



ALP Co., Ltd.
TOKYO JAPAN
SINCE 1976

FOR REFERENCE ONLY

Automatic **AUTOCLAVE**

Laboratory use

CL-32 CL-40 series

100~140°C, 34 & 54ℓ..... **CL-32S & L** models

100~137°C, 60~105ℓ..... **CL-40S, M & L** models

With warm air drying..... **-DP** models



CL-DP model

CL model

Quick lock lid
Lid interlock
Light lid -up -down



More safety and more ease !

★ Quick Lock Lid

By the central lock lever, you can easily lock the lid with fingertip. The lid is lightened up and down by the automatic hinge. Even if you lose hold of the lid, it keeps stopped at the same position.

★ Lid Interlock

The lid is locked reliably during operation and till cooling down to the safe temperature (80°C...adjustable by parameter).

★ Electro Mechanical Lock

This function brings more safety to operator by locking the lid at the power failure or in the power OFF, to prevent operator from contamination by contacting un-sterilized objects carelessly. Locking is released only on standby state in the power ON.

★ Graphic Display

The current operation process is indicated clearly.

★ Timed Free Steaming

This reliable automatic air exhaust system guarantees always sure sterilization under pure steam exposure.

★ Adjustable Automatic Exhaust

After sterilization process, steam is slowly released or cooled by the key set especially for liquid bottles.

★ Warming & Dissolving of Culture Medium

Warming after sterilization and dissolving of culture medium.

★ Water Cooling System of Exhaust-steam & Drainage of water ... CL models

For no exhaust-steam and smell-down to your working room during air exhaust process or at operation end, the water cooling system with enough ability of steam condensation is provided inside the main body. Condensed water flow into the exhaust bottle in the front of main body. Also to clean the chamber bottom, the remained water is drained to the drain tray by opening the drain valve cock at inner side of exhaust bottle.

★ Start-Timer by Calender

You can set operation start by month, day, hour and minute. The sterilized objects can be taken out at your next work-start.

★ Memory Back Up

Even on a power failure, the process progress is memorized. When the power is returned, it is re-displayed.

★ Mouth Boss for Object Temperature Sensor is provided on the Lid.

Through this mouth boss, one sensor for operation-start or three sensors for temperature distribution measurement can be set later (by option) with use of fitting accessory.

★ Light to use ... -S models

-32S and -40S models have low loading heights especially for heavy objects such as liquid bottles. It is possible to work with light steps.

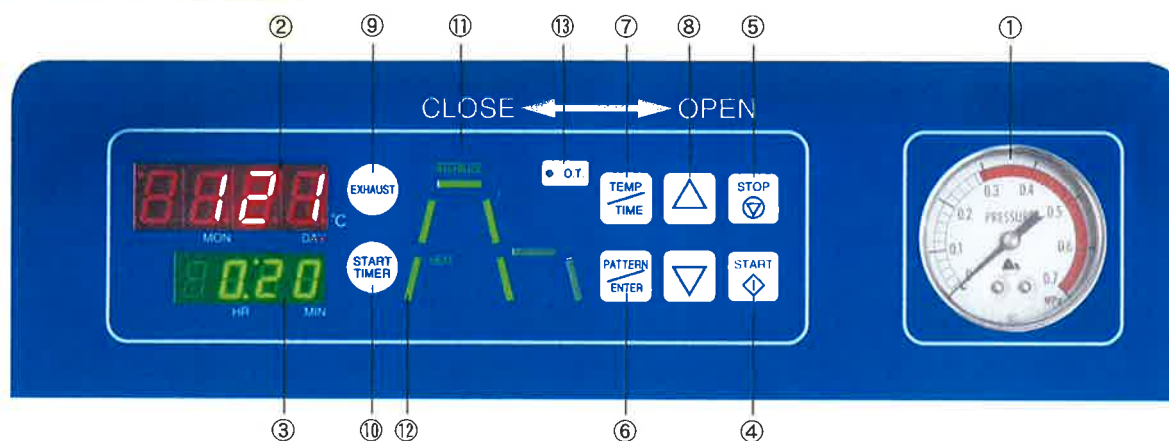
★ Warm Air Drying ... CL-DP models

By warm flow through 0.2 μ m micro-filter, the sterilized objects can be dried clearly and cleanly.

The vacuum-drying models (CLG series) with pulse pre-vacuum system by the vacuum pump are also prepared.



OPERATION PANEL



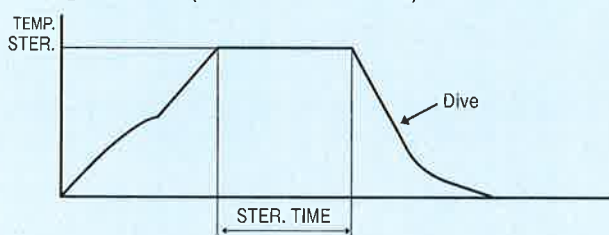
- | | | | |
|-----------------------|---------------------|------------------------|--------------------|
| ① Pressure gauge | ⑤ Stop key | ⑨ Exhaust key | Option |
| ② Temperature display | ⑥ Pattern/Enter key | ⑩ Start timer key | ⑬ Object temp. key |
| ③ Time display | ⑦ Temp./Time key | ⑪ Character display | |
| ④ Start key | ⑧ Change key | ⑫ Process line display | |

OPERATION PATTERNS

It can be chosen from 3 patterns (-DP:5 patterns) according to your purposes. Once changed the values are stored, even if the power is switched off.

