

# HFsafe LC Series

Biological Safety Cabinet



# Which System is best for you?



<i>Class II</i>		<i>Type A2</i>	<i>Type B2</i>
<i>Biotechnology</i>	Medium Preparation	○	○
	Tissue Culture	○	○
	Blood Elements Analysis	○	○
	Human Histology	○	○
	Polymerase Chain Reaction	○	○
<i>Microbiology</i>	Medium Preparation	○	○
	Culture nuisance odors	-	○
	Isolated Clinical Sample	○	○
	Blood Test/Analysis	○	○
	QA/QC	○	○
	Minute Quantities of Volatile Toxic Chemicals	-	○
	Trace Amount of Radionucleotides	-	○
<i>Pharmaceutical</i>	Antitumor drug preparation	-	○
	Trace Amount of Radionucleotides	-	○
<i>Routine research</i>	Cell/Tissue Immobilization & Staining	-	○
	Toxic Powder/ Suspended Substance	○	○

○ Applicable - N/A



With a range of biological safety cabinets, Heal Force has the right technology to meet every application, setting, and budget.


# Standards & Test

Standards Compliance	
Biosafety Cabinets	EN12469, Europe, Certified by TUV NORD / NSF-49,USA / SFDA YY0569, China / SANS 12469, South Africa
Air Quality	ISO 14644.1, Class 3, Worldwide
Filtration	EN-1822(H14), Europe / IEST-PR-CC001.3. Worldwide / IEST-PR-CC007.1. Worldwide / IEST-PR-CC034.1. Worldwide
Electrical Safety	EN61010-1, Europe / IEC61010-1, Worldwide / CSA C22.2 No. 61010-1-12 / UL 61010-1:2012
Manufacturer Qualification	ISO 13485:2003, Certified by TUV SUD / ISO 9001:2008, Certified by TUV SUD


**Comprehensive performance testing**

Every HFsafe model manufactured by Heal Force is individually tested, documented by serial number and validated with the following test methods.


Inflow/downflow velocity




Air particle count test



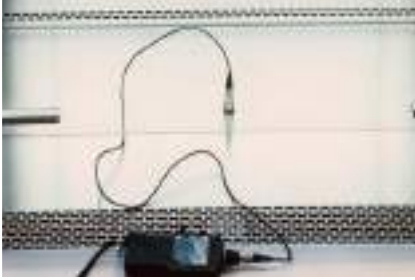
UV radiation test




scan test for filters



Vibration test



Illumination test



## KI Discus Containment Test According to EN12469 (Potassium Iodide)

Heal Force is currently one of the few companies in the world equipped to perform the KI Discus test for validating the operator/personnel protection capabilities of biosafety cabinet.



