#### **Sturdy and Lightweight Housing:**

Made by anodized aluminum, light in weight Easy to handle and install.

#### **Friendly and custom-built:**

There are various of inlet ducts and stainless outlet panel to choose, which satisfied all needs.

#### **Professional and Quality Filter:**

Collect specifically with "KOWA" replaceable air filter. Quality is guaranteed.

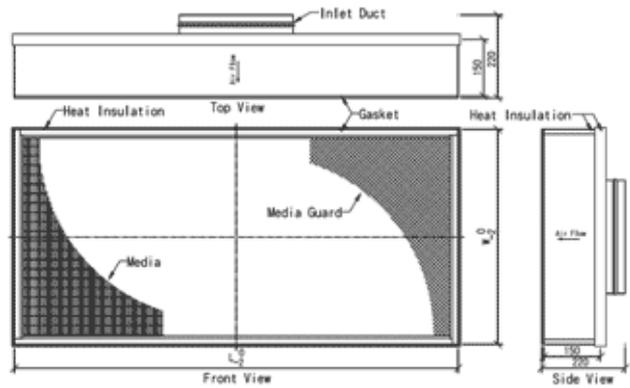
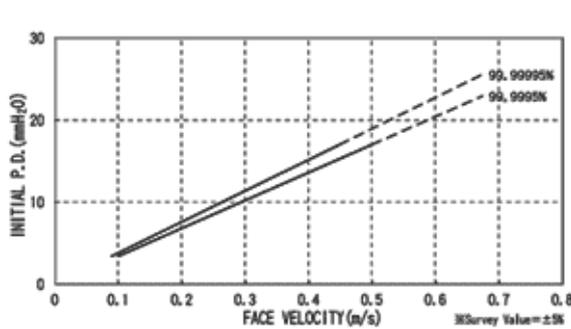
# DISPOSABLE STANDARD CAPACITY FILTER UNIT

## Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)

## Qualified With

- Std. EN 1822 Class U15 / U16 / U17
- Std. ENS RP-CC-001.3 TYPE F



## Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
U5DHC20610220	1220×610×150 mm (Ceiling Panel)	20.7 CMM (731 CFM)	17 mmH <sub>2</sub> O (167 Pa)  *face velocity: 0.5 m/s	50.8 mmH <sub>2</sub> O (500 Pa)  *recommend
U5DHC10600220	1210×600×150 mm (Light Duty T-Bar)	20.2 CMM (713 CFM)		
U5DHB70570220	1170×570×150 mm (Heavy Duty T-Bar)	18.5 CMM (653 CFM)		
U5DH610610220	610×610×150 mm (Ceiling Panel)	10.1 CMM (357 CFM)		
U5DH600600220	600×600×150 mm (Light Duty T-Bar)	9.7 CMM ( 343 CFM)		
U5DH570570220	570×570×150 mm (Heavy Duty T-Bar)	8.7 CMM ( 307 CFM)		

- Standard diameter of inlet duct are 14"φ(350mm), 12"φ(300mm) and 10"φ(250mm)
- \* Special dimension can be customized

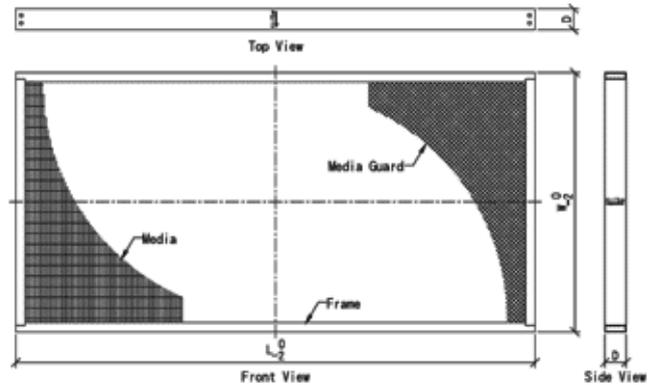
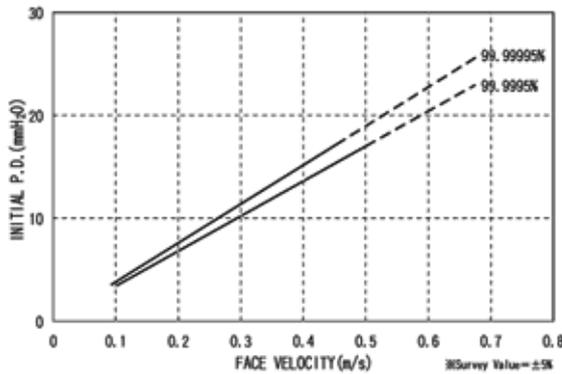
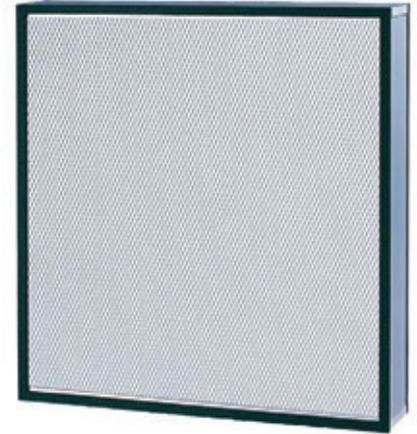
## MINI PLEAT STANDARD CAPACITY FILTER

### Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Ultra thin mini pleat air filter

### Qualified With

- Std. EN 1822 Class U15 / U16 / U17
- Std. ENS RP-CC-001.3 TYPE F



### Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
U5MH305610050	305x610x50 mm	4.8 CMM (169 CFM)	17 mmH <sub>2</sub> O (167 Pa)  *face velocity: 0.5 m/s	34 mmH <sub>2</sub> O (355 Pa)  *recommend
U5MH610610050	610x610x50 mm	10.1 CMM (357 CFM)		
U5MH760610050	760x610x50 mm	12.7 CMM (448 CFM)		
U5MH915610050	915x610x50 mm	15.4 CMM (544 CFM)		
U5MHC20610050	1220x610x50 mm	20.7 CMM (731 CFM)		
U5MH570570050	570x570x50 mm	7.6 CMM (267 CFM)	12 mmH <sub>2</sub> O (117Pa)  *face velocity: 0.35 m/s	24 mmH <sub>2</sub> O (235 Pa)  *According to FU Performance
U5MHB70570050	1170x570x50 mm	15.1 CMM (534 CFM)		

• Standard depth is 50mm, and there is also available 70mm could be selected.

