



SC3-90F-0806D1D-C

SC3-90F-0812D2D-C

SC3-90F-1906D1-C

SC3-90F-1912D2-C

# Lab Companion Fire Safety Storage Cabinet

 Awarded the Safe Korean Technology Prize  
by the Ministry of the Interior and Safety.

# Lab Companion Fire Safety Storage Cabinet

(Model: SC3-F)

## Principle of safely storing flammable liquids

### Isolation from sources of ignition

Flammable liquids can be exploded with ignition sources even at low temperatures, so should be completely isolated from electrical sparks, flames, frictions, etc.

### Prevention of spontaneous ignition of flammable liquids

Flammable liquids that have low ignition points have low natural ignition temperatures as well, they can ignite only by heat without being touched by fire. So the temperature increase time should be delayed.

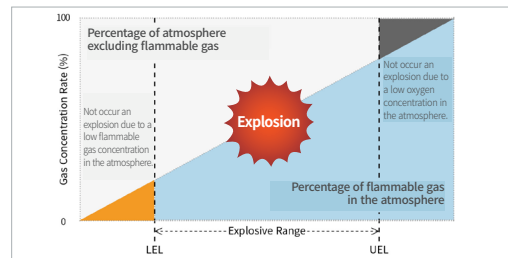
### Removal of flammable vapors inside a storage cabinet

If the concentration of flammable vapors is within the explosive range, it may explode by an ignition source. Therefore, the vapors should be removed by the appropriate ventilation system.



Flammable liquids	Acetone	Acet-aldehyde	Benzene	Ethanol	Methanol
Ignition temperature (°C)	-20	-40	-11	13	11
Spontaneous ignition (°C)	465	175	498	363	464

Ignition temperature and spontaneous ignition temperature of flammable liquids



Flammable liquids	Hydrogen	Propane	Methane	Ethanol	Silane
LEL in Vol. (%)	4	2.1	4.4-5	3-3.3	1.5
UEL in Vol. (%)	75	9.5-10.1	15-17	19	98

LEL and UEL of flammable liquids

## Requirements of Fire Safety Storage Cabinet

### 1. Manufactured as a storage cabinet exclusively for flammable liquids

*In facilities and laboratories that store and keep hazardous chemicals that may decompose or ignite due to a rise in temperature, it is safe to have a structure or install equipment such as ventilators or air conditioners to prevent them from reaching their ignition temperature.*

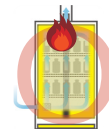
#### Lab Companion's Suggestion

#### Fire safety storage cabinets obtained CE certification according to Standard EN 14470-1

Comprehensive certification for fire resistance, internal ventilation, shelf stability, automatic door closing, etc., based on EN 14470-1, the world's most recognized international standard



Filtering Storage Cabinet



Fire Safety Storage Cabinet

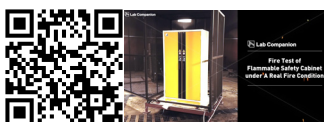
**Flammable liquids that must be stored in a dedicated storage cabinet, and substances prohibited from being mixed**  
Methanol, Acetone, Ammonia, Ethanol, Naphthalene, Propanol, Hexane

*Shouldn't there be resistance to fire and explosion when storing flammable and combustible liquids?*

#### Lab Companion's Suggestion

#### Outstanding fire resistance

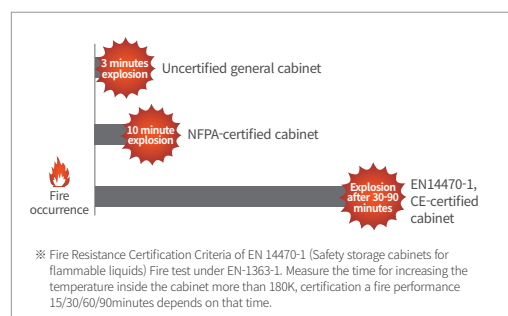
- More than 4-times better fire resistance than any other standards-certified or non-standards-certified product
- Registered on the Korea Procurement Service for fire resistance performance 30min and 60min type, and 90min type is in the process of being registered.