KI-discus containment test 1

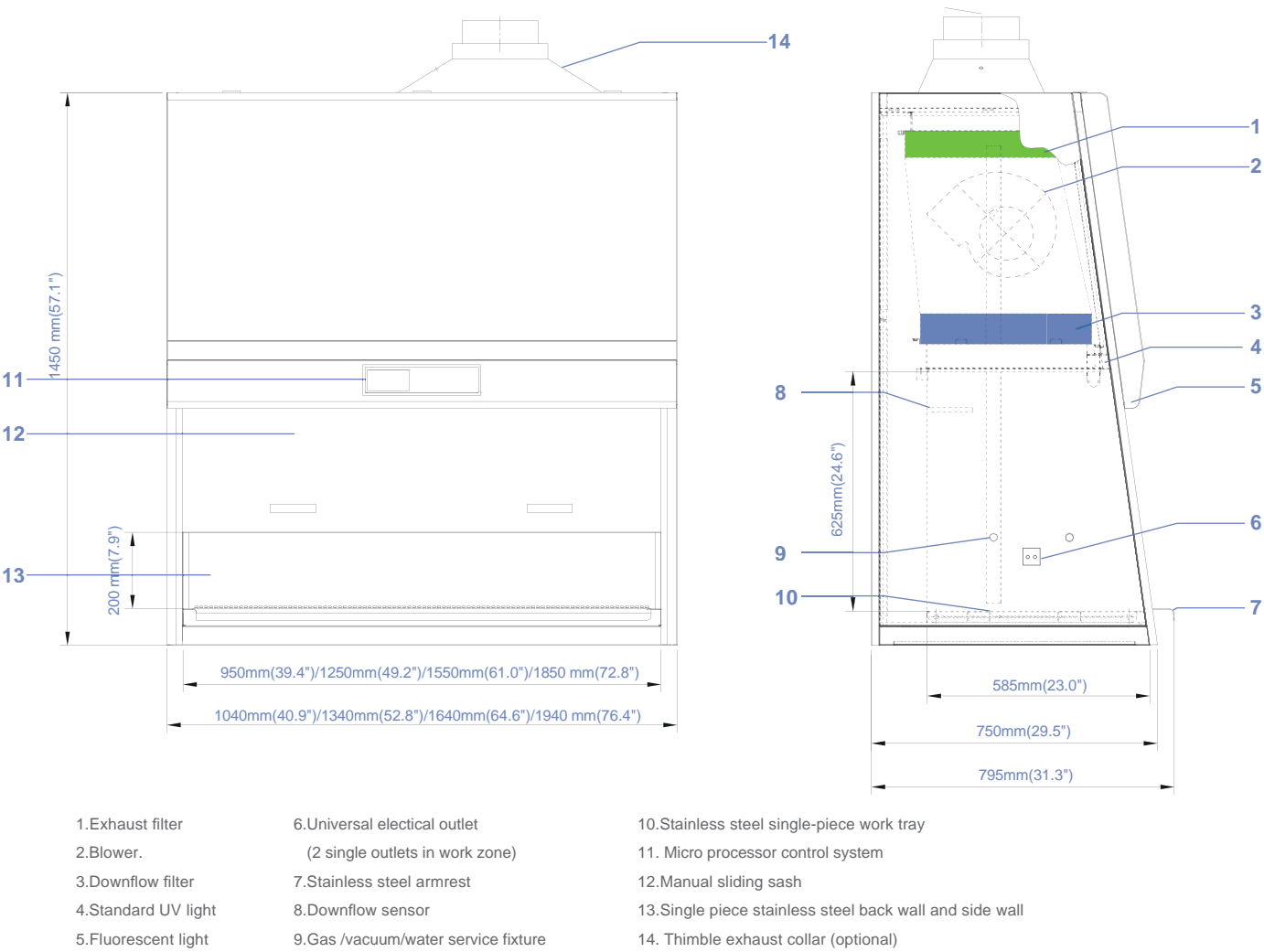
The KI Discus test shows excellent correlation with the microbiological test method for operator protection, and is useful for validating the actual containment performance of the cabinet on-site.

The KI-Discus takes only 45 minutes as opposed to 2 days for microbiological testing. Thus, Each HFsafe model is factory tested on a sampling basis using the KI-Discus method for operator safety.