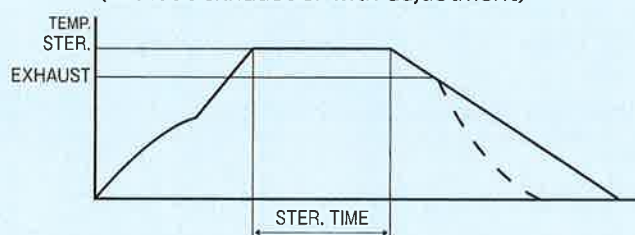
Sterilization of Solids / Instruments

① A : Ster. (with auto. exhaust)



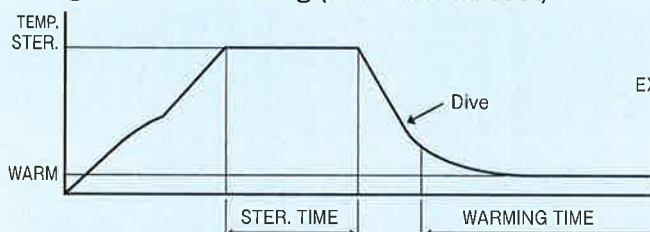
Sterilization of Liquid

(without exhaust or with adjustment)



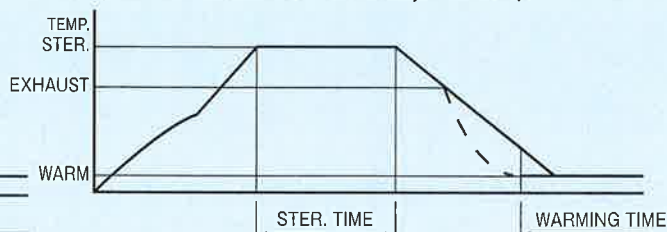
Sterilization of Solids with Warming

② B : Ster. / Warming (with auto. exhaust)



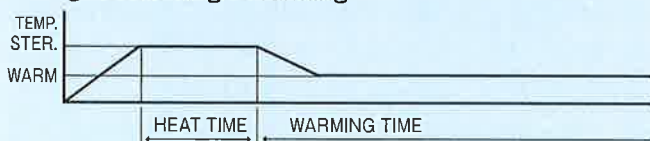
Sterilization of Culture medium

(without exhaust or with adjustment)



Dissoving of Culture medium

③ C : Heating / Warming

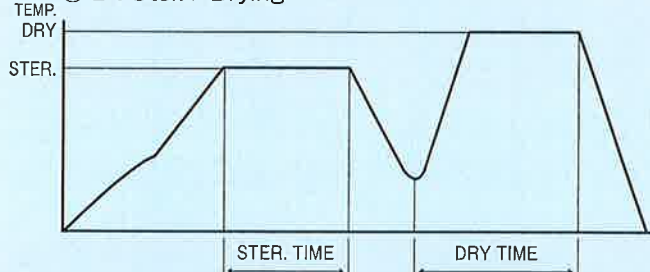


Caution

If a lot of materials difficult of air-exhaust, such as many small containers in sterilization bags, are sterilized at usable maximum temperature, pressure inside the chamber must increase and the over pressure detector may operate. Then, it is requested to decrease the set temperature a little (about 3°C or more).

Sterilization with Drying

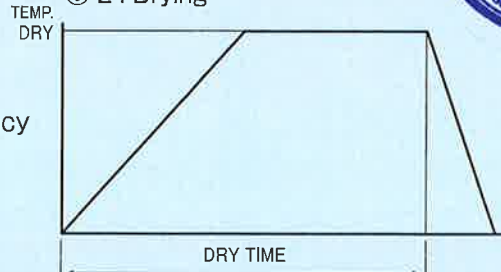
④ D : Ster. / Drying



Equipped with Drying devices (-DP)

For Additional Drying

⑤ E : Drying



Insufficiency

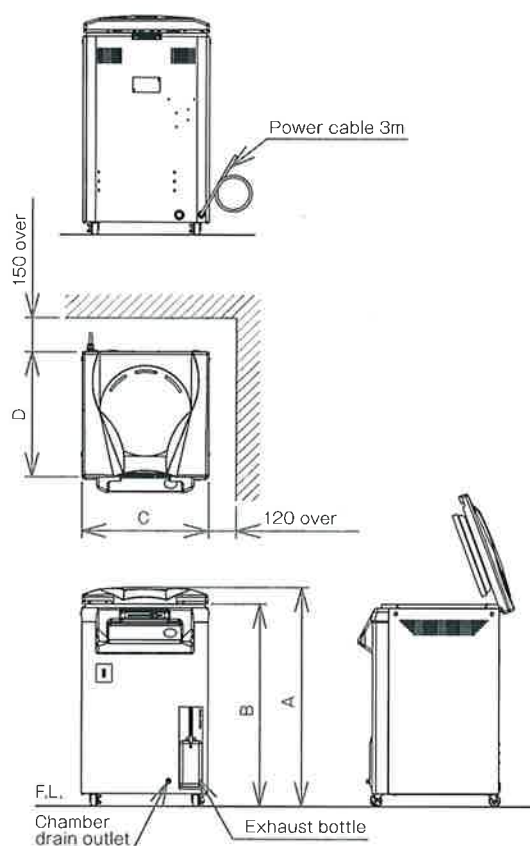


INSTALLATION

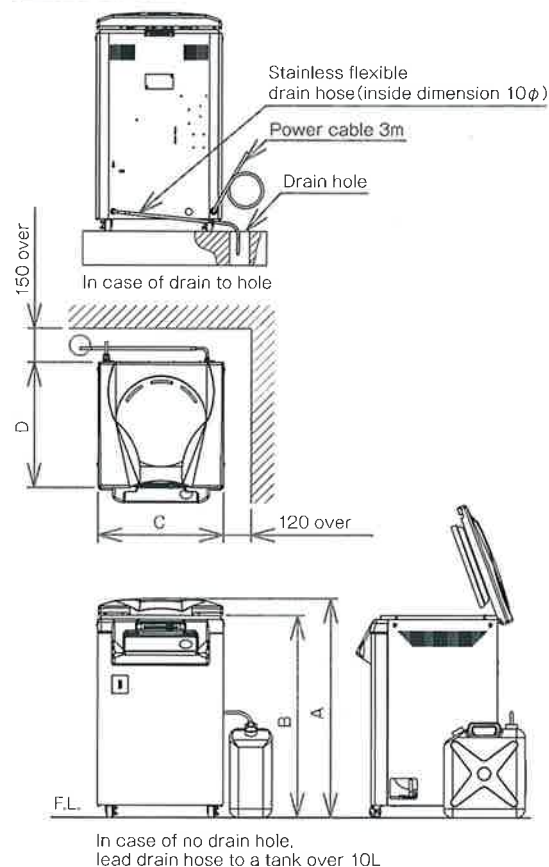
unit(mm)