\* Special dimension can be customized

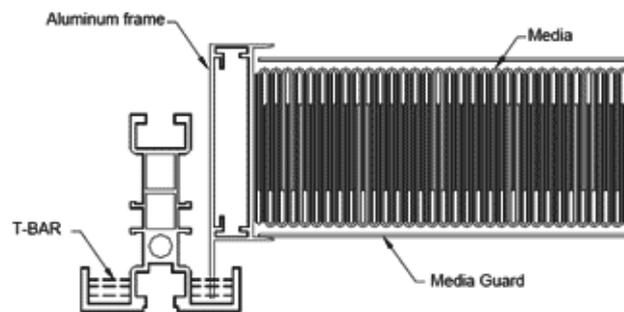
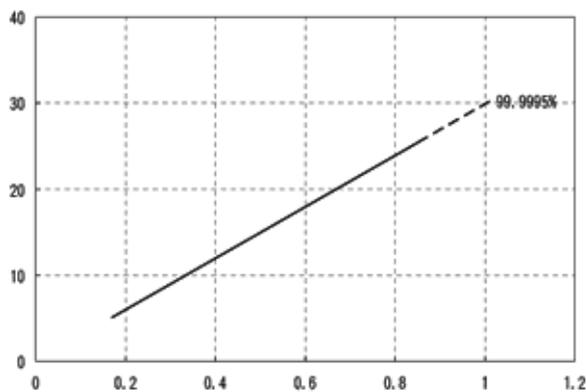
## MINI PLEAT HIGH CAPACITY FILTER

### Operating Conditions

- Apply Temperature: 80°C
- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Ultra thin mini pleat air filter (Knife-Edge=88mm)

### Qualified With

- Std. EN 1822 Class U15 / U16 / U17
- Std. ENS RP-CC-001.3 TYPE F



### Specifications

Model	Dimension	Capacity	Initial P.D	Final F.D
	(*without inlet duct) Length * Width * Depth			
U5MH305610088	305x610x88 mm	8.1 CMM (286 CFM)	25.4 mmH <sub>2</sub> O (249 Pa) *face velocity: 0.85 m/s	508. mmH <sub>2</sub> O (500Pa) *recommend
U5MH610610088	610x610x88 mm	17.2 CMM (607 CFM)		
U5MH760610088	760x610x88 mm	21.6 CMM (763 CFM)		
U5MH915610088	915x610x88 mm	26.2 CMM (925 CFM)		
U5MHC20610088	1220x610x88 mm	35.2 CMM (1243 CFM)		
U5MH570570088	570x570x88 mm	7.6 CMM (267 CFM)	10 mmH <sub>2</sub> O (98 Pa)	20 mmH <sub>2</sub> O (200 Pa)
U5MHB70570088	1170x570x88 mm	15.1 CMM (534 CFM)	*face velocity: 0.35 m/s	*According to FU Performance

\* Special dimension can be customized

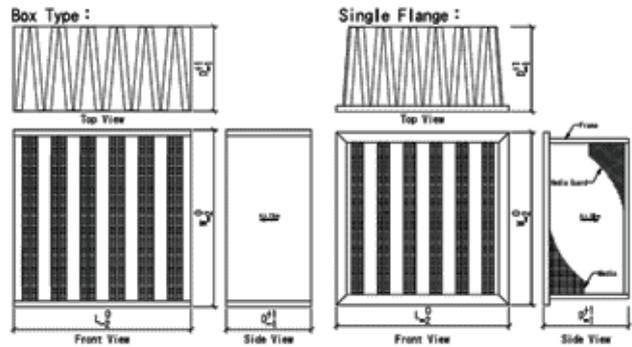
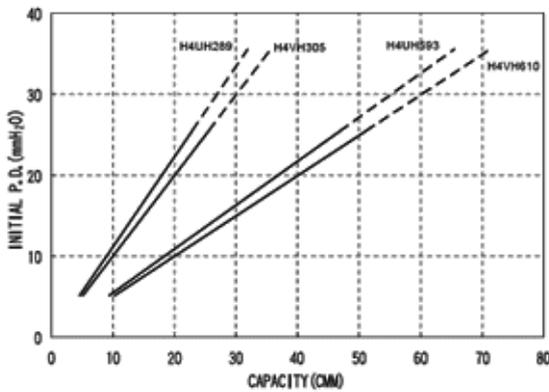
# V-BANK STANDARD CAPACITY FILTER

## Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Low pressure drop V-Bank air filter
- More efficiency and longer life
- Lower energy consumption

## Qualified With

- Std. EN 1822 Class H11~H14
- Std. IES RP-CC-001.3 TYPE A / B / C / D



## Specifications

Model		Dimension	Capacity	Initial P.D	Final F.D
		(*without inlet duct) Length * Width * Depth			
Box Type	U5MH305610088	305x610x88 mm	25.5 CMM (900 CFM)	25.4 mmH <sub>2</sub> O (249 Pa)	50.8 mmH <sub>2</sub> O (500Pa)
	U5MH610610088	610x610x88 mm	51.0 CMM (1800 CFM)		
Single Flange	U5MH760610088	760x610x88 mm	25.5 CMM (900 CFM)	27.7 mmH <sub>2</sub> O (270 Pa)	*recommend
	U5MH915610088	915x610x88 mm	51.0 CMM (1800 CFM)		

\* Special dimension can be customized

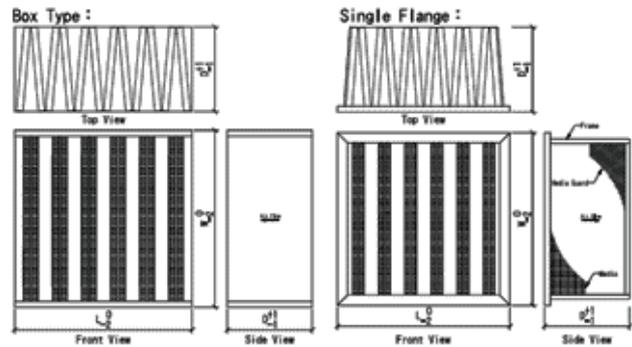
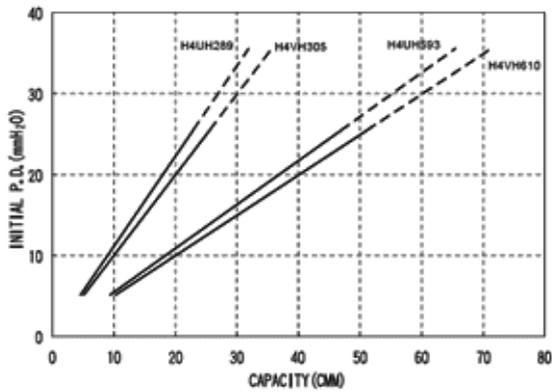
# V-BANK HIGH CAPACITY FILTER

## Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Low pressure drop V-Bank air filter
- More efficiency and longer life
- Lower energy consumption

## Qualified With

- Std. EN 1822 Class H11~H14
- Std. IES RP-CC-001.3 TYPE A / B / C / D



## Specifications

Model		Dimension	Capacity	Initial P.D	Final F.D
		(*without inlet duct) Length * Width * Depth			
Box Type	H4VH305610292	305x610x292 mm	28.3 CMM (1000 CFM)	25.4 mmH <sub>2</sub> O (249 Pa)	50.8 mmH <sub>2</sub> O (500Pa)
	H4VH610610292	610x610x292 mm	56.6 CMM (2000 CFM)		
Single Flange	H4UH289593292	289x593x292 mm	28.3 CMM (1000 CFM)	27.7 mmH <sub>2</sub> O (270 Pa)	*recommend
	H4UH593593292	593x593x292 mm	56.6 CMM (2000 CFM)		