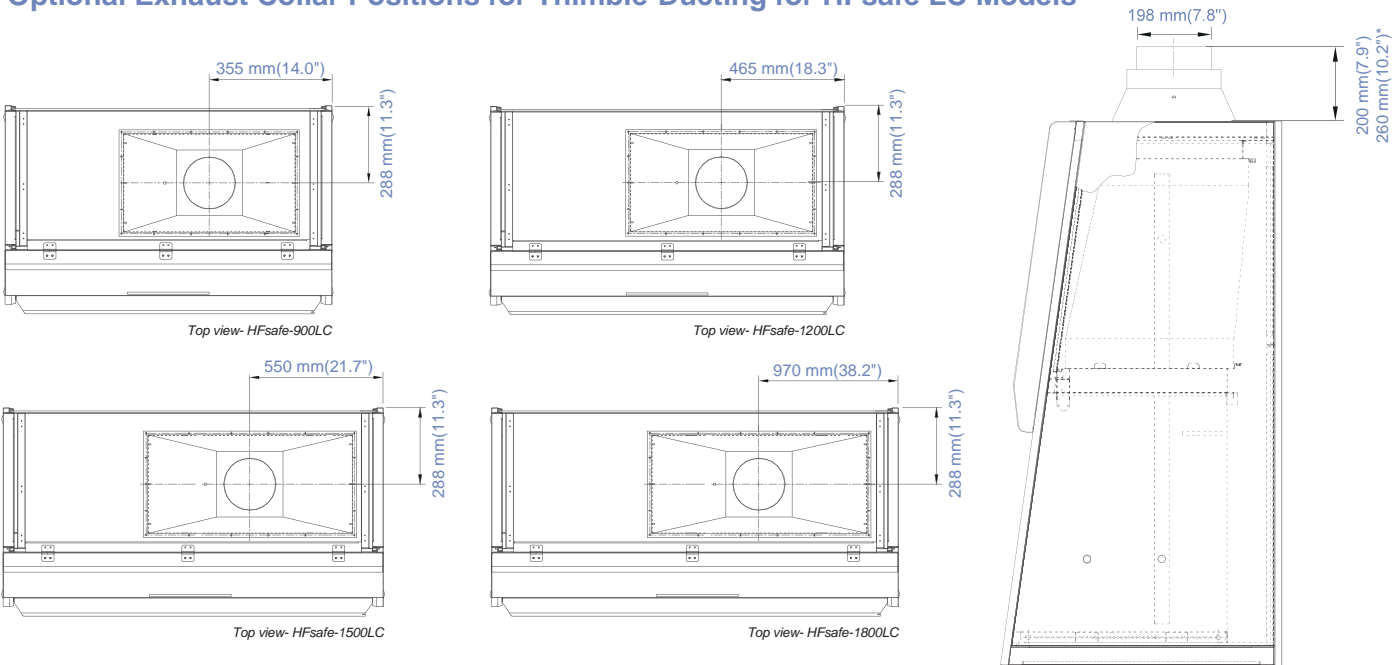


KI-discus containment test 2

# HFsafe LC Biological Safety Cabinet Technical Specification



## Optional