Model	Total height A	Loading height B	Total width C	Total depth D
CL-32S, CL-32SDP	870	770	550	550
CL-32L, CL-32LDP	990	890	550	550
CL-40S, CL-40SDP	880	780	620	650
CL-40M, CL-40MDP	1000	900	620	650
CL-40L, CL-40LDP	1160	1060	620	650

CL models



CL-DP models



● Comparative drawing of front outer dimensions (-DP models : no exhaust bottle & drain outlet)



LOADING CAPACITY FOR LABORATORY FLASKS

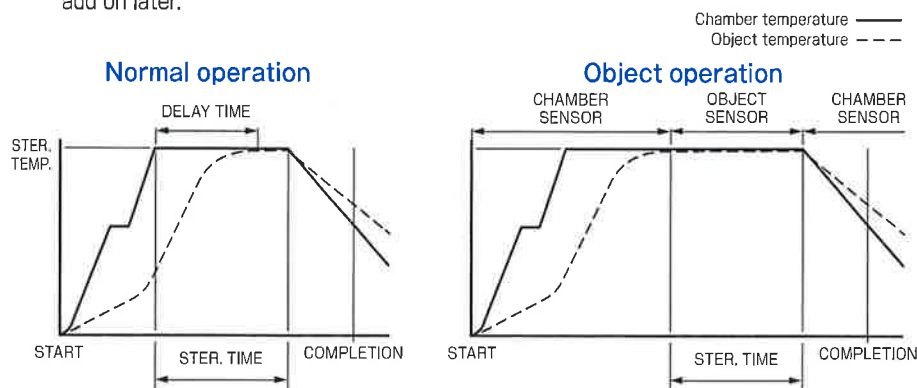


	100ml	200ml	300ml	500ml	1,000ml	2,000ml	3,000ml	5,000ml
Round flasks Dimension	102 φ66	126 φ80	148 φ90	171 φ108	215 φ134	270 φ172	305 φ190	330 φ234
in CL-40 stainless wire basket	23pcs.	16pcs.	12pcs.	8pcs.	5pcs.	3pcs.	1pc.	1pc.
in CL-32 stainless wire basket	14pcs.	9pcs.	7pcs.	5pcs.	3pcs.	1pc.	1pc.	1pc.

OPTIONAL FUNCTIONS

Object Temperature Sensor (For reliable sterilization)

Object temperature will come up more slowly than temperature in the chamber, so sterilization time be added delay time to set time. It aids reliable sterilization that the timer begins to move only after the temperature measured by the object temperature reaches the set temperature. Necessary for objects which prevent penetration of steam. It will be able to add on later.



Automatic Water Supply (To save your manual water supply)

In stead of troublesome check and manual supply of water before operation, proper quantity of water is automatically supplied.

Pre-Heating (To shorten the heating-up time)

The water for steam generation is always kept near boiling condition. (Option with automatic water supply)

Rapid Cooling (To shorten the cooling time)

When the sterilization process is completed, the cooling fan is operated to cool the chamber. The cooling time which occupies the majority in all the process can be much reduced. (To about 1/3 ... at no load test)

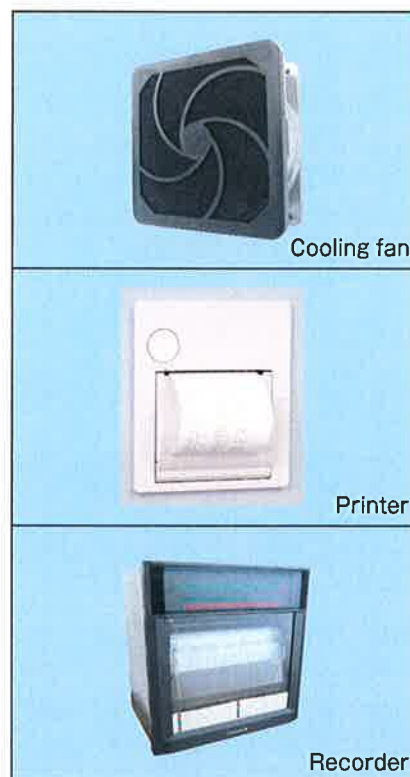
Printer

It prints out the date and time of operation start, and 2 temperatures of the sensor in the chamber and the object temperature sensor, in every 1 minute, through the main controller.

Recorder (To check temperature distribution)

The temperature distribution in the chamber can be measured in the combination with 3 object temperature sensors. It is the hybrid type which can be recorded up to 5 temperature and 1 pressure.

We can submit documents for GMP/GLP requirements.