Real fire simulation test for fire resistance performance 90min type



Comparison test with a certified storage cabinet for NPFA standards



Comparison of fire resistance performance based on certification

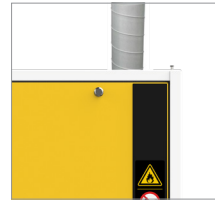
## 2. Exhaust of flammable vapors

When storing hazardous chemicals in a cabinet, the chemical fume should be discharged by the forced exhaust system, or filtered by a filter system to prevent it from being discharged externally.

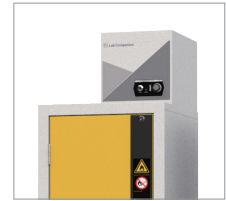
### Lab Companion's Suggestion

#### Removal of flammable vapors by an exhaust system

- Removal of an internal gas through vents at all times. (EN 14770-1 Standard recommends strongly to use an exhaust system.)
- Using the exhaust extraction duct or the filter exhaust system.



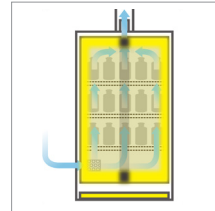
Exhaust extraction duct



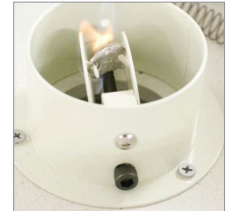
Filter exhaust system

#### Automatic closing of vents and doors upon the detection of heat

- In the event of a fire, vents and doors are automatically closed to prevent the inflow of heat.
- The constant exhaust function removes harmful gas and the auto-closing function ensures powerful fire resistance in the case of fire.



Normally, flammable vapors are removed by the constant exhaust through a ventilation.



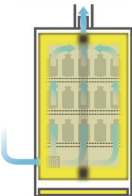
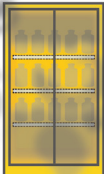
In the case of fire, vents and doors detect heat, then they are automatically closed to block it.

#### Patented system with safe exhaust structure (Patent Registration No. 10-1605164)

System with optimally designed exhaust structure that effectively removes flammable vapor at normal times while preventing external flames from flowing directly into the interior.



## Comparison of International Standards for flammable liquids storage cabinet

	EN 14470-1	NFPA 30
<b>Fire resistance performance</b>	O Fire test according to EN 1363-1, 15 min. 90 min. (15 min. / 30 min. / 60 min. / 90 min.)	O NFPA 251 standard fire resistance test, 10 minute level
	O Flammable vapor ventilation is recommended. Check sound pressure formation inside the cabinet during ventilation.	X Ventilation is not recommended. (Recommended to use level of container recommended in NFPA 30)
<b>Flammable vapor ventilation</b>	 Keeps flammable vapors below the LEL concentration and removes smell(odors) through ventilation.	 It seals the ventilation holes, and an smell(odors) occurs inside the storage cabinet. The risk of ignition is increased as the concentration of flammable vapor increases.

Comparison of EN 14470-1 and NFPA 30 International Standards

# Lab Companion Fire Safety Storage Cabinet

(Model: SC3-F)

## Convenient structure for users

### > Convenient reagent In/Out

- Equipped with door closure to stop the door at the desired position for easy insertion and removal of flammable reagents.



### > Anti-static charge through ground

- The ground to prevent static spark accidents caused by inside the cabinet where flammable vapors may be generated. For proper installation, each shelf should be connected with busbar inside of cabinet. Also the conduction bolt (located on upper part behind the cabinet) should be connected with distribution panelboard. (In case of ground can not be connected with distribution panelboard, please use earth bonding plug. (Option))



### > Configurable with lab safety workbench

- It is composed of a fume hood and a testing bench bottom, making it excellent for storing hazardous materials and waste liquids.



### Select a suitable shelf

Providing the 3ea of shelf (up to 80kg storage) for tall type cabinet, and can be exchanged to drawer. (option)



### Convenient moving and installation

Forklift fork space for convenient movement. Leveling feet for stable installation.



### Effluent reservoir

Safe handling in the event of stored material leakage and prevention of leakage out of the cabinets.



### Key lock device

Key lock is provided as standard to block unauthorized access.