Exhaust Collar Positions for Thimble-Ducting for HFsafe LC Models



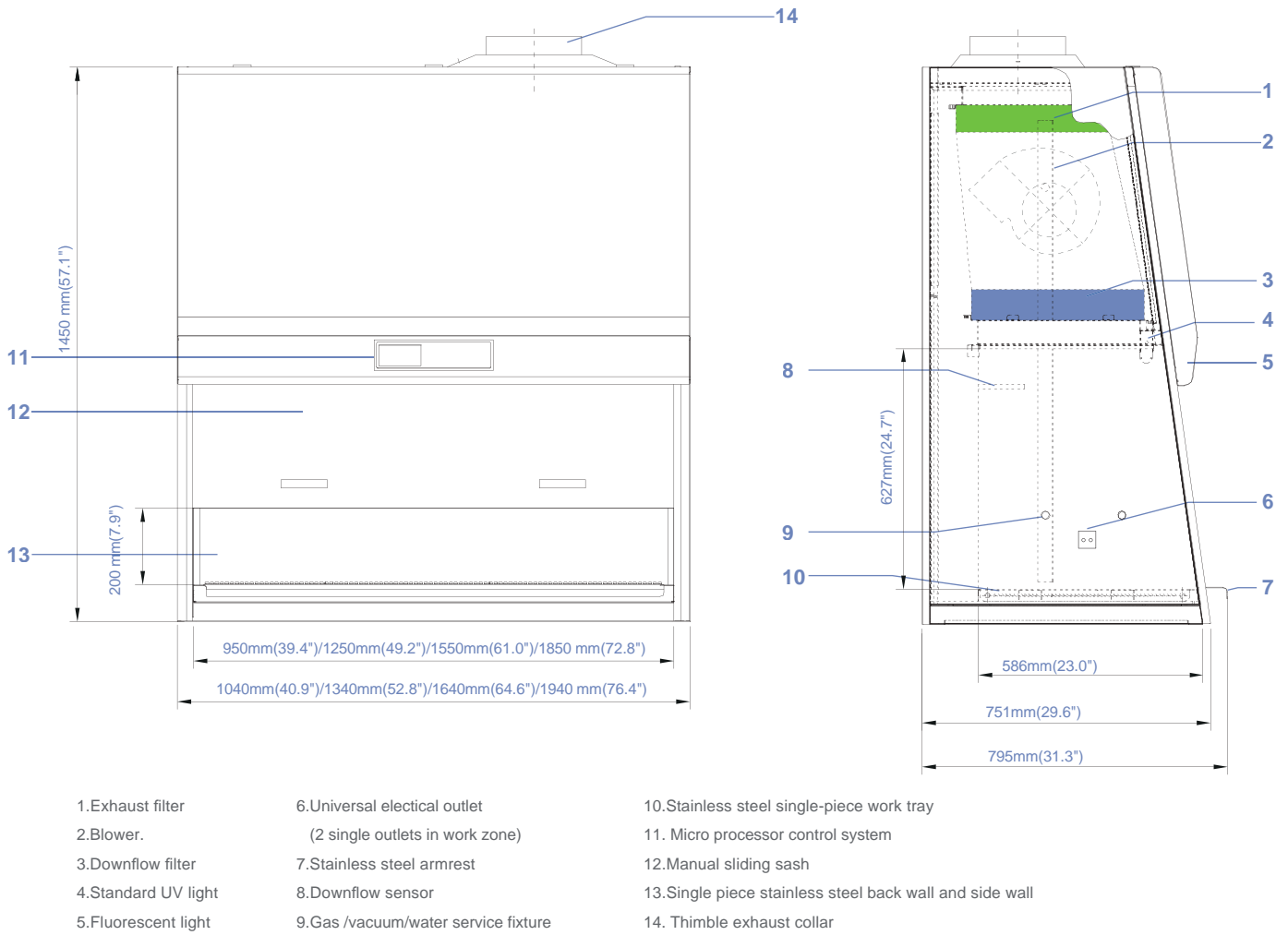
\*Applicable for opening exhausting connection