STANDARD / OPTIONAL ACCESSORIES

Stainless wire basket



for CL-32 series

φ 300×200mm
φ 300×300mm

for CL-40 series

φ 380×200mm
φ 380×300mm
φ 380×400mm

Basket with pan



for CL-32 series

φ 270×400mm
φ 270×600mm

for CL-40 series

φ 370×400mm
φ 370×600mm

Stainless bucket



for CL-32 series

φ 270×270mm

for CL-40 series

φ 360×300mm

Stainless dressing drum



for CL-32 series

φ 270×180mm



SPECIFICATIONS

Autoclave for Laboratory use **CL/CL-DP** series

Model	Basic	CL-32S	CL-32L	CL-40S	CL-40M	CL-40L
	With warm air drying	CL-32SDP	CL-32LDP	CL-40SDP	CL-40MDP	CL-40LDP
Chamber(usable inner size) Capacity		φ320×420mm 34ℓ	φ320×676mm 54ℓ	φ400×478mm 60ℓ	φ400×672mm 85ℓ	φ400×832mm 105ℓ
Usable max.temperature Usable max.pressure		140℃ 0.27MPa		137℃ 0.25MPa		
Usable temperature		Sterilization : 100~140℃		Sterilization : 100~137℃		
		Dissolving : 40~99℃, Warming : 40~60℃				
Usable time		Sterilization, Dissolving : 0min.~48hrs. 00min. and continuous, Warming : 0min.~48hrs.00min				
Controller		Microprocessor controller, graphic display Temperature...3digits, PID control Timer...2digits hours : 2digits minutes, down count (Temperature/Time integration system)				
Operation pattern		A : Heating → Sterilization → Exhaust(adjustable) B : Heating → Sterilization → Exhaust(adjustable) → Warming C : Dissolving → Warming				
-DP models	Operation pattern with drying	D : Heating → Sterilization → Drain → Drying (Full automatic operation) E : Only drying				
	Drying devices	Hot air circulating and discharge by electric heater and air pump through 0.2 μm micro cartridge filter of uptake passage Temperature range : 60~150℃, Timer range : 0min.~99hrs.59min. and continuous				
Air exhaust device		Temperature(99℃...adjustable) sensing · time(3min.~adjustable) control & solenoid valve (Timed free steaming system)				
Exhaust cooling system		Water storage tank with cooling coil & Exhaust drain receiver bottle				
Drain valve		Manual valve at inner side of exhaust bottle : CL models Manual & automatic valve : CL-DP models				
Option	Auto. water supply	Automatic water supply system from city-water-faucet by level sensor·controller				
	Pre-heat system	To shorten the come-up time, at 60℃ . Provided only with auto. water supply.				
	Rapid cooling system	Chamber cooling system by 1~2 fans				
Safety	Safety devices	Interlock system, Electro mechanical lock system Double check system of lid close, Over pressure detector Over temperature detector, Water lack preventor, Sensor break indicator Abnormal time indicator, Memory of power failure, Safety valve Breaker for slight leakage, over current & short circuit				
	Safety valve operation	0.29MPa		0.27MPa		
	Water test pressure	0.58MPa		0.54MPa		
Material	Chamber & lid	Stainless steel SUS304, shiny polished. Molded silicon rubber lid gasket (self-seal system)				
	Outer panel	Steel with baked melamine finish. Top panel : Heat-resisting molded resin				
Power demand (50/60Hz)		AC220 / 230 / 240V, 1 phase, 50/60Hz				
		2.6kW, 12A		4.0kW, 18A		
Outer dimensions W×D×H		550×550×870mm	550×550×990mm	620×650×880mm	620×650×1000mm	620×650×1160mm
Weight		56kg	60kg	72kg	78kg	84kg
Accessories	Stainless wire basket	φ300×200mm×2pcs.	φ300×300mm×2pcs.	φ380×200mm×2pcs.	φ380×300mm×2pcs.	φ380×400mm×2pcs.
		Standard for CL models as above. Optional for all CL-DP models.				
	Others	Exhaust bottle & chamber drain tray (for CL models). Stainless flexible drain hose (for CL-DP models)				
Optional accessories		Object temperature sensor, Printer, Recorder, Basket with pan, Bucket, Dressing drum				

●Please specify the voltage when you order. ●Specifications subject to change without notice for improvement.



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ISO9001



ISO13485



FOR REFERENCE ONLY

Thermo Scientific 1300 Series A2
Class II, Type A2 Biological Safety Cabinets



Good for you
good for the environment



Thermo
SCIENTIFIC

Thermo Scientific 1300 Series A2

Enjoy **best-in-class performance** and **value**

Superior Containment

Unique airflow design maximizes safety

Extremely Comfortable

Ergonomic design simplifies ease of use

Added Convenience

Choice of configuration increases flexibility



Optimizing Safety and Efficiency

Laboratories today are facing new challenges. Safety and reliability continue to be paramount. Yet, there is growing need for improved energy efficiency, simpler operation and less maintenance.

Our Thermo Scientific 1300 Series A2 Class II, Type A2 biological safety cabinets provide best-in-class safety, ergonomics and energy efficiency for today's most demanding laboratory applications.



1300

Series A2

The Thermo Scientific 1300 Series A2 is backed by our global reputation and commitment to provide the safest and most reliable biological safety cabinets available.

We have decades of market leadership in biological safety cabinets, as well as a full suite of laboratory solutions – all with unmatched quality and world-renowned service and support.



Ergonomic Design for Ease-of-Use

Ergonomic Design Enhances Safety

Sloped Front

Cabinet front is sloped 10° for enhanced comfort and reduced operator fatigue.

Reduced Noise Level

Lower noise level enhances the attention and allows user to focus on work without distraction.

Spacious Work Area

The large, unobstructed work surface increases productivity and safety.

Single-Piece Work Tray

The flat, single-piece stainless steel work tray supports ease of cleaning.

Comfortable Armrest

Armrests sit just above the intake grill to enable farther reach inside the cabinet while maintaining safe airflows.



All models of the Thermo Scientific 1300 Series A2 have been fully tested and verified to meet NSF/ANSI 49 for Class II, Type A2 conditions.



Easy-to-Access Control Panel and Performance Data

The large control panel displays valuable safety and performance data, and is within easy view and reach from a seated position.

The intuitive interface delivers a constant read-out of downflow and inflow velocities and overall cabinet performance status.



Ease-of-Use for Enhanced Safety

An efficient working environment can eliminate expensive disruptions to lab procedures. Our Thermo Scientific 1300 Series A2 delivers easy-to-use features that enable you to perform your best work – productively and safely.

SmartClean™ Window Design

To reduce risk of sample contamination, our patented window design easily lowers for thorough cleaning of the window's inner surface. This unique design protects the operator by maintaining inflow even when the window is lowered.