## Extraction module (option)

This is harmful gas exhaust equipment (EM-33) equipped with Lab Companion's exclusive filter. It can be installed and used on Lab Companion's storage cabinets and reagent cabinet.



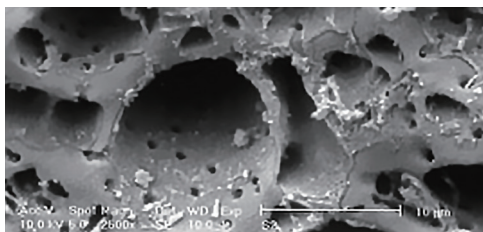
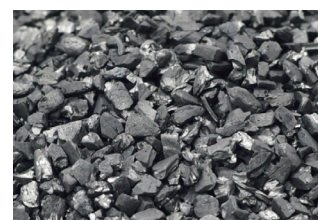
- It is installed at the upper part of the storage cabinet without a separate duct connection to filter and remove the harmful gas inside.
- Pre-filter is included as standard, and up to 2 filters can be added depending on the stored material. (for example: HEPA filter + carbon filter)
- Applicable to Lab Companion's dangerous and flammable liquid storage cabinets, acid/base cabinets, general reagent cabinet series, small fume hood, etc.

Cat. No.	Description (W x D x H, mm / inch)
AAAF1536	EM-33, 348 x 498 x 343 / 13.7 x 19.6 x 13.5, 230V, 60Hz

## Lab Companion's high performance filter series

This high efficiency filter series developed by JEIO TECH has been objectively verified by an accredited laboratory.

- The Lab Companion's carbon filter is an excellent amorphous adsorbent with a high surface area, has fine pores and is manufactured through a multi-level impregnation process.
- Made of 100% impregnated filter, it is more than twice as efficient as general filters.
- Has the efficiency of an excellent composite filter as it simultaneously performs physical adsorption and chemical adsorption.



- Electron microscopic photographs of Lab Companion's carbon filter confirms development of numerous pores such as Macropores (diameter of more than 500Å), Mesopores (diameter of 20-500Å), and Micropores. (diameter of 20Å or less)

Filter	Description	Mounted on EM-33
<b>Complex Carbon</b>	Filters a wide range of chemicals, including acid, ammonia, and aldehyde	<b>AAAB6354</b>
<b>Acid</b>	Filters acid gases such as HCl, HF, H <sub>2</sub> S and CH <sub>3</sub> COOH	<b>AAAB6356</b>
<b>Formaldehyde</b>	Filters formaldehyde, Acete aldehyde, etc.	<b>AAAB6358</b>
<b>Ammonia / Amines</b>	Filters basic gases such as NH <sub>3</sub> , (CH <sub>3</sub> ) <sub>3</sub> N etc.	<b>AAAB6359</b>
<b>HEPA</b>	Filters 99.99% of toxic dust and other 0.3µ m particles	<b>AAAB6353</b>

- ※ The appropriate filter is selected according to the chemical used.
- ※ Built-in pre-filter primarily filters particles to extend the life of the other filters.



# Fire Safety Storage Cabinet (Type 30, 60, 90)

Safeguard flammable liquid from fire with proven fire resistance



Flammable Storage Cabinet  
EN 14470-1 : 2004

**SC3-90F-0806D1D-C**  
Standard : Bottom Sump 1ea

**SC3-90F-0812D2D-C**  
Standard : Bottom Sump 2ea

**SC3-90F-1906D1-C**  
Standard : Shelves 3ea & Bottom Sump 1ea  
Option : Fume Extraction Module & Filters

**SC3-90F-1912D2-C**  
Standard : Shelves 3ea & Bottom Sump 1ea  
Option : Fume Extraction Module & Filters

## Achievement various certifications



Awarded the 2018 Safe Korean Technology Prize by the Ministry of the Interior and Safety.

- > Obtained CE (EN 14770-1) certification.
- > Acquired Certificate of Excellent Product from the Public Procurement Service in Korea.
- > Acquired performance certification from the Ministry of SMEs and Startup in Korea.
- > Awarded the 2018 Safe Korean Technology Prize by the Ministry of the Interior and Safety.