## General Specifications, HFsafe LC Biological Safety Cabinets (Class II Type A2)

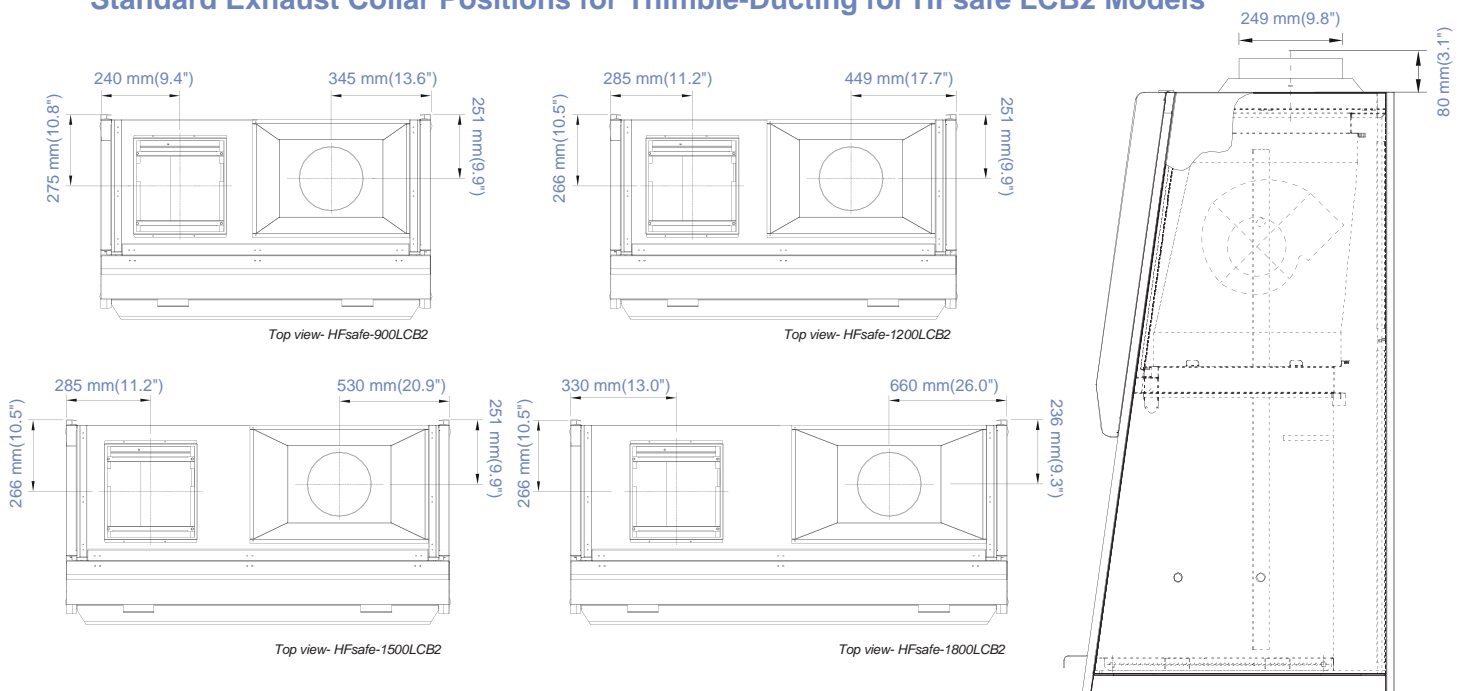
Model	HFsafe-900LC	HFsafe-1200LC	HFsafe-1500LC	HFsafe-1800LC
Nominal Size	0.9 meters(3')	1.2 meters(4')	1.5 meters(5')	1.8 meters(6')
External Dimensions with Base Stand (W×D×H)	1023×771×2255mm	1323×771×2255mm	1623×771×2255mm	1923×771×2255mm
	40.3"×30.4"×88.8"	52.1"×30.4"×88.8"	63.90"×30.4"×88.8"	75.7"×30.4"×88.8"
Internal Work Area, Dimensions(W×D×H)	900×600×678mm	1200×600×678mm	1500×600×678mm	1800×600×678mm
	35.4"×23.6"×26.7"	47.2"×23.6"×26.7"	59.1"×23.6"×26.7"	70.9"×23.6"×26.7"
Internal Work Area,Space	0.54m <sup>2</sup> (5.8 sq.ft)	0.72m <sup>2</sup> (7.8 sq.ft)	0.9m <sup>2</sup> (9.7 sq.ft)	1.08m <sup>2</sup> (11.6 sq.ft)
Average Airflow Velocity *				
Inflow	0.53m/s(104.3fpm)	0.53m/s(104.3fpm)	0.53m/s(104.3fpm)	0.53m/s(104.3fpm)
Downflow	0.35m/s(68.9fpm)	0.35m/s(68.9fpm)	0.35m/s(68.9fpm)	0.35m/s(68.9fpm)
Airflow Volume				
Inflow	363m³/h(213cfm)	477m³/h(281cfm)	592m³/h(348cfm)	706m³/h(416cfm)
Downflow	658m³/h(377cfm)	866m³/h(510cfm)	1075m³/h(633cfm)	1282m³/h(755cfm)
Exhaust	363m³/h(213cfm)	477m³/h(281cfm)	592m³/h(348cfm)	706m³/h(416cfm)
ULPA Filter Typical Efficiency				
Downflow	Filters provide 99.9995% typical efficiency for particle size of 0.1 to 0.2 microns			
Exhaust	Filters provide 99.9995% typical efficiency for particle size of 0.1 to 0.2 microns			
Biosafety Protection Test				
Personnel Protection Test	KI-Discus containment and microbiological testing is performed			