Easy Servicing

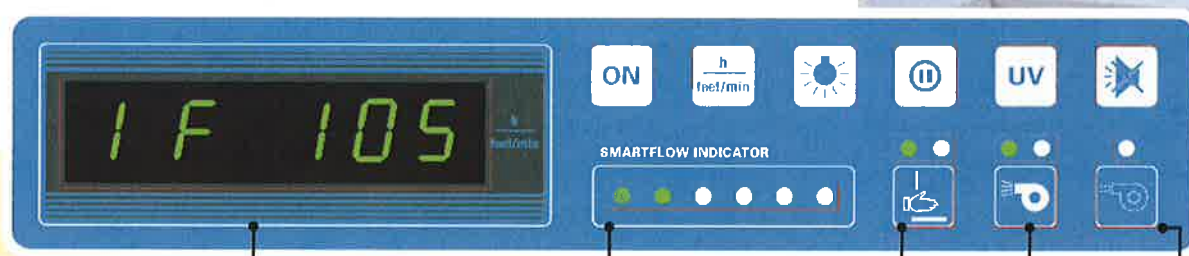
Fan control and power supply can be replaced independently of the DC motor with no need for disruptive decontamination of the cabinet. All cabinet components, including HEPA filters, are easily accessible from the front to allow for rapid service and minimal work disruption. The SmartClean window design simplifies access to the downflow filter during annual certification.

Exceptional Safety

Smooth components are used throughout the cabinet, virtually eliminating the risk of injury during routine cleaning, servicing and maintenance procedures.

Worry-free Decontamination

The easy to use, optional UV light is programmable from 30 minutes to 24 hours in 30-minute increments, extending bulb life and saving energy.



Hour Counter & Airflow Read-Out:

Clearly displays critical safety and real-time performance data including inflow and downflow velocities and hours of operation

SmartFlow Indicator:

Visually demonstrates power and capacity to maintain protection

Front Window Status:

Visual and audible alarm indicates whether front window is in correct working position

Operating Speed Airflow Indicator:

Audible and visual alarms indicate when airflow is safe or restricted

Energy-Savings Airflow Indicator:

Displays reduced speed operation when front window is closed



Good for you, good for the environment

Thermo Scientific 1300 Series A2 features advancements in brushless DC motor technology for dramatically improved energy efficiency, safety performance and reliability. We pioneered the use of brushless DC motors in our biological safety cabinets in 2002, and now use them across our full line.

DC motors —

- *reduce energy costs*
- *increase reliability*
- *reduce air conditioning costs*
- *optimize environmental protection*



Thermo Scientific biological safety cabinets are available in the broadest selection of energy saving models for any application or budget. Visit www.thermo.com/bsc to learn more about the independent validation of our energy saving calculations.

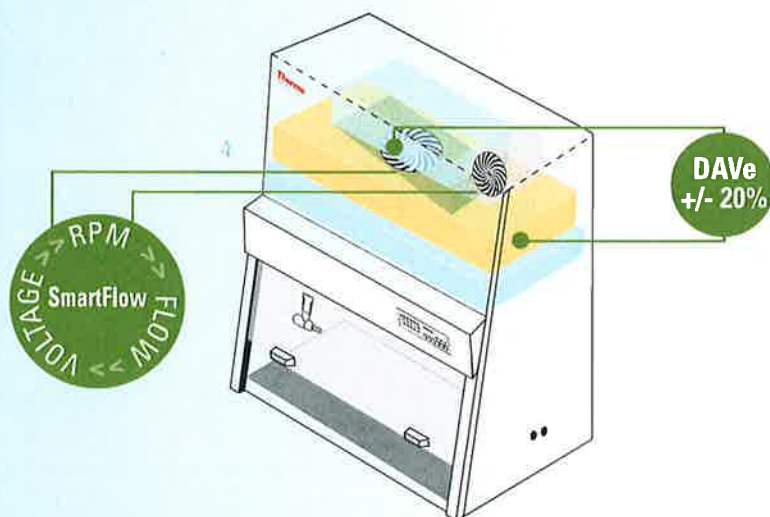
Independent **Safety** Systems for Unmatched **Security**

SmartFlow™ maintains a safe working environment.

The 1300 Series A2 employs a unique airflow system that raises safety and containment to a new level. Independent supply and exhaust blowers automate balancing of downflow and inflow/exhaust velocities to ensure continuous safe working conditions. Our smart DC motors monitor and control fan speed in real-time to maintain user protection at the access opening, even as the filters load or the line voltage fluctuates.

Digital Airflow Verification (DAVe) validates product and personnel protection.

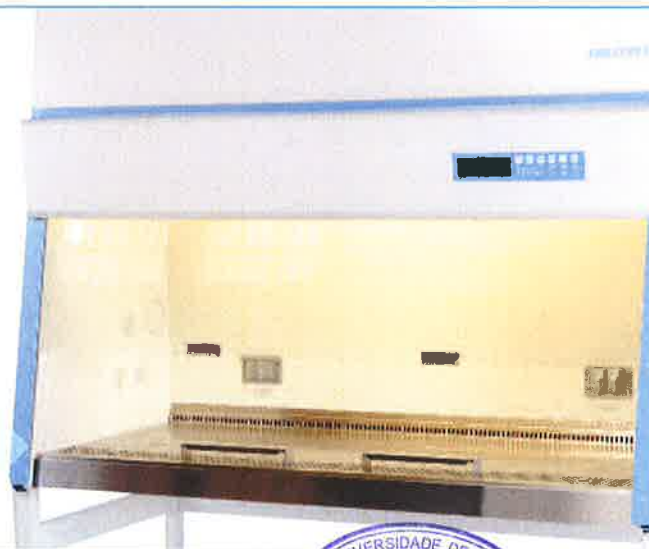
Independent pressure sensors detect changes in pressure across the exhaust and downflow plenums. An alarm signals when a 20% change in inflow/exhaust or downflow occurs to alert the user if safety is compromised. Airflow velocities are displayed on the control panel for monitoring and recording.



Night-set-back mode saves energy while maintaining a clean work area.

When the front sash is closed, our intelligent speed control automatically reduces blower speed to 30%, extending HEPA filter life and ensuring a sterile working environment even when the cabinet is not in use.

