

SINCE 1889



Clean Bench

Model
AHS101C/131C
AHS161C/191C

Instruction Manual

First Edition

● Thank you very much for purchasing the Yamato AHS fume hood series product.

● Please read the *Instruction Manual* and *Warranty* before using this unit to assure proper operation. After reading these documents, be sure to store them together in a handy place for future reference.

 **Warning:** Before using the unit, be sure to read carefully and fully understand important warnings in the *Instruction Manual*.

Yamato Scientific America Inc.

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About symbols

A variety of symbols are indicated in this instruction manual and on the products to assure safe operation. Possible results from improper operation or disregarding warnings are listed below.

Be sure to fully understand the symbols below before proceeding to the text.

 **Warning** Indicates a situation which may result in death or serious injury (Note 1).

 **Caution** Indicates a situation which may result in minor injury (Note 2) and property damage (Note 3).

Note 1) Serious injury is the result of a wound, an electrical shock, a bone fracture or intoxication that may leave after effects or require medical attention.

(Note 2) Minor injury is the result of a wound or an electrical shock that does not require medical attention.

(Note 3) Property damage means damage to facilities, devices and buildings or other properties.

Meanings of Symbols



This symbol indicates a matter that encourages the user to adhere to warning ("caution" included).

Specific descriptions of warning are indicated near this symbol.



This symbol indicates prohibitions

Specific prohibitions are indicated near this symbol.



This symbol indicates matters that the user must perform.

Specific instructions are indicated near this symbol.

1. Safety precautions

List of symbols

Warning



General warning



High voltage warning



High temperature warning



Moving parts warning



Explosive warning

Caution



General caution



Electrical shock!



Burning!



No load heating!



Water leaking!



For water only



Poisonous material

Prohibitions



General Prohibition



Fire Prohibited



Do not disassemble



Do not touch

Compulsions



General compulsions



Connect ground wire



Install levelly



Pull out the power plug



Regular inspection

1. Safety precautions

Warning · Caution



Never operate the unit in an atmosphere containing flammable or explosive gas

Because the unit is not an explosion-proof, never operate the unit in an atmosphere containing flammable or explosive gas.



Never use the unit under high-temperature environment

- The operating temperature of this unit is 5~35°C.



Do not use this unit for perchloric acid experiment

If the perchloric acid is used, it will result in an explosion due to exterior and interior corrosion.



Do not use radioactive substance

This unit cannot be used to treat radioactive substance.



Do not use to treat organisms

This unit cannot be used to treat organism organisms or pathogenic material



Store where smoking or open fire is prohibited

Do not store where smoking or open fire is allowed as fire may result.



Be sure to connect the ground wire

Be sure to connect the ground wire correctly. Otherwise, electrical leak may result that will cause an electrical shock or a fire.



Never use electrical power cords bundled

When these are used bundled, it might cause a fire due to overheat.



Take care not to damage electrical power cords

Avoid tightly bending, pulling with a strong force or twisting to prevent electrical power cords from damage. A fire or an electrical shock may result.



Never alter the switchboard

Do not have any alteration on replacing internal parts and wires of the switchboard, it may result in damage of its functions or fire. Because it connects with power, do not contact it with wet hand, which may result in electric shock.

1. Safety precautions

⚠ Warning



Please have professional staff to disassemble, repair or alter the unit

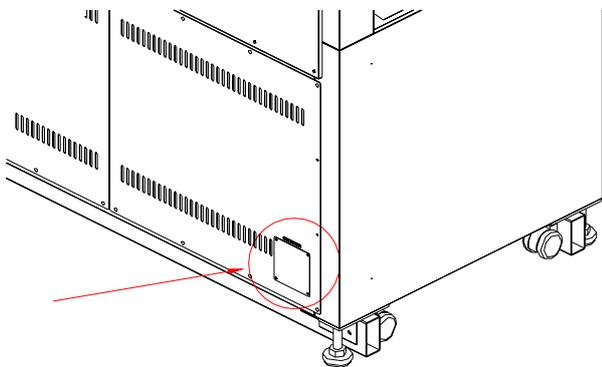
Please have professional staff to disassemble, repair or alter the unit, or else electric shock or fire may result.