\* Special dimension can be customized

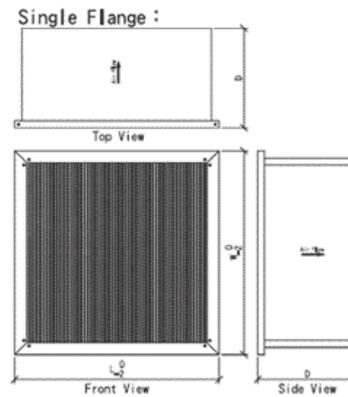
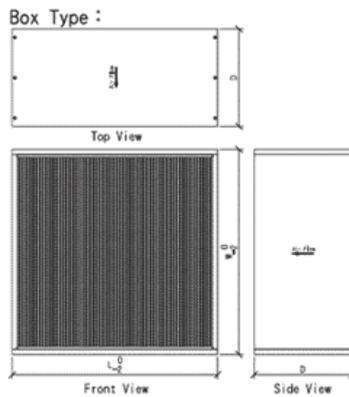
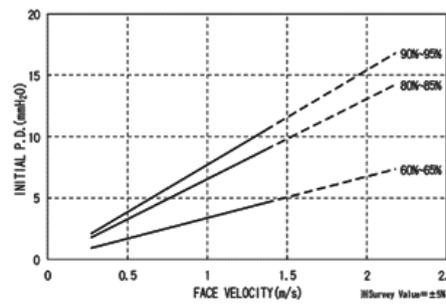
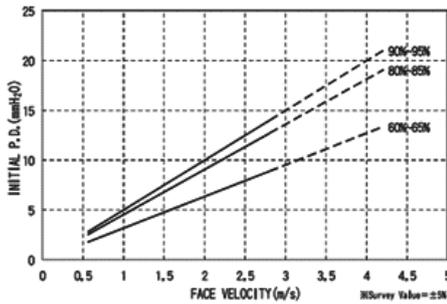
# SEPARATOR STANDARD CAPACITY MEDIUM FILTER

## Operating Conditions

- Apply Temperature: 80°C
- Apply Humidity: 100%RH (No Dew)
- Separator air filter

## Qualified With

- Std. EN 1822 Class F5 / F6 / F7 / F8
- Std. IES RP-CC-001.3 MERV 11 / 13 / 14



## Specifications

Model		Dimension	Capacity	Initial P.D	Final F.D
		(*without inlet duct) Length * Width * Depth			
Box Type	M9BA305610290	305x610x290 mm	26.8 CMM (946 CFM)	95% : 14.0 mmH <sub>2</sub> O (137 Pa)	95% : 35 mmH <sub>2</sub> O (345 Pa)
	M9BA610610290	610x610x290 mm	56.6 CMM (2000 CFM)	85% : 12.7 mmH <sub>2</sub> O (124 Pa)	85% : 32 mmH <sub>2</sub> O (315 Pa)
Single Flange	M9FA289593290	289x593x290 mm	25.3 CMM (893 CFM)	65% : 8.9 mmH <sub>2</sub> O (88 Pa)	65% : 23 mmH <sub>2</sub> O (226 Pa)
	M9FA593593292	593x593x290 mm	56.6 CMM (2000 CFM)		
Box Type	M9BA305610150	305x610x150 mm	13.0 CMM (459 CFM)	95% : 10.5 mmH <sub>2</sub> O (103 Pa)	95% : 27 mmH <sub>2</sub> O (265 Pa)
	M9BA610610150	610x610x150 mm	27.5 CMM (971 CFM)	85% : 8.9 mmH <sub>2</sub> O (88Pa)	85% : 23 mmH <sub>2</sub> O (225 Pa)
Single Flange	M9FA289593150	289x593x150 m	12.3 CMM (434 CFM)	65% : 4.6 mmH <sub>2</sub> O (45 Pa)	65% : 12 mmH <sub>2</sub> O (120 Pa)
	M9FA593593150	593x593x150 mm	27.5 CMM (971 CFM)		

\* Special dimension can be customized

# SYNTHETIC POCKET FILTER

## Description

Synthetic bag filters are constructed of synthetic filter media and assembled in galvanized steel frame. The stitch of the bag is flexible to maintain shape in changing conditions. In order to prevent any possible leakage, all stitching are sealed with thermo-plastic resin. Our bag filter offers high efficiency ranged of 40-45%(brown), 60-65% (green), 80-85%(red), and 90-95%(yellow). The header is constructed with 26-gauge galvanized steel to the filter face. Gasketing products are available to meet your application needs.



## Applications

Synthetic bag filters can be used in both commercial and industrial applications and others such as hospitals, schools and public buildings. Therefore, can protect equipments for a longer service life. Bag filter is also used as a medium filter in clean room filtration or where high air cleaning efficiency is required.

90 -95% Efficiency			Rated Air Flow Capacity			Initial Resistance			Net Media Area (sq. ft)
Part No.	No. of Pockets	Std. Size	Low	Medium	High	Low	Medium	High	
B9CS-593593381G-001	12	24*24*15	1500	2000	2500	.42	.65	.80	63
B9CS-593593559G-001	8	24*24*22	1500	2000	2500	.45	.60	.75	62
B9CS-593593559G-001	6	24*24*22	1500	2000	3000	.45	.80	.75	105
B9CS-593593762G-001	8	24*24*30	1500	2000	2500	.40	.50	.68	84
B9CS-593593914G-001	8	24*24*36	2000	2500	3000	.46	.6	.77	102
80-85% Efficiency			Rated Air Flow Capacity			Initial Resistance			Net Media Area (sq. ft)
Part No.	No. of Pockets	Std. Size	Low	Medium	High	Low	Medium	High	
B8CS-593593381G-001	12	24*24*15	1500	2000	2500	.25	.42	.60	63
B88S-593593559G-001	8	24*24*22	1500	2000	2500	.25	.40	.55	62
B8AS-593593762G-001	10	24*24*30	2500	2500	3000	.30	.45	.60	105
B86S-593593762G-001	6	24*24*30	1000	1500	2000	.24	.30	.40	65
B86S-593593914G-001	6	24*24*36	1500	2000	2500	.25	.30	.40	82
60-65% Efficiency			Rated Air Flow Capacity			Initial Resistance			Net Media Area (sq. ft)
Part No.	No. of Pockets	Std. Size	Low	Medium	High	Low	Medium	High	
B6CS-593593381G-001	12	24*24*15	1500	2000	2500	.20	.30	.40	63
B68S-593593559G-001	8	24*24*22	1500	2000	2500	.15	.24	.38	62
B6AS-593593762G-001	10	24*24*30	2000	2500	3000	.25	.35	.45	105
B68S-593593914G-001	8	24*24*30	2000	2500	3000	.23	.33	.46	102
B66S-593593914G-001	6	24*24*36	1500	2000	2500	.18	.24	.34	82
40-45% Efficiency			Rated Air Flow Capacity			Initial Resistance			Net Media Area (sq. ft)
Part No.	No. of Pockets	Std. Size	Low	Medium	High	Low	Medium	High	
B66S-593593381G-001	12	24*24*15	1500	2000	2500	.12	.20	.29	33
B66S-593593559G-001	8	24*24*22	1500	2000	2500	.10	.18	.28	48

\* Other sizes available: Consult Factory for sizes and performance data\*

# EXTENDED SURFACE FILTERS SERIES 400

## Description

The Extended Surface Series 400 filters incorporate a 100% synthetic media with an ASHRAE 52.1 average atmospheric efficiency of 30% to 35% and an average arrestance exceeding 90% by weight. The 1" and 2" filters handle velocities of up to 500 FPM, the 4" filters up to 625 FPM.

The media is chemically bonded to a metal mesh on the air-exiting side, preventing fluttering, and maintaining uniformity of the pleats. That filter pack is enclosed in a heavy-duty, moisture resistant, die-cut frame that will not warp, crack or distort under normal operating conditions.

Diagonal front and back media retainers are an integral part of the filter frame. The media pack is bonded to every part of the frame, preventing any possibility of air bypass.