\* EN14470-1 verifies that the equipment meets the European safety standards for dangerous goods containers such as fire resistance, internal ventilation, shelf stability, and automatic door closure.

### Fire resistance performance 90-minutes type

Type	Model
Stand	SC3-90F-1912D2-C
	SC3-90F-1906D1-C
Under bench	SC3-90F-0812D2D-C
	SC3-90F-0806D1D-C
	SC3-90F-0812D2S-C
	SC3-90F-0809D2S-C
	SC3-90F-0806D1S-CL
	SC3-90F-0806D1S-CR

### Fire resistance performance 60-minutes type

Type	Model
Under bench	SC2-60F-0806D1-CL
	SC2-60F-0806D1-CR
	SC2-60F-0706D1-C

### Fire resistance performance 30-minutes type

Type	Model
Stand	SC3-30F-1912D2-C
	SC3-30F-1906D1-C
Under bench	SC3-30F-0812D2D-C
	SC3-30F-0806D1D-C



## Safe Storage From Fire

### > High fire resistance

Fire resistance performance is in accordance with the strictest European standard, with the internal temperature kept below 180K for up to 90 minutes in the event of fire.

### > Fire response sealing system

When the temperature reaches 50°C, the door automatically closes. When the ambient temperature reaches 70±10°C, the exhaust holes and ventilation openings are automatically closed, totally blocking the flow of heat from the outside in the event of fire.

### > The right model for the application can be selected

Possible to suppress fire at the natural ignition point of the dangerous goods being handled. Model selected considering the prediction time, etc.

### > Chemical resistant interior material

Excellent chemical resistance even for long-term use with the interior material coated with polyphenol resin.

### > Under bench type height-adjustable (SC3-90F/30F-08 Model)

730 mm/820 mm height can be selected considering the work height when hood is installed at the bottom.

## Solid and Secure Shelf Structure

### > Solid shelf structure

It is a solid structure allowing for up to 80kg to be held per shelf and it can be fixed firmly to the left and right inside walls.

### > Safe shelf design

With 30mm-deep shelf shape for safe storage, it is designed to be safe even if the stored contents are leaked.

### > Right shelf selection

The built-in shelf is excellent in chemical resistance due to epoxy powder coating. Also, stainless steel shelves can be selected. (option)

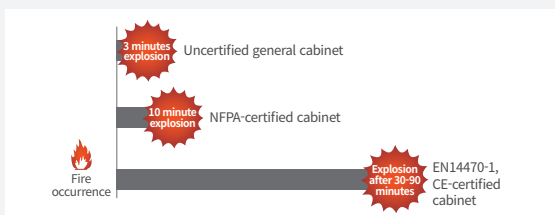
## Proven Fireproof Performance!

### Items proven by testing

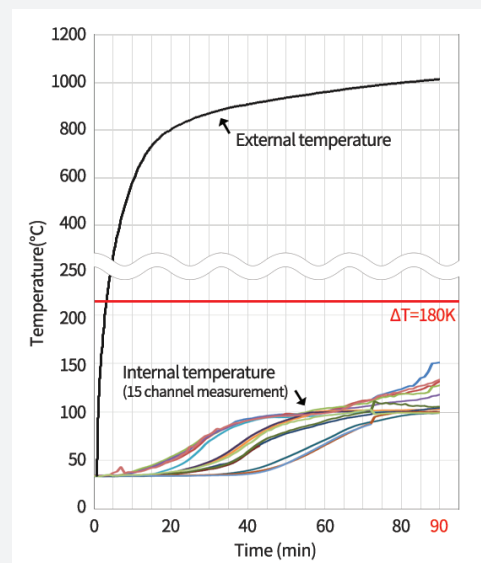
- > 30 minutes / 60 minutes / 90 minutes fire resistance performance test
- > For fire test according to standards of EN 1363-1, the time required for  $\Delta T$  to be kept below 180°C is expressed as fire resistance. (EN 14470-1)