Please have our company or professional staff to install the unit

Please have our company or a professional install the unit. If it is installed by a non professional person, electric shock, fire or gas leakage may result which will cause severe accident.

Two types of power sources are applicable (AC220V or AC115V can be selected). When installing, as per the following illustration, disassemble the blind plate at the rear. Select the switch of power source required (which is at the left bottom) to meet the exact power source needed (the default setting is AC220V).



Stop the experiment when the exhaust fan doesn't work

Stop the experiment when the exhaust fan doesn't work due to motor fault or power cut, because the clean class cannot be ensured. Cut off the main power.



Please avoid the electric shock of socket

This unit is attached with a socket in the front. Electric shock will occur if the socket is tampered with, wet, or blocked with high-electric conductivity substances.



Pay attention to socket capacity

When the accessory socket of this product is used, please connect with the experiment machine whose capacity is lower than the socket capacity (2 outlets, totally AC 115V·5A or AC 220V·5A), or else electric leakage or fire may result. Pull out the plug after working.



Please avoid impact on the side glass

The front doorframe glass is toughened glass and the side glass is common one. It may be damaged and cause injury from strong impact.

1. Safety precautions



During a thunder storm

During a thunderstorm, turn off the power immediately, otherwise fire or electric shock may occur.



Protect the side glass against fire

Fire is prohibited to get close to the side glass which may result in damage and injured people.



Strong impact on working face is prohibited

Strong impact on working face may result in damage and a possibility to injure a person.



Pay attention to replace HEPA filter

When the pointer of differential pressure gauge of HEPA filter indicates at designated pressure, please replace the filter.



Please prepare the fire extinguisher

Please prepare the fire extinguisher nearby the clean bench to prevent fire.



About the unit body

- The exterior coating of the unit is chemical proofing. The coating will peel off if scratched and then result to corrosion.
- Do not change the interior material or have strong impact on it.
- Please regularly clean the interior and working face with alcohol or neutral detergent.