## FEET PER MINUTE (FPM)

Filter Depth	Medium Velocity	Initial Resistance (Medium "W.G.)		Hight Velocity	Initial Resistance (Hight "W.G.)		Final Resistance (Hight "W.G.)
		Std Cap	Hight Cap		Std Cap	Hight Cap	
1"	375	0.25	0.20	500	0.40	0.35	1.0
2"	375	0.16	0.15	500	0.26	0.24	1.0
4"	500	0.29	0.22	625	0.39	0.33	1.0

## SERIES 400

Part Number	Nominal	Actual Size			CFM Capacities		Media Ares (Sq Ft)	
	Size	H	W	D	Medium	Hight	Std Cap	Hight Cap
P3SS-289593022C-001	12X24X1	11 3/8	23 3/8	3/4	325	450	1.6	2.4
P3SS-340593022C-001	14X24X1	13 3/8	23 3/8	3/4	875	975	4.2	5.7
P3SS-391492022C-001	16X20X1	15 1/2	19 1/2	3/4	825	875	4.0	5.2
P3SS-391619022C-001	16X25X1	15 1/2	24 1/2	3/4	1050	1325	5.0	6.6
P3SS-492492022C-001	20X20X1	19 1/2	19 1/2	3/4	1050	1550	5.0	6.7
P3SS-492593022C-001	20X24X1	19 3/8	23 3/8	3/4	1250	1400	6.0	8.1
P3SS-492619022C-001	20X25X1	19 1/2	24 1/2	3/4	1300	1650	6.2	8.4
P3SS-593593022C-001	24X24X1	23 3/8	23 3/8	3/4	1500	1675	7.2	9.6
P3SS-340492047C-001	14X20X2	13 1/2	19 1/2	1 3/4	725	975	6.2	8.8
P3SS-391492047C-001	16X20X2	15 1/2	19 1/2	1 3/4	825	1100	6.7	10.4
P3SS-492492047C-001	20X20X2	19 1/2	19 1/2	1 3/4	1050	1400	8.8	12.9
P3SS-492619047C-001	20X25X2	19 1/2	24 1/2	1 3/4	1300	1750	11.0	16.2
P3SS-593593047C-001	24X24X2	23 3/8	23 3/8	1 3/4	1500	2000	12.4	18.6
P3SS-619619047C-001	25X25X2	24 3/4	24 3/4	1 3/4	1625	2150	13.6	20.1
P3SS-289593098C-001	12X24X4	11 3/8	23 3/8	3 5/8	1000	1250	11.5	15.3
P3SS-391492098C-001	16X20X4	15 3/8	19 3/8	3 5/8	1100	1400	12.8	17.0
P3SS-492492098C-001	20X20X4	19 3/8	19 3/8	3 5/8	1400	1750	16.0	21.3
P3SS-492593098C-001	20X24X4	19 3/8	23 3/8	3 5/8	1657	2100	19.2	25.5
P3SS-492619098C-001	20X25X4	19 3/8	24 3/8	3 5/8	1750	2200	19.9	26.6
P3SS-593593098C-001	24X24X4	23 3/8	23 3/8	3 5/8	2000	2500	23.0	30.6

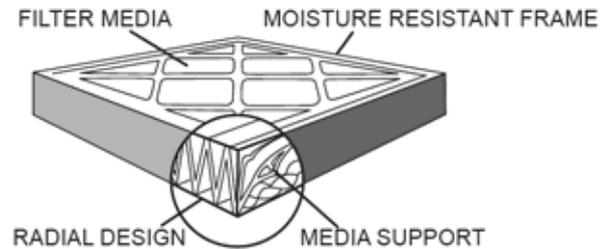


## ► Benefits

### Description

It is possible for a flat filter to face load, so restricting airflow and causing unnecessary strain on equipment. The Series 400 filters accumulate the heavier, more restrictive particles at the bottom of the pleats, leaving the sides open longer for effective filtration. The series 400 filter media is engineered to provide maximum efficiency. Generally, the deeper the pleats the longer filter life between changeouts.

- Rigid construction with consistent media extends the service life.
- Well-built, efficient and easy-to-handle medium efficiency filters.
- Low initial pressure drop.
- Consistent efficiency results.



### Applications

These filters can be used without modification in side-access filter housing or built-up filter bank. They offer better efficiency than conventional permanent or disposable flat filters. The Series 400 filters, when used as pre-filters, substantially extend the life of more expensive high-efficiency filters. They are perfect filters for residential, commercial and industrial use.

Filter Depth	Fleat Per Linear Ft		Sq. Ft of Media Per Sq. Ft of Face Area	
	Std Cap	Hight Cap	Std Cap	Hight Cap
1"	12 10 9	18 15 12	1.75	2.33
2"	10	15	3.125	4.688
4"	9	12	5.813	7.75

## ALL ALUMINUM & STAINLESS STEEL AIR FILTERS

### Description

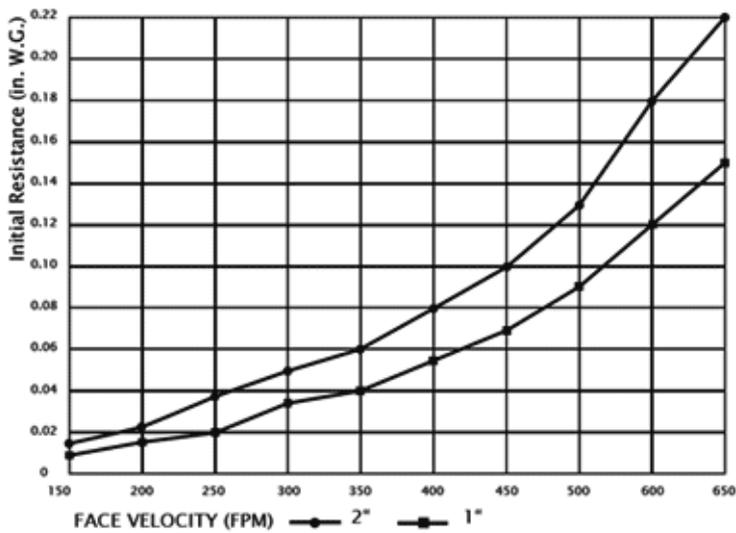
All Aluminum air filters from KOWA are perhaps economical and serve as an effective solution for air filtration in different industrial. The filter media primarily consists of many layers of aluminum slit and expanded into mesh of differing densities to increase the holding capacity and efficiency of media.

The filter media of the KOWA Filters Stainless Steel Air Filter is composed of multi-layers of pleated and corrugated stainless screen wires. Layering of media offers maximum filter surface area. Both sides are crossed to stainless bars to support the filter stronger and rigidity.

The all Aluminum and Stainless Filters are made of 100% aluminum and stainless metal. So it is easy to clean and serve for saving your costs and maintain a durable use.



## FACE VELOCITY VS. RESISTANCE



Thickness	Average Arrestance (%)	Holding Capacity (g/ft <sup>2</sup> )
1"	72.5	91
2"	81.5	143

## NON-WOVEN FILTER

**KOWA Non-Woven Filters** provide maximum airflow, low pressure drop, and high arrestance. They are suited for air ventilation systems of general air filtration. There are filter media replacements available.

The filters are available in a wide variety of sizes, styles, and thickness. The width of filter is up to 1.8M and can be framed by beverage board, galvanized steel, and aluminum. The filter media can be provided in cut pads or rolls.

The filter media consists of Polyester, Nylon, and Acetate and is made with multidirectional needles. Fibers are bound completely to provide higher arrestance and dust holding capacity.