Real fire simulation test for fire resistance performance 90min type

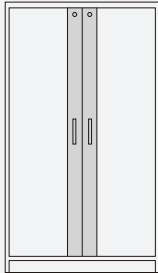
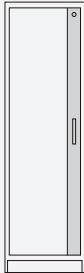
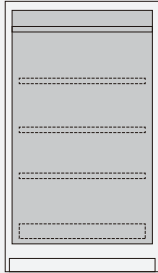



Comparison of fire resistance performance based on certification



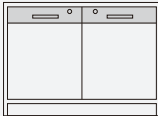

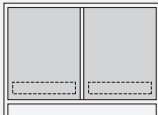

SC3-90F-1912D2-C fire test results

## Specification (Type 90)

Model	SC3-90F-1912D2-C	SC3-90F-1906D1-C
Internal volume (L / cu ft)	763 / 26.9	357 / 12.6
Interior dimensions (W x D x H, mm / inch)	968 x 484 x 1629 / 38.1 x 19.1 x 64.1	453 x 484 x 1629 / 17.8 x 19.1 x 64.1
Exterior dimensions (W x D x H, mm / inch)	1116 x 625 x 1952 / 43.9 x 24.6 x 76.9	601 x 625 x 1952 / 23.7 x 24.6 x 76.9
Quantity of shelf (standard / max.) <sup>1)</sup>	3 / 5	3 / 5
Max. load per shelf (kg / lbs)	80 / 176.3	80 / 176.3
Weight (kg / lbs)	420 / 925.9	220 / 485.0
CE certification	0	0
Cat. No.	AAAF390170	AAAF390140
Product appearance		
Product interior		

1) Providing epoxy powder coated shelf (standard), change to stainless steel shelf (option) or drawer type. (option) Additional shelf is possible.

\* Providing epoxy powder coated bottom collecting sump set (standard), change to stainless steel material. (option)

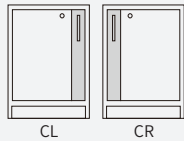



Model	SC3-90F-0812D2D-C	SC3-90F-0806D1D-C
Internal volume (L / cu ft)	244 / 8.6	110 / 3.9
Interior dimensions (W x D x H, mm / inch)	496 x 396 x 622 * 2ea / 19.5 x 15.6 x 24.5 * 2ea	448 x 396 x 622 / 17.6 x 15.6 x 24.5
Exterior dimensions (W x D x H, mm / inch)	1200 x 560 x 730 (or 820) / 47.2 x 22.0 x 28.7 (or 32.3)	600 x 560 x 730 (or 820) / 23.6 x 22.0 x 28.7 (or 32.3)
Quantity of shelf	-	-
Max. load (kg / lbs)	40 * 2ea / 88.2 * 2ea	40 / 88.2
Weight (kg / lbs)	220 / 485.0	134 / 295.4
CE certification	0	0
Cat. No.	AAAF390130	AAAF390120
Product appearance		
Product interior		

\* Providing epoxy powder coated bottom collecting sump set (standard), change to stainless steel material. (option)

Possible to set the exclusive guide for Safety Waste Disposal System. (option)

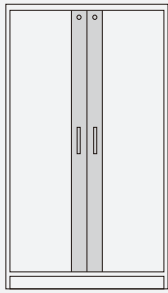

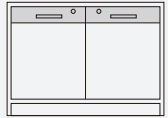

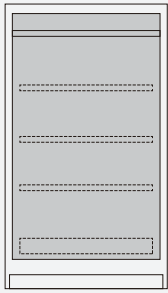
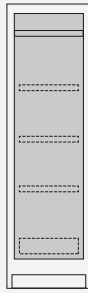

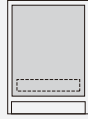


## Specification (Type 60)

Model	SC2-60F-0806D1-CL / SC2-60F-0806D1-CR	SC2-60F-0706D1-C
Internal volume (L / cu ft)	89 / 3.1	76 / 2.7
Interior dimensions (W x D x H, mm / inch)	505 x 419 x 422 / 19.9 x 16.5 x 16.6	505 x 419 x 362 / 19.9 x 16.5 x 14.3
Exterior dimensions (W x D x H, mm / inch)	600 x 610 x 820 / 23.6 x 24.0 x 32.3	600 x 610 x 720 / 23.6 x 24.0 x 28.3
Max. load (kg / lbs)	80 / 176.4	80 / 176.4
CE certification	O	O
Weight (kg / lbs)	106 / 233.7	100 / 220.5
Cat. No.	AAAF360310 / AAAF360311	AAAF360110
Product appearance		
Product interior		