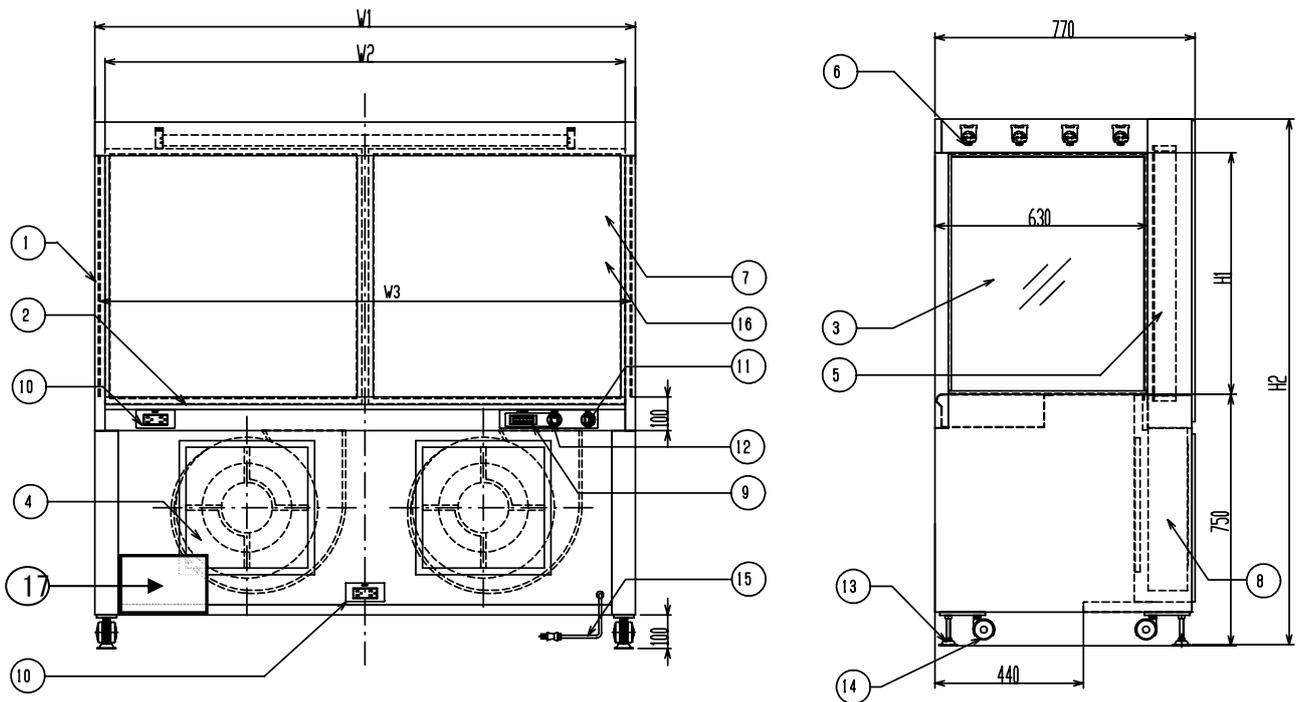


About working face

Do not put corrosive or incendive drugs on the working face for a long time. Dust or malfunction may result due to corrosion.

2. Names and functions of parts

Appearance (AHS-1□1C) and names and functions



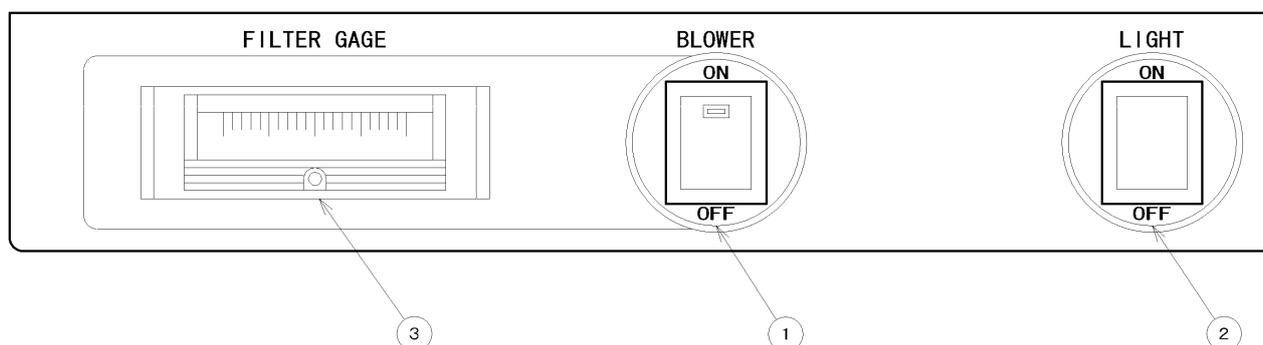
(Please refer to P20 about W, H dimension)

No	Name	Function
1	Exterior	Chemical-proof coating exterior
2	Working face	Where to conduct experiment
3	Side glass window	Window to have internal observation and lighting
4	Front filter	Filter to remove coarse dust during air supply
5	HEPA filter	Filter to keep the clean class of working space
6	Fluorescent lamp	Ensure the lighting during working
7	Rectifier	For equal diffusion of air supply speed
8	Blower	Blower
9	Differential pressure gauge	To confirm the swap time of HEPA filter
10	Socket	Supply power to unit
11	Switch of fluorescent lamp	Switch to light up the fluorescent lamp
12	Switch of blower	Switch to run the blower
13	Horizontal adjusting foot	To adjust horizontal
14	Caster	For moving
15	Power cord	Cord to ensure power, single phase 115V (if installed by agency, the wiring way can be changed to be 220V three-wire O-ring)
16	Working space	Reach clean class 100
17	Transformer	It can change AC220V/AC115V to AC100V