This reduced flow mode uses <70W (4 foot cabinet) to operate, and is >75% more energy efficient than similar features on other biological safety cabinets.



Thermo Scientific 1300 Series A2

Ordering Information for Options and Accessories

Part No.	Description	Application	Additional Comments	Factory Installed
1911302	Manual adjustable stand for 4 foot cabinet	Provides comfortable work surface height of 30" (750 mm) to 38" (950 mm) adjustable in 2" increments for seated or standing applications.	<i>This accessory is included in the 1300 Series packages.</i>	
1911303	Manual adjustable stand for 6 foot cabinet			
50109314	Electric adjustable stand for 4 foot cabinet (230V)	Provides infinite adjustability for comfortable work surface height of 30" (750 mm) to 37" (950 mm)		
50109325	Electric adjustable stand for 6 foot cabinet (230V)			
1911322	Rolling castor stand for 4 foot cabinet	Provides comfortable fixed work surface height of 34" (860 mm) for seated applications.	<i>Designed for limited mobility of the cabinet for cleaning purposes.</i>	
1911346	Rolling castor stand for 6 foot cabinet			
1911319	UV light option for 4 foot cabinet	Provides safe and easy method for cabinet disinfection.	<i>This accessory is included in the 1300 Series packages.</i>	•
1911368	UV light option for 6 foot cabinet			•
1911313	Stainless steel armrest (set of 2)	Provides ergonomic forearm support and extended reach inside the cabinet with less airflow disruption.	<i>This accessory is included in the 1300 Series packages.</i>	
1911308	Combustible gas valve	Rated for combustible gas dispensing inside the cabinet chamber.	<i>The service valve for standard applications offers a long stem pipe fitting and is appropriate for side access media services.</i>	
1911309	Non-combustible gas valve	Rated for non-combustible gas dispensing inside the cabinet chamber.		
1911310	Vacuum valve	Rated for routing vacuum inside the cabinet chamber.		
1911311	Water valve	Rated for water dispensing inside the cabinet chamber.		
1911312	IV bag holder kit with 12 hooks	Provides bar and hooks to hang IV bags near the interior ceiling of the cabinet.		
191127	Adjustable footrest	For ergonomic foot and posture support during seated use.		
1911316	Thimble duct exhaust transition for 4 foot cabinet	Allows the biological safety cabinet to be connected to an external exhaust for the removal of volatile toxic chemicals or radionuclides used in the cabinet.	<i>The thimble duct exhaust connection is the method recommended by NSF/ANSI 49 for externally exhausting the Class II, Type A2 biological safety cabinet.</i>	
1911317	Thimble duct exhaust transition for 6 foot cabinet			
1910185	Alnor exhaust alarm	Required by NSF for all Class II, Type A2 BSCs that are thimble-ducted.	<i>Qualified install.</i>	



Electric adjustable stand



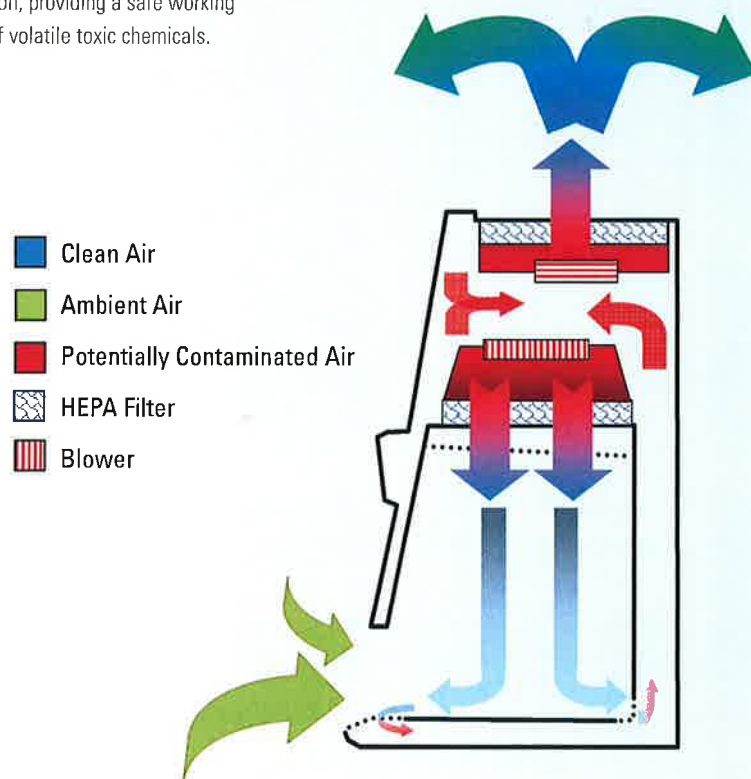
Manual adjustable stand



Foot rest

1300 Series A2: Designed for Class II, Type A2 applications

The 1300 Series A2 features HEPA-filtration with recirculation of the air inside the work chamber, creating a near particle-free environment – ideal for most microbiological and tissue culture applications. The 1300 Series A2 may be exhausted to the outside of the building using the optional thimble exhaust connection, providing a safe working environment when working with minute quantities of volatile toxic chemicals.