The media is tested in accordance with AF (Air Filter Institute). The arrestance value exceeds 80% and the resistance is under 2.5mm W.G.

The filters can also be made with acid-resistant or alkali-resistant specifications for particular uses upon customer requests.

## ► POLYESTER FILTER

### Description

Kowa polyester filter media is safe and easy to handle and does not break down in use. Suitable for uses where fiberglass is not indicated, such as food processing and medical facilities. Fibers are held together with resin that is flame retardant and moisture resistant.

Media consisting of 100% polyester bonded fibers is formed into an interlocking pattern that traps dust and lint, while minimizing face surface loading. Polyester media fibers won't break off and flow into air stream.



### Specifications

Part Number	Nominal	Depth	Win Velocity	Resistance		Efficiency
	W*L	MM	V m/s	Initial (mmAq)	End (mmAq)	%
P2FP-50MA00005N-001	1M * 50M	5	2.5	3.5	15	70
P2FP-30MA00010N-001	1M * 50M	10	2.5	4.7	20	80
P2FP-20MA00020N-001	1M * 50M	20	2.0	6.5	20	85
P2FP-20MA00025N-001	1M * 50M	25	2.0	7.0	20	90
P2FP-50MC000005-001	1M * 50M	5	2.5	3.5	15	70
P2FP-30MC000010-001	1M * 50M	10	2.5	4.7	20	80
P2FP-20MC000020-001	1M * 50M	20	2.5	6.5	20	85
P2FP-20MC000025N-001	1M * 50M	25	2.0	7.0	20	90
P2FP-20MK00020N-001	1M * 50M	20	1.5	6	24.5	93

\* Special dimension can be customized

### Purpose

1. This type of filter serves as the first gate of the air filtration system and it is mainly used to filter outside air. Polyester Filter is disposable, so multiple usages is not recommended.
2. Polyester Filter is suitable for all kinds industrial manufactures, such as contamination prevention, HVAC system, waste treatment and contaminated process air.
3. Polyester Filter is also commonly used in pharmaceutical manufacture and food processing due to its ability to filter contamination air.

### Customized Made Polyester:

Fire-retarded filter and anti-virus filter can also be made with imported Polyester fiber and be processed and packed in local factory.

### Sizes:

- In rolls
- In piceses

# VINYL FLOOR



## Description

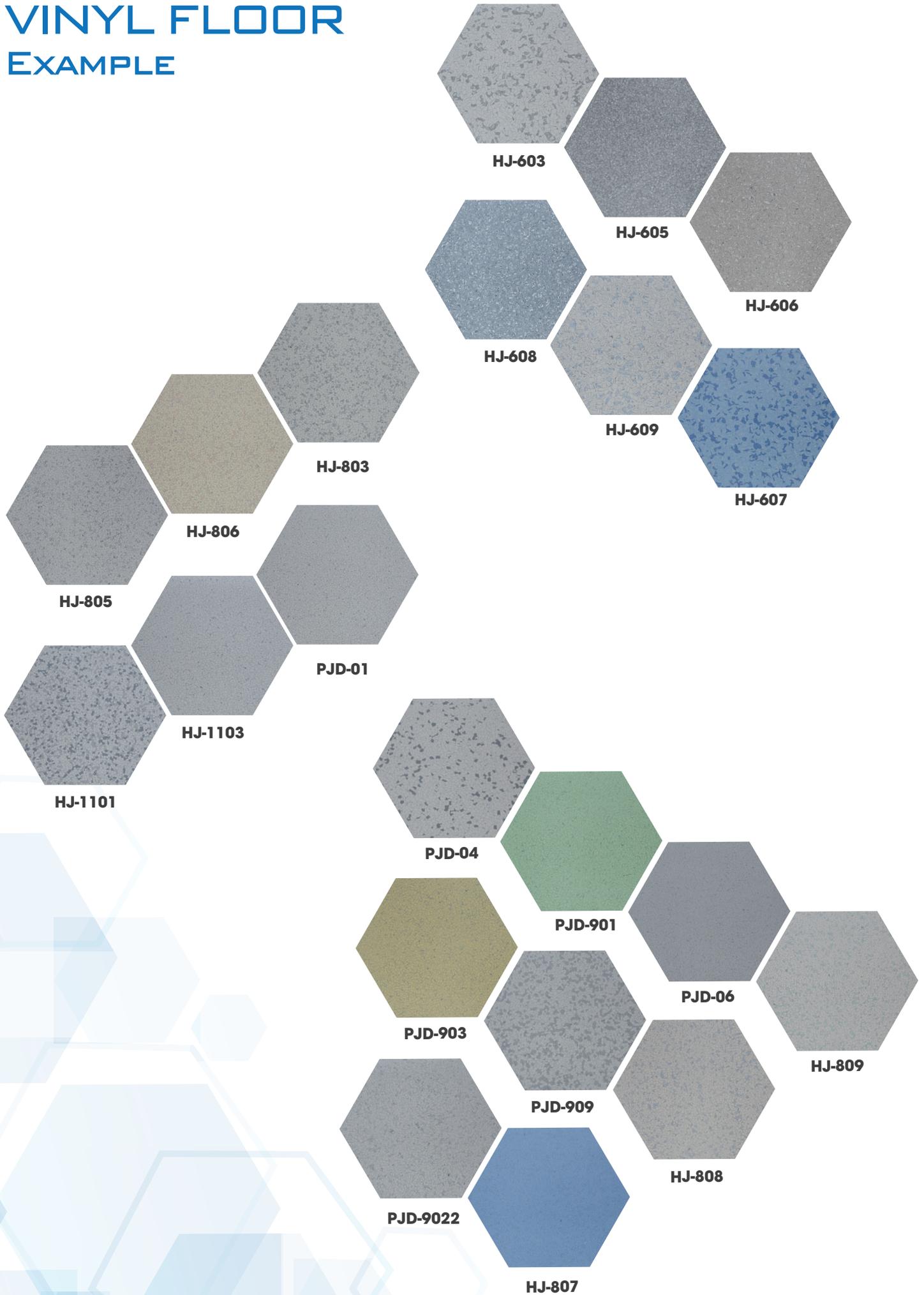
Vinyl flooring has its outstanding features:

- Soft, anti-noise, anti-slip, not cracked, not broken up by activities or by seismic instrument fell on the floor
- Compression resistance, high impact and scratch
- Very easy to clean, the welded seem on the flooring. Synchronous design materials handling corners, edges, tiles
- Able to kill bacteria, anti-fungal, anti-chemical
- Has anti-static, did not catch fire

With remarkable features of Vinyl flooring has been so kind and is being widely applied in many fields, especially in the field of health care such as hospital volume worldwide. Currently, vinyl floor is relatively new in Vietnam but the hospital was used as a substitute for the kind of floor tile, stone or regular epoxy

The long is specialized in supplying, executing and installing vinyl flooring. We commit to offer product with high quality, variety of style from many famous brands in the world such as GERFLOR (France), RESPONSIVE (India), LS HAUSYS (Korea), TOLI (Japan), TARKETT (Sweden), AMSTRONG, CRESYN-AROMA (Korea), TST (China).

# VINYL FLOOR EXAMPLE



# OPERATING ROOM



## Medical Gas Pipeline System Equipments

Including Medical Gas Source Equipments (Medical Stage PSA Oxygen Plant System, Medical Compressed Air Station System, Medical Vacuum Pumps System, Medical Gas Manifold System, etc.), Medical Gas Control Equipments (1st. Stage Gas Pressure Regulator System; 2nd. Stage Gas Pressure Relief System; Medical Gas Valves Box; Medical Gas Alarm System; Central Operating Theatre Control Panel, etc.), Medical Gas Terminal Equipments (Medical Gas Outlets, Ceiling Medical Pendants, Bed Head Units, etc.)