\* Providing epoxy powder coated bottom collecting sump set (standard), change to stainless steel material. (option)

## Specification (Type 30)

Model	SC3-30F-1912D2-C	SC3-30F-1906D1-C	SC3-30F-0812D2D-C	SC3-30F-0806D1D-C
Internal volume (L / cu ft)	802 / 28.3	375 / 13.2	252 / 8.9	116 / 4.1
Interior dimensions (W x D x H, mm / inch)	968 x 507 x 1635 / 38.1 x 20.0 x 64.4	453 x 507 x 1635 / 17.8 x 20.0 x 64.4	506 x 415 x 602 * 2ea / 19.9 x 16.3 x 23.7 * 2ea	468 x 415 x 602 / 18.4 x 16.3 x 23.7
Exterior dimensions (W x D x H, mm / inch)	1101 x 630 x 1951 / 43.3 x 24.8 x 76.8	586 x 630 x 1951 / 23.1 x 24.8 x 76.8	1200 x 560 x 820 / 47.2 x 22.0 x 32.3	600 x 560 x 820 / 23.6 x 22.0 x 32.3
Quantity of shelf (standard / max.) <sup>1)</sup>	3 / 5	3 / 5	-	-
Max. load per shelf (kg / lbs)	80 / 176.4	80 / 176.4	40*2ea / 88.2*2ea	40 / 88.2
CE certification	O	O	O	O
Weight (kg / lbs)	330 / 727.5	220 / 485.0	200 / 440.9	120 / 264.6
Cat. No.	AAAF330470	AAAF330440	AAAF330430	AAAF330420
Product appearance				
Product interior				

1) providing epoxy powder coated bottom collecting sump set (standard), change to stainless steel material. (option)

\* Possible to set the exclusive guide for Safety Waste Disposal System. (option)

## Accessories

### Tall type

Accessory	Description	SC3-90F-1912D2-C SC3-30F-1912D2-C	SC3-90F-1906D1-C SC3-30F-1906D1-C
Shelf	Epoxy powder coated steel (W x D x H, mm)	<b>AAAF35014</b> (965 x 444 x 30)	<b>AAAF35013</b> (451 x 444 x 30)
	Stainless steel (W x D x H, mm)	<b>AAAF35004</b> (965 x 444 x 30)	<b>AAAF35003</b> (451 x 444 x 30)
Drawer	Epoxy powder coated steel (W x D x H, mm)	<b>AAAF35313</b> (798 x 452 x 100)	<b>AAAF35312</b> (350 x 452 x 100)
	Stainless steel (W x D x H, mm)	<b>AAAF35303</b> (798 x 452 x 100)	<b>AAAF35302</b> (350 x 452 x 100)



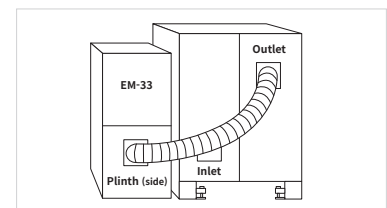
Shelf

Drawer

### Under bench type

Applicable model : SC3-90F-0812D2D-C, SC3-90F-0806D1D-C, SC3-90F-0812D2S-C,  
SC3-90F-0809D2S-C, SC3-90F-0806D1S-CL/CR, SC2-60F-0806D1-CL/CR,  
SC2-60F-0706D1S-C, SC3-30F-0812D2D-C, SC3-30F-0806D1D-C

Accessory	Description (W x D x H, mm / inch)	Cat. No.
Plinth (side)	480 x 340 x 350 / 18.9 x 13.4 x 13.8	<b>AAAF15364</b>



Option: Plinth (side) + EM-33

### Extraction module

Cat. No.	Description (W x D x H, mm / inch)
<b>AAAF1536</b>	EM-33, 348 x 498 x 343 / 13.7 x 19.6 x 13.5, 230V, 60Hz

※ Please refer to page 5 for details on EM-33 compatible filter.