Stainless steel armrests



UV light options



Thimble duct

ORDERING INFORMATION

Thermo Scientific 1300 Series A2 Class II, Type A2 Biological Safety Cabinets



Specifications and Ordering Information		4 ft models	6 ft models
Standard Model	Coated interior walls, cabinet only	1354	1359
Standard Package	Includes coated interior cabinet walls, manual adjustable height stand, factory installed UV light, and one set of armrests	1384	1389
Electrical Requirements		230V, 50Hz	230V, 50Hz
Dimensions	Exterior Dimensions H x W x D inches (mm)	61.8 x 51.2 x 31.5 (1568 x 1300 x 800)	61.8 x 74.8 x 31.5 (1568 x 1900 x 800)
	Interior Dimensions H x W x D inches (mm)*	30.7 x 47.2 x 24.8 (780 x 1200 x 630)	30.7 x 70.9 x 24.8 (780 x 1800 x 630)
	Working Height of Front Window inches (mm)	10 (254)	10 (254)
	Maximum Opening Height of Front Window inches (mm)	21 (535)	21 (535)
	Shipping Dimensions H x W x D inches (mm)	68.1 x 55.5 x 36.4 (1730 x 1410 x 925)	68.1 x 79.1 x 36.4 (1730 x 2010 x 925)
Weight	Net Weight lbs (kg)	375 (170)	507 (230)
	Shipping Weight lbs (kg)	430 (195)	584 (265)
	Maximum Load of One-Piece Work Tray lbs (kg)	110 (50)	110 (50)
Ventilation System	Exhaust/Inflow Air Volume CFM (m³/h)	342 (582)	513 (872)
Heat Emission	Heat Emission at 25°C Ambient BTU/hr (kW)	683 (0.2)	1366 (0.4)
Filter Specification	Supply/Exhaust Air Filter	H14 HEPA EN 1822 99.995% at the most penetrating particle size (mini-pleated)	
Performance	Certification	NSF/ANSI 49, UL	NSF/ANSI 49, UL
	Sound Pressure Level dB (A)	< 63	< 65
	Lighting Power (fc)	>120	>120
Electrical Data	Power Consumption, Operating Set Point (kW)	0.2	0.4
	Current Consumption (Amps)	1.2	1.9
	Branch Circuit Protection	T 15 Amp fuse or Class B 15 Amp circuit breaker is required. The local electrical regulations in the country of use as well as the relevant connection conditions must be observed.	
Supply Management	Receptacles	The receptacles have a load capacity of up to 5 A and are protected with T 5 A fuses. When all receptacles are in use simultaneously they must not exceed the maximum total load capacity of 5 A.	
Features	Access Ports 0.94" (24 mm) diameter	6 (3 on each side)	
	Service Valves	Up to 6 (installed through side wall access ports)	
	Receptacles (Rear Wall)	Two single, left and right side	

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蘇州市馮氏實驗動物設備有限公司

本公司主要經營 實驗動物籠等，由原蘇州醫學院與浙江省醫科院實驗動物中心在 1993 年 3 月聯合創辦的集產、學、研為一體的高科技企業、擁有高中級職稱技術人員十多名。 公司占地 15 畝，建有 2 棟 5400 平方米的標準廠房，擁有數控剪折彎機、氣流對焊機等專用生產設備。 專業生產實驗大小鼠籠、兔籠、貓籠、狗籠、猴籠、獨立送回風淨化籠 IVC、隔離器、層流架等實驗動物籠器具；產品符合《實驗動 環境及設施》GB14925-2001 標準，首批獲得江蘇省實驗動物生產許可證（普通、淨化籠具）。 2001 年 2 月，不銹鋼檢疫猴籠出口至美國，產品符合國際品質標準，被評為外貿優質產品。 2002 年 10 月，率先在籠器具實業實施 ISO9001 品質管理系統並通過認證；以“優質高效、顧客至上、遵信守約、持續改進”為品質方針，加強了品質管理。 2002 年 12 月，與蘇州大學聯合承擔了蘇州市科技計畫專案-獨立通風籠 IVC 的研製與開發。該專案於 2003 年 12 月通過江蘇省科技鑒定，並被江蘇省科技廳認定為江蘇省高新技術產品，獲得蘇州市科技進步三等獎。 2003 年 5 月，占地 15 畝，建築面積 5400M2 的標準新廠房建造落成，並增添了數控折彎機、剪板機、氣動對焊機等一些專用設備，提高了生產能力與工作效率。 2005 年 12 月，與武漢大學 ABSL-III 實驗室、中國醫學科學院醫學生物研究所醫學靈長類中心三方聯合研製的主要用於研究感染性動物實驗的負壓隔離器，通過江蘇省科技鑒定並被認定為江蘇省高新技術產品。 2006 年 9 月，被江蘇省科技廳認定為省高新技術企業；擁有 IVC、層流架、隔離器等三大類淨化籠器具實用新型、外觀專利 20 多項。 2007 年受到江蘇省動管辦的表彰，獲得“實驗動物科學工作先進集體”稱號。 為實驗動物科研工作者提供優良服務，為實驗動物提供“舒適的家”是蘇杭科技一直追求的目標，讓我們攜手共同為生命創造美好未來！

ACE 公司是美國最大的實驗動物籠具生產單位. IVC 有 4 種不同的規

格:Micro-Vent,PNC ,TYPE II Long,BCU.每種規格中又有不同的選擇! MICRO_VENT 是只有正壓的.PNC 和 TYPE I I LONG 是既可用來正壓的,又可做負壓. BCU 是只能是負壓,做



感染性動物實驗

Type II long

小鼠獨立通風式正壓/負壓飼養系統

飼養架的規格：

- 1、整架尺寸：214.W cm X 87 D cm X 222 H cm
- 2、不安裝風機時尺寸：214.W cm X 87 D cm X 194 H cm
- 3、籠盒容量：兩面，128 盒
- 4、材質：整體為 304 不銹鋼材料
- 5、送/排風管設計：
 - + 送排風管為方形不銹鋼管，兩側風管能打開，清洗消毒。
 - + 送風管和排風管可放置異側或同側。
 - + 根據流體力學設計籠架氣流分佈，使每個盒的送風量趨向一致，各盒之間的送風量誤差小於 10%
 - + 送風口與鼠盒緊密結合，保證氣密性。
- 6、每個盒有安全定位鈕和顯示裝置，便於操作人員檢查各籠盒是否到位。
- 7、整個籠架預留自動飲水裝置空間。
- 8、排風風管可與設施總排風管連接，統一排風，也可經排風風機的高效篩檢程式過濾後排到室內。