## Medical Laminar Flow Purificating Clean Room Equipments

Including Modular Operating Theatre, Laminar Flow Purificating Ceiling System, Purificating Air Outlets / Return Air Inlet, HEPA, etc

## Some Other Equipments

Including Stainless Steel Pass Box, Stainless Steel Medical Scrub Sink Station Hermetic Doors, Into-Wall-Mount Stainless Steel Cabinets, etc

## Some Other Building Material

Including PVC Handrails, PVC Wall Guard Boards, PVC Wall Corner Guards PVC Floorings, Wards Curtain Systems, etc.

# OPERATING ROOM

## CEILING MEDICAL PENDANTS

### Description

We supply Ceiling Medical Pendants, include: Surgical Pendant, Anesthesia Pendants, Endoscope Pendants, ICU Pendants, and Move-able Pendant Trolleys

Used to replace fiberglass filters where minimal downstream contamination is required. Filters have metal support on both sides and a heavy cardboard frame. For all heating ventilating, and air-conditioning applications.

### Applications

Ceiling Mounted Pendant Systems are widely used in modern hospital Operating Theatres, ICU/NICU as the Medical Gases & Electrical Power supplying equipments

The Pendant System is installed mounted on the ceilings, with rotatable arms, and service head. In the service head, there are medical gas outlets to supply medical gases, and electrical sockets to supply electrical power for the medical equipments.

With the Medical Equipments Shelves, the pendant system can move conveniently with other medical equipments loaded The system also supply Telephone, Network, Video data via special data port inside.



## MEDICAL GAS OUTLETS

### Description

We supply Medical Gas Outlets in British, German, French, Ohmeda, DISS, Metric, South African Standards; And produce the Medical Gas Outlets Box for the Operating Theatres.

We produce several different kinds of medical gas outlets as

- 1, British Standard (BS)
- 2, German Standard (DIN)
- 3, French Standard (AFNOR);
- 4, Metric Standard;
5. American Standard (OHMEDA, DISS, CHEMETRON, PURITAN-BENNETT)



## OXYGEN FLOWMETERS & VACUUM REGULATORS

### Description

We supply Oxygen Flowmeter with Humidifiers for Oxygen Cylinders, and for Medical Oxygen Gas Outlets; The standard of British, German, French, Metric, South African, Ohmeda, DISS, etc; Also, the Suction Units.

We produce several different models of Oxygen Flow meters and Vacuum Regulators as:

- 1, 4 models of Oxygen Flow meters with Humidifier;
- 2, All Oxygen Flow meters can be installed with different standards of Oxygen Probes;
- 3, 4 models of Vacuum Regulators;
- 4, All Vacuum Regulators can be installed with different standard of Vacuum Probes;
- 5, All Vacuum Regulators can be with / without jars



## MEDICAL STAGE PSA OXYGEN GENERATOR SYSTEM

### Description

This system of CH-6M/H C&H PAS Oxygen Plant System (PSA Oxygen Generator & Filling Equipment) is a special customized oxygen plant system for Medical Oxygen

The PSA Oxygen Plant System can be customized as  
Oxygen Producing Capability 3m  
Oxygen Purity as 92%~95%;  
We also produce Oxygen Compressing and Filling System to Oxygen Cylinders

## MEDICAL GAS MANIFOLD SYSTEMS

### Description

We supply Medical Gas Manifold Systems for Oxygen, Nitrous Oxide, Carbon Oxide, etc. The models include

Automatic, Semi-Automatic, Manual ones.

We produce different kinds of Medical Gas Manifold System as:

- 1, Automatic Medical Gas Manifold System;
- 2, Semi-Automatic Medical Gas Manifold System;
- 3, Manual Medical Gas Manifold System;
- 4, Medical Gas can be: Oxygen, Nitrou Oxide, Carbon Dioxide, Compressed Air;
- 5, Stainless Steel Gas Hose (Pigtail) can be customized to suit for customers Oxygen Cylinders



## MEDICAL COMPRESSED AIR STATION (MEDICAL COMPRESSED AIR PLANT) SYSTEM

### Description

We supply the Medical Compressed Air Station Systems for the Hospital Gases Engineering; we supply the whole systems including Air Compressors, Air Tank, Air Filters, Dryers, Pipes & Valves, Fittings, etc.

**The structure of Medical Compressed Air Station System can be:**

- 1, Duplex, two pcs of Air Compressors;
- 2, Triple, three pcs of Air Compressors;

**The type of Air Compressor can be:**

- 1, Oil-Free Piston Type Low Voice Air Compressor (Medical Stage);
- 2, Oil-Less Screw Type Low Voice Air Compressor (Medical Stage);

Customize according hospitals' compressed air consumption



## MEDICAL VACUUM STATION (MEDICAL VACUUM PLANT) SYSTEMS

### Description

We supply the Medical Vacuum Station Systems for the Hospital Gases Engineerings; We supply the whole systems, including Vacuum Pumps, Moist Separators, Vacuum Tanks, Filters, Pipe & Vavvles, Fittings, etc

**The structure of Medical Vacuum Pumps System can be:**

- 1, Duplex, two pcs of Vacuum Pumps;
- 2, Triple, three pcs of Vacuum Pumps;

The type of Air Compressor can be:

- 1, Water-Ring Vacuum Pumps
- 2, Oil-Ring Vacuum Pumps;

Customize according hospitals' Vacuum consumption



## MEDICAL GASES VALVES BOX Description

Medical Gas Valves Box (Zone Valves Unit) are used in Medical Gas Pipeline System to control medical gases in some area. This Medical Gas Valves Box can be customized with Medical Gas Alarm function.

Medical Gas for Oxygen, Vacuum, Nitrous Oxide, Compressed Air (4/7Bar), Carbon Oxide, etc.

Pipe Diameter customized to suit for hospitals' gas pipes;

With / Without Medical Gas Alarm;

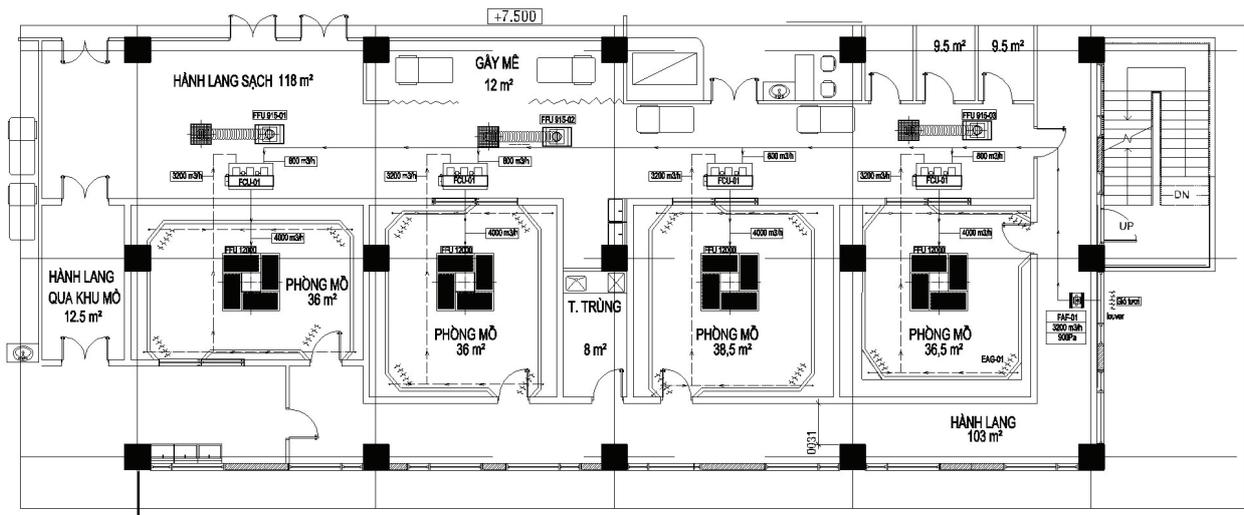


## OTHER MEDICAL GAS ENGINEERING EQUIPMENTS

### Description

We supply some other kinds of Medical Gas Equipments, such as Medical Gas Valve Box, Medical Gas Outlets Box, Medical Gas Alarm, Medical Gas Control System, etc