2. Names and functions of parts

Operation panel

Standard



No	Name	Explanation
1	Switch of blower (ON/OFF) /BLOWER	For blower RUN • STOP
2	Switch of fluorescent lamp (ON/OFF)/LIGHT	For fluorescent lamp TURN ON • OFF
3	Differential pressure gauge of HEPA filter /FILTER GAGE	<ul style="list-style-type: none"> •Display the differential pressure of HEPA filter •Confirm the maintenance time of HEPA filter

3. Operational procedures

Operational procedures

- ① Turn on the breaker
- ② Use the switch on operation panel to operate the blower • fluorescent lamp.
Please start working after the blower running for 2~3mins.
- ③ Through the socket at the lower part of unit, AC220V 5A or AC115V 5A can be applied in total.



warning

- The socket should be with grounding terminals, or else electric shock and fire may result.
- Do not use multi socket which is dangerous if heating up.
- If use wet hand to touch plug or insert the socket with other stuff except plug, electric shock may result.
- Please pull out the plug when working finishes, and pay attention to electric shock of socket.
- There is filter at the lower part of unit. If set machine at the lower part, it will interfere with air drawing. Please spare the lower space.

- ④ Swap time of HEPA filter

When the differential pressure gauge on operation panel displays the following values, the HEPA filter is blocked and must be replaced. In order to keep the clean class, please replace it as soon as possible. Considering the safety, please have the seller or our company business office to replace.

	AHS1□1MC	AHS1□1HC
AHS101□	210	190
AHS131□	210	190
AHS161□	190	180
AHS191□	210	190

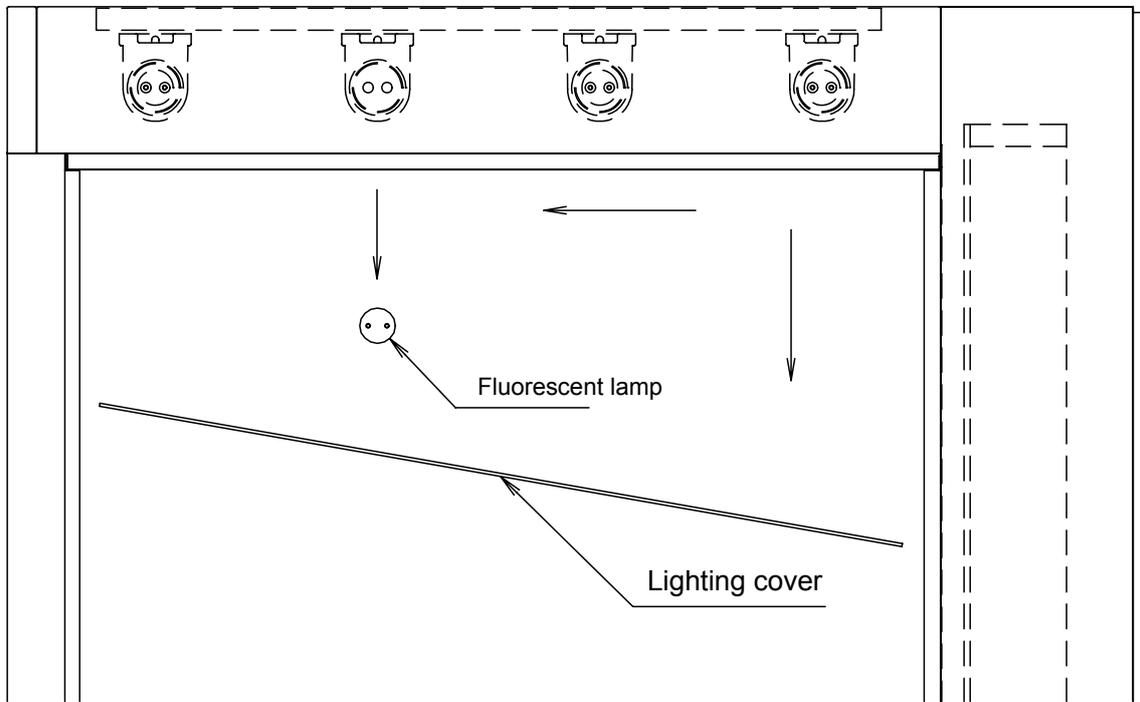
(Unit: Pa)