Product Protection Test 1~8×10 <sup>6</sup> <small>(three times in succession)</small>	≤5CFU	≤5CFU	≤5CFU	≤5CFU
Cross-contamination Test 1~8×10 <sup>3</sup> <small>(three times in succession)</small>	≤2CFU	≤2CFU	≤2CFU	≤2CFU
Sound Emission (Typical)				
NSF/ANSI 49	<60dBA	<62dBA	<62dBA	<65dBA
EN 12469	<57dBA	<59dBA	<60dBA	<62dBA
Fluorescent Light Intensity	800~1200 Lux (74~112 foot candles)			
Excellent light distribution	Yes	Yes	Yes	Yes
RMS	≤2.3µm	≤2.3µm	≤2.3µm	≤2.3µm
Cabinet Construction				
Main Body	1.2mm(0.05") steel with white oven-baked epoxy-polyester			
Work Zone	1.5mm(0.06") stainless steel, type 304			
Side Walls	1.5mm(0.06") stainless steel, type 304			
Electrical sliding windows Option	Yes	Yes	Yes	Yes
Window material	Hardened/laminated safety glass			
Electrical				
Cabinet Full Load Amp(FLA)	2A	2A	4A	4A
Fuses	10A	10A	10A	10A
Cabinet Nominal Power	361W	452W	813W	850W
Optional Outlets FLA	5A	5A	5A	5A
Total Cabinet FLA	7A	7A	9A	9A
Power Supply*				
220V/50Hz	Yes	Yes	Yes	Yes
220V/60Hz	Yes	Yes	Yes	Yes
110V/60Hz	Yes	Yes	N/A	N/A
Net Weight				
Manual Type	120kg(264lbs)	225kg(496lbs)	280kg(617lbs)	320kg(705lbs)
Shipping Weight				
Manual Type	175kg(386lbs)	295kg(650lbs)	350kg(772lbs)	390kg(860lbs)
Shipping Dimensions Maximum(W×D×H)	1125×945×1717mm	1425×945×1717mm	1725×945×1717mm	2026×945×1717mm
	46.3"×37.2"×67.3"	56.1"×37.2"×67.3"	67.9"×37.2"×67.3"	79.8"×37.2"×67.3"
Shipping Volume, Maximum	1.81m³(63.9cu.ft.)	2.30m³(81.2cu.ft.)	2.79m³(98.5cu.ft.)	3.27m³(115.5cu.ft.)