送風及排風機的規格：

- + 送風機帶中央微處理器，自動調節風速，保證各飼養盒內的換氣次數 ACH 值誤差小於



10%。

+ 有自動氣流偵測器，其偵測頻率為 20 次/秒。信號輸入中央控制器，能即時調整風機轉速。使籠架於非滿載狀態時仍能自動維持所需籠內氣壓狀態。

+ 送排風機均帶有初效過濾和高效篩檢程式（HEPA Filter: 0.3 μ m，DOP: 99.99% efficiency）

+ 具有同步安全運行制斷器，在送風機暫停時排風機立即停止，換氣率調節範圍：30 ~ 100 次/小時 (ACH)，可調整數值。送風機型號: Smart Bio-PARK SB4100

+ 同步安全運轉制斷器：在正壓運行時，供氣風機失效時，同步暫停排風機運作防止負壓產生；排風風機失效時，送風風機繼續運行，保持鼠盒正壓。在負壓運行時，送風機失效時，排風機繼續運轉，保持鼠盒負壓；排風機失效時，送風機立即停止，防止產生正壓！

+ 送風機具有 LCD 數字顯示幕，顯示換氣率（ACH）和風速（CFM），風機轉速（RPM）、溫度（Temperature），排風風機有 HEPA filter 使用狀況顯示。

+ LCD 警示燈，顯示濾器狀態、風機故障及電源狀態。

+ 風機置於籠架上或固定到牆上，避免接近地面，減少粉塵吸入，延長濾器壽命。

+ 可調整成正壓或負壓系統，風機噪音為：送氣機小於等於 35dBA（Clean Filter），排風機為小於等於 45dBA。

+ 風機輕量化：（Lightweight aluminum case, 21LBS）

+ 有 RS 232 連接出口，可連接電腦，下載操作運行資料（ACH, CFM, RPM and Temperature）

+ 電壓：85-264VAC，50-60Hz

隔離飼養盒組：

每套籠盒組包含隔離罩上蓋、不銹鋼網蓋、飼育盒、水瓶組及供氣閥門。



1. 籠盒上蓋：隔離罩上蓋（External Bottle Assembly Micro-Barrier Top）

- a. 材質為聚砜（Polysulfone）耐高溫材質（300°F）。
- b. 具隔離透氣濾器。
- c. 水瓶外置式設計。
- d. 水瓶進入口具不銹鋼彈簧閥門，水瓶抽離時可保持密閉。
- e. 具排氣閥有伸縮簧，防漏氣設計。
- f. 盒蓋兩側具安全性扣環，和飼育盒緊密相扣，保持鼠盒的密閉性。
- g. 盒蓋上有生命窗，有過濾膜。在送排風機俱停時，可維持空氣交換，保證動物的安全。

2. 不銹鋼網蓋（Wire Bar Lid）

- a. 材質為 S/S 304 不銹鋼線。
- b. 網框週邊具可更換的耐高溫矽膠框，作為隔離罩上蓋與飼育盒間密封用。
- c. 可高溫高壓滅菌。

3. 飼育盒（75 JAG mouse cage）

- a. 材質為聚砜（Polysulfone）耐高溫材質（300°F）。
- b. 尺寸：籠盒尺寸為寬×高×深=213×185×362mm, 底面積 80 平方英寸（516 平方釐米）。
- c. 盒體有供氣閥，304 不銹鋼的護套，不銹鋼護套上有多孔式氣流分流孔，可將氣流均於分佈於盒體中。此進氣閥配件為防漏氣設計，在飼育盒塑膠主體損壞時可取下配件重複使用，減少未來飼育盒更換成本，節省經費
- d. 有鼠盒卡片掛鉤。兩側帶扣環卡。
- e. 籠具可以輕易的與排氣系統分離或對接。

4. 250C.C.水瓶組（WATER BOTTLES）

- a. 材質為 Polysulfone 耐高溫材質（300°F）。



b.250C.C 水瓶附瓶頸矽膠環。

c. S/S 304 不銹鋼飲水頭(69mm sipper tube)。

5. 鼠盒的通風換氣：送氣閥含於盒蓋和鼠盒主體部分。送排風方式為下送上回，有利於排除盒內污濁氣體，乾燥籠盒。

配置：

- 1、 框架
- 2、 籠盒（100）
- 3、 高效過濾膜
- 4、 排風管
- 5、 加風機

IVC系統使用及注意事項

IVC籠架使用前，確實閱讀操作說明書及廠商說明。重點：

1. 發動機、鼓風機：請『紀錄』機器第一次插電、啟動開關後空機時的风压指數、以及放滿PC盒之後的风压指數，每台機器都不同(每一籠架內皆附有該籠架在原廠的測試報告書，需比對數據)。
2. 籠架、各接頭、電線插頭：所有風管、連接頭、管線處是否異常漏風?? 是否有明顯縫隙? 各扣環是否接好?
3. 各出/回風口：是否都出/回風? 是否有任何零件短缺?

使用IVC系統飼養動物時，請遵守以下原則：

1. 取出、及放入PC盒的動作要輕一點，否則易造成出/回風口損壞、出風口內之小零件會脫出、卡在PC盒上、或PC盒龜裂。
2. 勿放入過多或過重的水瓶，以免造成PC盒內濕度過高，以及因PC盒過重導致人員放PC盒的動作過大。
3. 放入PC盒時，確定IVC籠架上的出/回風口卡入PC盒上的孔洞內；取出PC盒時，注意是否有出風口小零件隨PC盒脫出。
4. 每5-7天換PC盒，每周換預濾片(換、洗、晾干、重複使用一個月後換新)，每二周換過濾蓋，鐵蓋視情況每周或每二周更換。每二周擦拭籠架所有出/回風口及彈簧片(半干的抹布沾漂白水，勿過濕、勿用含皂類消毒劑)，並用手推推彈簧片，確定有彈性無卡死現象。
5. 每周確認IVC籠架上方馬達指針位置在哪裡(請紀錄於例行工作表)。
6. 馬達有任何異常聲音，立刻通知獸醫師。
7. 每周五下班前確認各IVC籠架之電源正常、機器運作正常。