3. Operational procedures

Replacement procedures of fluorescent lamp

Replacement procedures

Turn off the fluorescent lamp, disassemble and replace the lighting cover at top working space. Pull the lighting cover forward to disassemble it.
(Refer to the illustration below)



Model	Fluorescent lamp
101	8W
131	12W
161	16W
191	16W

3. Operational procedures

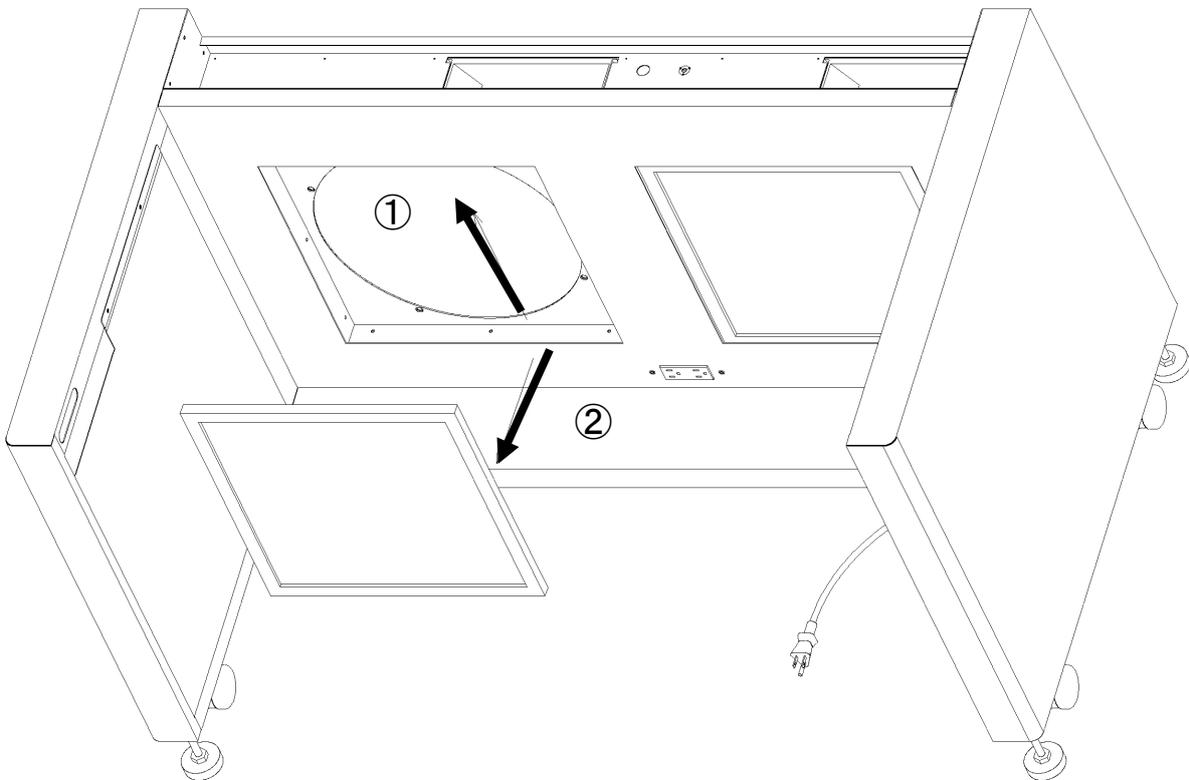
Maintenance of front filter

Replacement • Cleaning time

The blocking situation of front filter depends on the service environment and service time of clean bench. Usually the maintenance period is every two weeks (under severe service environment) or once a month (under good service environment).

Replacement • Cleaning procedures

- ① Take up the front filter and pull to yourself to disassemble it. (Refer to the illustration below)
- ② Use dust collector to suck waste from air suction side, or use water or neutral detergent to clean every frame, or replace it with a new filter.
- ③ After cleaning, please install it after drying.



4. Operating precautions

Operating precautions

Danger

- **Do not use for organisms or pathogenic material**
Please use special equipment to do organism experiment.
- **Do not use for radioactive substance**
Please use special equipment to do radioactive substance experiment.