\* Please contact us for more optional power supply information

## HFsafe LCB2 Biological Safety Cabinet Technical Specification



## Standard Exhaust Collar Positions for Thimble-Ducting for HFsafe LCB2 Models





## General Specifications, HFsafe LCB2 Biological Safety Cabinets (Class II Type B2)

Model	HFsafe-900LCB2	HFsafe-1200LCB2	HFsafe-1500LCB2	HFsafe-1800LCB2
Nominal Size	0.9 meters(3')	1.2 meters(4')	1.5 meters(5')	1.8 meters(6')
External Dimensions with Base Stand	1040×710×2130mm	1340×710×2130mm	1640×710×2130mm	1940×710×2130mm
(W×D×H)	40.9"×30.0"×83.9"	52.8"×30.0"×83.9"	64.6"×30.0"×83.9"	76.4"×30.0"×83.9"
Internal Work Area, Dimensions(W×D×H)	950×575×625mm	1250×575×625mm	1550×575×625mm	1850×575×625mm
	37.4"×22.6"×24.6"	49.2"×22.6"×24.6"	61.0"×22.6"×24.6"	72.8"×22.6"×24.6"
Internal Work Area,Space	0.54m <sup>2</sup> (5.8 sq.ft)	0.72m <sup>2</sup> (7.8 sq.ft)	0.9m <sup>2</sup> (9.7 sq.ft)	1.06m <sup>2</sup> (11.4 sq.ft)
Average Airflow Velocity *				
Inflow	0.53m/s(104.3fpm)	0.53m/s(104.3fpm)	0.53m/s(104.3fpm)	0.53m/s(104.3fpm)
Downflow	0.30m/s(59.1fpm)	0.30m/s(59.1fpm)	0.30m/s(59.1fpm)	0.30m/s(59.1fpm)
Airflow Volume				
Inflow	363m³/h(214cfm)	477m³/h(281cfm)	592m³/h(348cfm)	706m³/h(416cfm)
Exhaust	927m³/h(546cfm)	1220m³/h(718cfm)	1515m³/h(892cfm)	1805m³/h(1062cfm)
Filter Typical Efficiency				
Downflow	ULPA filters provide 99.9995% typical efficiency for particle size of 0.1 to 0.2 microns			
Exhaust	HEPA filters provide 99.97% typical efficiency for particle size of 0.3 microns			
Biosafety Protection Test				
Personnel Protection Test	KI-Discus containment and microbiological testing is performed			
Product Protection Test 1~8×10 <sup>6</sup> <small>(three times in succession)</small>	≤5CFU	≤5CFU	≤5CFU	≤5CFU
Cross-contamination Test 1~8×10 <sup>6</sup> <small>(three times in succession)</small>	≤2CFU	≤2CFU	≤2CFU	≤2CFU
Sound Emission (Typical)	800~1200 Lux (74~112 foot candles)			
NSF/ANSI 49	<60dBA	<62dBA	<62dBA	<65dBA
EN 12469	<57dBA	<59dBA	<60dBA	<62dBA
Fluorescent Light Intensity				
Excellent light distribution	Yes	Yes	Yes	Yes
RMS	≤3μm	≤3μm	≤3μm	≤3μm
Cabinet Construction				
Main Body	1.2mm(0.05") steel with white oven-baked epoxy-polyester			
Work Zone	1.5mm(0.06") stainless steel, type 304			
Side Walls	1.5mm(0.06") stainless steel, type 304			
Electrical sliding windows Option	Yes	Yes	Yes	Yes
Window material	Hardened/laminated safety glass			
Electrical				
Cabinet Full Load Amp(FLA)	4A	4A	5A	5A
Fuses	10A	10A	10A	10A
Cabinet Nominal Power	850W	855W	1200W	1200W
Optional Outlets FLA	5A	5A	5A	5A
Total Cabinet FLA	9A	9A	10A	10A
Power Supply*				
220V/50Hz	Yes	Yes	Yes	Yes
220V/60Hz	Yes	Yes	Yes	Yes
Net Weight				
Manual Type	210kg(463lbs)	250kg(551lbs)	295kg(650lbs)	340kg(750lbs)
Shipping Weight				
Manual Type	260kg(573lbs)	310kg(683lbs)	365kg(804lbs)	420kg(926lbs)
Shipping Dimensions Maximum(W×D×H)	1125×945×1710mm	1425×945×1710mm	1725×945×1710mm	2026×945×1710mm
	44.3"×37.2"×67.3"	56.1"×37.2"×67.3"	67.9"×37.2"×67.3"	79.8"×37.2"×67.3"
Shipping Volume, Maximum	1.81m³(64cu.ft.)	2.30m³(81cu.ft.)	2.79m³(99cu.ft.)	3.27m³(115cu.ft.)

\* Please contact us for more optional power supply information