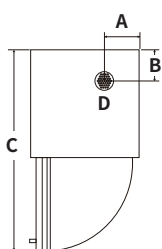
Extraction module, EM-33

## Dimension

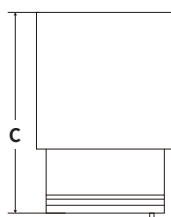
(unit: mm)

Model		A	B	C <sup>1)</sup>	D (diameter)
Tall type	SC3-90F-1912D2-C	170	160	1135	76
	SC3-90F-1906D1-C	170	160	1135	76
	SC3-30F-1912D2-C	180	170	1095	76
	SC3-30F-1906D1-C	180	170	1120	76
Under bench type (drawer & door)	SC3-90F-0812D2D-C	185	255	840	60
	SC3-90F-0806D1D-C	165	255	840	60
	SC3-30F-0812D2D-C	160	235	840	60
Under bench type (door)	SC3-30F-0806D1D-C	160	235	840	60
	SC2-60F-0806D1-CR/CL	125	530	1070	102
Under bench type (door)	SC2-60F-0706D1-C	125	480	1070	102

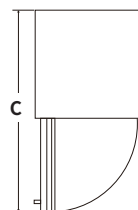
1) C is the maximum depth when the door/drawer is opened.



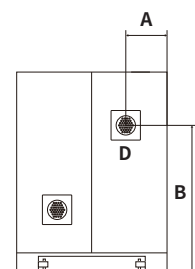
Tall: Upper side



Under (Drawer): Upper side



Under (Door): Upper side



Under: Back side

## More safe and convenient storage and disposal of waste liquids!

Combine JEIO TECH's Fire safety storage cabinet with a Safety waste disposal system at your labs.



SF-14P & WT-20P



SF-14C & WT-20C



### Main features

#### Safety device to prevent leakage

- 80% level indicator is installed as standard to easily know when to replace the waste container, and can be changed to 70% level indicator according to the needs of the experimenter. (container height: 380mm)
- Dedicated safety funnel with wide inlet for convenient disposal of liquid wastes.

#### Easy to separate and discard liquid wastes according to the type of chemical properties

- Different colors of the safety funnel lids depending on the chemical properties make it easy to clearly distinguish when treating liquid wastes.
- Attach a classification label on the top of the safety funnel to prevent mixing of liquid wastes with different properties.

#### Removal of internal gas and pressure

- Minimizes discharge of internal vapors into the laboratory by closing the hinge-type lid.
- Prevent an explosion due to gas pressure in liquid waste container by discharge the internal gas through the dedicated filter. (option)

#### Anti-static

- Anti-static with special plastic material and grounding via grounding cable. (SF-C / WT-C model)
- When combined with a fire safety cabinet (SC3-90F-0806 model), the grounding wire can be easily cleaned.
- In case of ground can not be connected with distribution board, please use earth bonding plug. (option)

Comparison of safety waste disposal funnel.



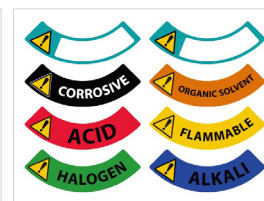
Wide inlet



Level indicator (pop-up)



Lid of various color



Classification label



Hinge-type lid



Dedicated carbon filter



Anti-static model



With fire safety cabinet

## Various combinations of Lab Companion Fire Safety Storage Cabinet (Underbench type) with laboratory furniture.

- Under an experiment stand.
- Under the table of Clean Bench and Fume Hoods.
- Normal Workstation.



## Lab Companion Storage & Cabinet



**Fire safety storage cabinet**

Fire Odor



**Acid/Corrosive cabinet**

Corrosion Odor



**Safety waste disposal system**

Fire Odor



**Gas cylinder cabinet**



**Multifunctional cabinet**



**Filtering storage cabinet**

Odor



**Filtering storage refrigerator**

Refrigeration Odor



**Laboratory refrigerator & freezer**

Refrigeration Freezing



**Auto-desiccator**

Dehumidification



**Desiccator**

Dehumidification Vacuum

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