Warning

- **Do not use for perchloric acid**
If use perchloric acid, it will result in explosion due to exterior and interior corrosion.
- **Never operate the unit in an atmosphere containing flammable or explosive gas**
Because the unit is not explosion-proof, never operate the unit in an atmosphere containing flammable or explosive gas.

- Reduce the dust in working area to the greatest extent, or else the clean class will be influenced.
- Do not put large objects in working area and avoid sudden actions which can influence the air flow.
- Do not put heavy objects on the working face, have it locally under weight, or have strong impact on it as it may result in deformation of the working face.
- Do not use wet hands to touch switch. It may result in electric shock.

Warning

- **Please use socket within current capacity.**
The total current capacity of socket is 5A. Do not use an exceeding capacity or a multi socket which may result in fire or electric shock due to overheating.

Surrounding environment

- Set water pipe • fire extinguisher nearby the unit to prevent fire.
- Do not put dangerous articles/obstacles near the clean bench.
- Do not have the wind from outside blow into the interior of clean bench directly.
- Do not set flaming wares at clean bench where the air blows directly

Power cut and restoration

If the unit stops working during operation due to power failure, the unit will continue to run and start blowing when the power is restored.

Others

Warning

- **Pay attention to electric shock in switchboard**
Because power supply is connected in switchboard, do not have electric shock when operating the breaker.
- **Do not modify the switchboard**
Do not try to modify the parts. Wires in the switchboard might malfunction or fire might occur.

5. Maintenance procedures

Daily inspection/maintenance



Warning

Power supply



- When doing an inspection and maintenance, please cut off the main power and turn off the breaker in switchboard.



Caution

Unit body



- Please use soft, damp cloth to wipe smudges off. Never watered directly which may cause electric shock or short circuit. Do not wipe with organic solvent like gasoline and diluents or detergent, cleaning powder. Do not use brush to wipe it which may damage the coating and result in discoloring or corrosion.

Action



- Be sure that the blower works normally and no abnormal sound and vibration.

6. When the unit is not to be used for long time or when discarding

When the unit is not to be used for a long period or when discard

Warning

When discarding

- Do not put it at a place where the children play.
- Please disassemble all the drive parts.
- Please treat it as large waste.

Caution

When the unit is not to be used for a long period

- Cut off the power of unit body and pull out the power cord.

Notes about discard

Environmental protection consideration

When discarding the unit, considering environmental protection, please disintegrated it and separately discard. Other factors such as resources recycling are also need to be considered. The main components and materials of this unit are as below:

Name of main part	Materials
Main components of unit body	
Exterior	Cold-rolled steel sheet (melamine • epoxy composite resin coating)
Interior	Stainless steel sheet (SUS304)
Working face	Stainless steel sheet (SUS304)
Rectifier	Stainless steel sheet (SUS304)
Side glass	Glass
HEPA filter	Aluminum frame, glass fiber paper (HEPA filter is industrial waste which should not be discarded as ordinary waste. Please have special company to dispose it.)
Front filter	Aluminum frame, polyester nonwoven
Blower	Galvanized steel sheet (outer cover, impeller)
Main components of electrical parts	
Switch, relay	Resin, copper, other composites
Board	Glass fiber, other composites
Wiring	Composites of flame-retardant plastic, copper, nickel
Sticker	Resin