Language can be customized as English / Spanish;  
With / Without Stainless Steel Cabinet;  
Stainless Steel Cabinet can be customized as customers' design



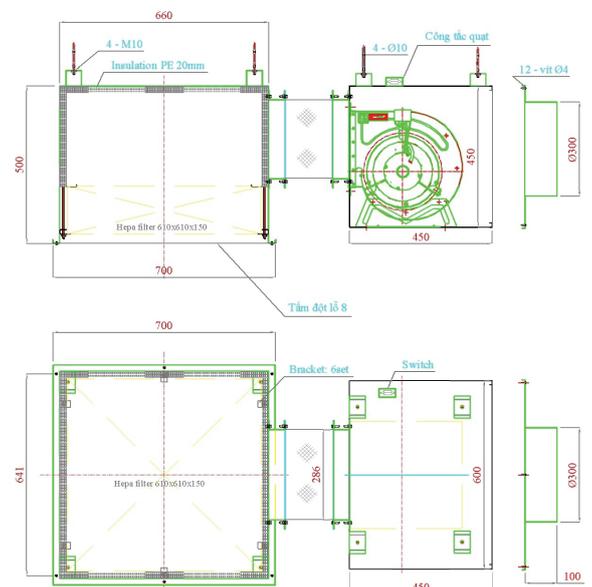
## MODULAR OPERATING THEATRE

### Description

The Modular Operating Theatre can be finished in our factory, and then send to customers hospital, to instal all different parts, to make a modern Operating Theatre with Laminar Flow Purificating. Customized according Hospitals design; System including all different parts; Modular-Design, easy to install

## PURIFICATING AIR OUTLETS WITH HEPA FILTER FOR OPERATING THEATRE

Purificating Air Outlets with HEPA Filter is widely used in modern Clean Operating Theatres to filt inpurity in air, and to send Cleaning Air to Operating Theatre Customized according hospitals' Purificating Stage Modular-Design, easy to instal; All parts are finished in our factory; With HEPA Filters inside; We give HEPA Filters to customer for replacing



## STAINLESS STEEL MEDICAL FURNITURES FOR THE OPERATING THEATRES

### Description

We supply some kinds of Stainless Steel Medical Furnitures for the Operating Theatre using, such as the In Wall Mounted Medicin & Instrument Cabinet, In Wall Mounted Writing Shelf, etc

Material: Stainless Steel 304;  
Stainless Steel Sheet Thickness: 0.80~1.20mm;  
Other thickness of Stainless Steel Sheet is available;  
Customized as customers' design



## MEDICAL HAND SINK

### Description

We supply all kinds of sinks for hospital use. There are all kinds of sinks for one person, Two people , or more. And custom sizes at the request of the hospital.

Material: Stainless Steel 304;  
Scrub Sink Station can be 1 Bay / 2 Bays / 3 Bays / More;  
Control Mode as: Foot Pedal, Knee Button, Leg Touch Pole, Auto-  
matic Sensor, etc.;  
Customizing according customers' design is available

## HERMETIC OPERATING THEATRE DOOR

### Description

We supply different kinds of Hermetic Doors for Operating Theatre, as: Manual / Automatic Doors, Sliding / Swing Doors; Radiation-Protected Doors, etc

For Hermetic Doors, the different types as:

- 1, Automatic Doors;
- 2, Manual Doors;
- 3, Sliding Doors;
- 4, Swing Doors;
- 5, Single Leaf Doors;
- 6, Double Leaves Doors;
- 7, Radiation-Protecting Doors are available;
- 8, Customizing is available



## LIGHT COLORED STEEL SANWITCH PANEL

### Description

The Light Colored Steel Sanwitch Panels are widely used in modern hospitals for the walls and ceilings of purification rooms such as Operating Theatres, ICU, NICU, HDU, and General Wards.

Light Steel Sanwitch panels with different core material;  
Core Material can be EPS / PU / Asbestos / Aluminum honey-comb, etc.;

Thickness of Sanwitch panel can be 50mm ~ 200mm;

Thickness of Color Steel Sheet can be 0.326mm ~ 1.200mm;

Size customized as customers requesting to avoid wasting;

Stainless Steel Sheets Sanwitch panel is available



## PVC HANDRAILS, PVC WALL GUARD BOARDS, AND PVC WALL CORNER GUARDS

### Description

We supply several models of PVC Handrails, PVC Wall Guard Boards, and PVC Wall Corner Guards for the hospital usings. And these products are widely used in Hotels, Schools, etc.

12 different models of PVC Handrails;

6 different models of PVC Wall Guard Boards;

4 different models of PVC Wall Corner Guards;

All products have Aluminum Alloy Board + PVC Cover + End Caps + Installing Fittings;

Different thickness of Alloy Board and PVC Cover optional;

Different color optional;

All products with free charge installing fittings and spare parts

## PVC FLOORING ROLLS & SHEETS

### Description

We supply PVC Flooring (Rolls & Sheets) for hospital using. There are different models with different specifications (such as Thickness, Color, etc.).

Thickness: 1.60mm ~ 3.00mm;

More than 20 different color and decorative pattern optional;

Rolls or Sheets optional;

Rolls size as 2.0m (Width)\*20~30m (Length) @ 1.6~3.0mm (Thickness);

Sheets size as 300mm\*300mm / 450mm\*450mm/ 600mm\*600mm / 800mm\*800mm optional;

Anti-Static Floorings available.



# LAB FURNITURE



## MẶT BÀN

Làm bằng tấm chuyên dụng lõi phenolic nhập khẩu, CO và CQ đầy đủ

- Dày 12.7, 18, 19, 21... mm

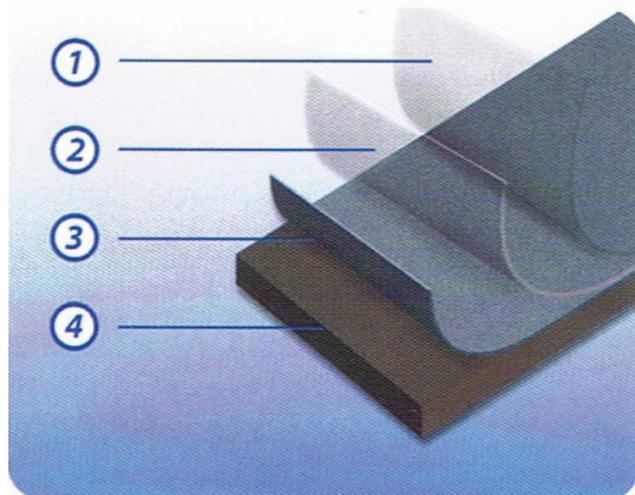
- Màu sắc mặt bàn : màu ghi xám, trắng, đen .