7. Troubleshooting

Troubleshooting procedures

Notify	Reason	Solution
Blower is not working	The plug does not insert into the socket	Insert into the socket
	Wrong power source selection	Adjust the power source selection switch to proper position corresponding with the power source
	Failure of blower switch	Replace the switch※
	Wires break off	Rewiring※
There is vibration sound of blower, while it does not work	Failure of motor	Replace or repair the motor※
Abnormal sound of blower	Foreign objects getting into the exhaust fan	Take away the foreign objects※
	Rotor contacts the outer cover	Repair or replace the blower※
	The axle of rotor is eccentric	Repair or replace the blower※
	Parts of fixed axle are loose	Tighten the screws※
	Failure of motor	Replace or repair the motor※
Not enough Air speed	The voltage is too low	Inspect the connecting parts of power and wiring, repair where there is bad contact※
	Failure of motor	Replace or repair the motor※
Strong vibration	Rotor of blower is dislocated	Repair or replace the blower※
	Installing screws of blower are loose	Tighten the screws※
Breaker cuts off in short time	Wiring is short circuit	Inspect where there is short circuit, wiring again※
	Overloaded operation is carried on	Take away the stuff which causes overload※
	Failure of motor	Replace or repair the motor※
	Overloaded connections, over the socket capacity	Reduce the load connected with socket
No power in socket	Breaker is not turned on	Turn on the breaker
	Wires break off	Rewiring※



※

For contents with ※ in [Solution], please contact the after sales service department of our company.

7. Troubleshooting

Notify	Reason	Solution
Not enough Air volume	Front filter is blocked	Clean or replace the front filter
	HEPA filter is blocked	Replace HEPA filter※
	Failure of blower	Repair or replace the blower ※
	Failure of air speed sensor board	Replace the air speed sensor board※
The fluorescent lamp does not illuminate	Breaker is off	Open the breaker
	The fluorescent lamp is aging	Replace the fluorescent lamp
	Failure of fluorescent lamp switch	Replace the fluorescent lamp switch※
Blower wont stop even if the blower switch is turned "off"	Failure of switch	Replace the switch※
Differential pressure gauge does not work or stops under 「0」	HEPA filter is blocked	Replace HEPA filter※
	Hose connection is reverse	Replace hose socket※
	Hose falls off	Replace hose※
	Failure of differential pressure gauge	Replace differential pressure gauge※
Unit body vibrates	Not horizontal between unit body and ground	Adjust the adjusting foot to be horizontal
Can not reach the clean class	HEPA filter is aging and damaged	Replace HEPA filter※
	Blow-off air speed decreases	Replace HEPA filter※
	Influence of wind, pressure outside the unit	Make sure that there is no interference outside the unit



※

For contents with ※ in [Solution], please contact the after sales service department of our company.

8. After sales service and warranty

When requesting a repair

When requesting a repair

If the failure occurs, stop the operation, turn OFF the power switch, and unplug the power plug. Please contact the sales agency where it was purchased, or Yamato Scientific America.

Check following items before contact

- Model Name of Product
 - Production Number
 - Purchase Date
 - About Trouble (in detail as possible)
- } See the warranty or production plate attached to this unit.

Please show your warranty to our service representative.

Warranty (attached separately)

- Warranty is given by your dealer or Yamato Scientific America sales office, please fill in your dealer, date of purchase and other information and store securely.
- Warranty period is one full year from the date of purchase. Free service repair is available according to the conditions written on the warranty.
- For repairs after the warranty period consult your dealer or one of our sales offices. Paid service repair is available on your request when the product's functionality can be maintained by repair.

Minimum guarantee period of repair parts

- The minimum guarantee period of repair parts for this product is seven years after end of production. Repair parts here refer to parts necessary for maintaining performance of the product.

Remove equipment

Warning

- A professional is required to remove the product. Please contact your dealer or one of our sales offices.

8. After sales service and warranty

Maintenance of clean bench /inspection contract

Age and debris caused by using clean bench negatively affect the product's performance.

In order to safely use this product, regular inspection and maintenance from a professional is necessary.

When purchasing the clean bench, please sign the [Maintenance Contract (chargeable)].

The following table lists the items and periods of standard and regular inspection and maintenance for your reference.

Please consult your dealer or one of our sales offices for detail.