- Vật liệu chuyên dụng cho phòng thí nghiệm, hoàn toàn chịu hóa chất, chịu axit, chịu nước, chịu được nhiệt độ cao (khoảng 170 oC)

- Chống xước tốt, không bám mẩu, không cho vi sinh vật tự phát triển.

Không dẫn điện phù hợp cho đặt máy, thiết bị.... kết hợp với thao tác thí nghiệm ngay trên mặt bàn.

- Độ bền cơ học cao, không cong vênh. Góc bàn được bo máy an toàn, chịu được tương tác cơ học khi va đập



## KHUNG

Kết cấu modul bởi hệ sắt sơn tĩnh điện / hoặc Inox SUS 304, được ghép nối bởi đầu ghép công nghiệp

- Chân bàn: Cấu tạo bằng thép/Inox hộp 40\*80 x 1.4 mm, được hàn chắc chắn, đầu bịt chân bàn bằng nhựa PA chống hơi ẩm và hóa chất xâm nhập;

- Chân có cấu tạo giảm chấn, chống rung lắc hoặc chân tăng chỉnh chiều cao.

GIÁ ĐỂ DỤNG CỤ 3 TẦNG

• Kích thước: .....x300x 1200mm

Giá được làm bằng thép sơn tĩnh điện/Inox hộp 40\*80x1.4mm

Mặt kính cường lực 8mm, thanh chắn lan can bằng suốt inox SUS 304 phi 10mm

## CHẬU RỬA CHỐNG HÓA CHẤT PHÒNG THÍ NGHIỆM

- Màu sắc: đen
  - Chất liệu: Nhựa PP cao cấp, độ bền cơ học cao, có khả năng chống hầu hết các hóa chất
  - Kích thước trong : 490x390x290mm
  - Kích thước ngoài: 550x450x310mm
- Chậu rửa chống hóa chất phòng thí nghiệm
- Màu sắc: đen
  - Chất liệu: Nhựa PP cao cấp, độ bền cơ học cao, có khả năng chống hầu hết các hóa chất
  - Kích thước trong : 490x390x290mm
  - Kích thước ngoài: 550x450x310mm



490\*390\*290  
550\*450\*310  
**WJH0357F**

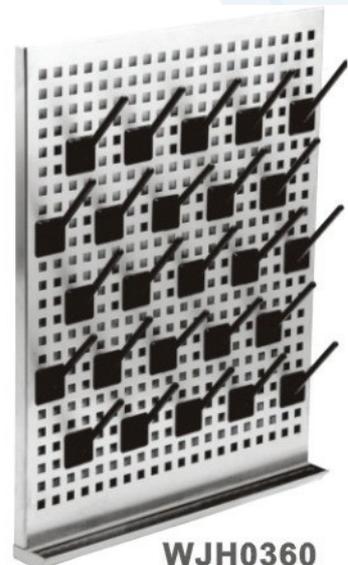


## VÒI RỬA 3 NHÁNH CHUYÊN DỤNG PHÒNG THÍ NGHIỆM

- Vật liệu: Đồng thau, sơn phủ Epoxy
- Sơn phủ Epoxy, chịu được hầu hết hoá chất, tia UV và nhiệt độ cao
- Van: Nhựa PP cao cấp, lõi van chế tạo từ sứ Ceramic độ bền cao: 500.000 lần sử dụng
- Chịu áp lực nước cao: tới 25Bar
- Vòi phun có thể tháo rời, dễ dàng vệ sinh

## GIÁ TREO PHƠI ÔNG THÍ NGHIỆM

- Chất liệu: Inox SUS 304 có khả năng chống hầu hết các loại hóa chất
- Móc treo: Nhựa PP, độ linh động cao, dễ dàng điều chỉnh vị trí và số lượng móc treo, có thể tháo rời để vệ sinh
- Rãnh thoát nước phía dưới tích hợp ống nhựa PVC có đầu kết nối đường ống dẫn nước



**WJH0360**  
Adjustable pegboard (Stainless Steel)

## LAB FURNITURE



BÀN TRUNG TÂM KHÔNG  
CÓ GIÁ ĐỂ DỤNG CỤ



BÀN TRUNG TÂM CÓ GIÁ ĐỂ DỤNG CỤ



BÀN TRUNG TÂM CÓ GIÁ ĐỂ  
DỤNG CỤ 2 TẦNG



BÀN TRUNG TÂM CÓ GIÁ ĐỂ  
DỤNG CỤ 3 TẦNG



BÀN TRUNG TÂM CÓ GIÁ ĐỂ DỤNG CỤ TÍCH HỢP CHẬU RỬA





BÀN THẲNG



BÀN GÓC



BÀN ÁP TƯỜNG CÓ GIÁ ĐỂ DỤNG CỤ



BÀN CHẬU RỬA ĐƠN



BÀN CHẬU RỬA ĐÔI



HỘC TỦ 3 NGĂN KÉO



HỘC TỦ 1 NGĂN KÉO, 1 CÁNH MỞ



## PARTNERS & CUSTOMERS

### HOSPITAL



## FOOD & BEVERAGE



Coca-Cola

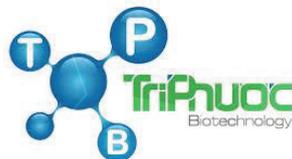


# PARTNERS & CUSTOMERS

## ELECTRONIC



## PHARMACEUTICAL



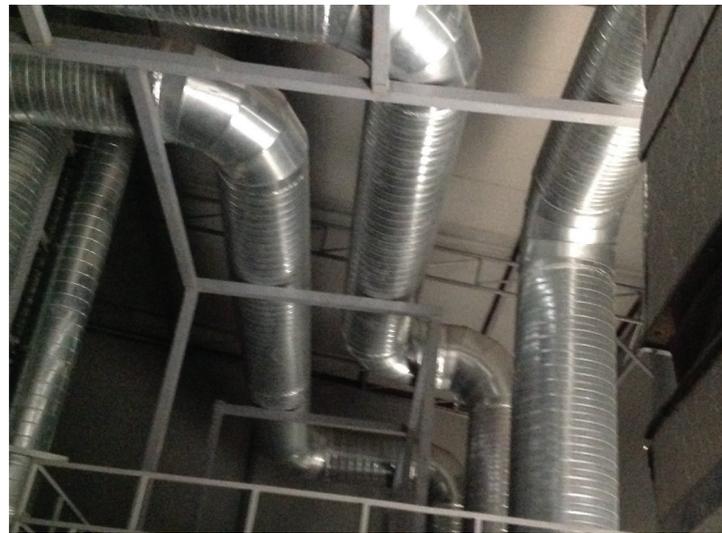
# PARTNERS & CUSTOMERS

## OTHERS

















LOGO & SLOGAN OF  
THE LONG GROUP

**THELONG**<sup>®</sup>  
**GROUP**

**BUILDING VISIONS. CREATING REALITY**

**HUNGPHUONG INOX**<sup>®</sup>

**CHEAP & QUALITY STAINLESS STEEL PRODUCT**

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**CLEANROOM EQUIPMENT - JAPANESE TECHNOLOGY**