◆ Summary and inspection period of [Items of inspection and maintenance]

Item	Items of inspection and maintenance	Content of inspection and maintenance	Period of inspection and maintenance
Performance	Clean class, air supply performance	Air speed, clean class	1 year
Appearance	Exterior	Damage, corrosion, smudge	1 year
Function	Fluorescent lamp	Lamp lights, blink	1 year
	Working face	Damage, corrosion, smudge	1 year
Electrical system	Board	Corrosion, damage, aging	1 year
	Operation display	Corrosion, damage, aging	1 year
Blower	Outer cover, bearing etc.	Wear, damage, corrosion, smudge	1 year

◆ Summary of periods of inspection and guarantee of consumptive parts and replacing parts

Name of main part	Period of point inspection	Guarantee period [Replace • Repair]
Fluorescent lamp	1 year	1 year
HEPA filter	1 year	3 year
Front filter	2 weeks	1 year
Blower	1 year	5 year
Frequency conversion stabilizer (fluorescent lamp)	1 year	5 year

Note 1: The replacement period is not the guarantee period.

Note 2: The parts listed in the table are main parts.

Note 3: The replacement period is approximately estimated period in order to have customer be at ease to use the product for long time.

9. Specifications

Specifications form

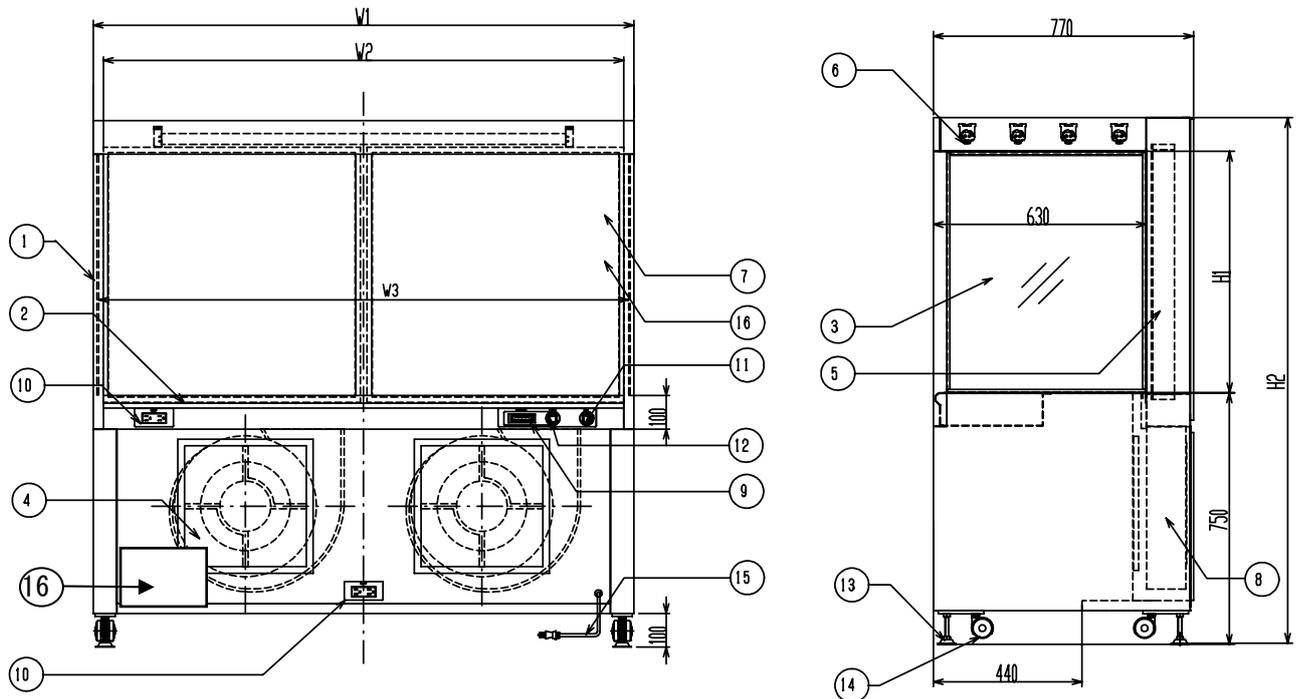
Item	Model	AHS101□		AHS131□		AHS161□		AHS191□	
		M	H	M	H	M	H	M	H
Working space height (mm)		720	875	720	875	720	875	720	875
Air flow direction		Horizontal							
Performance	Clean class	Class 100							
	Blow-off air speed (m/sec)	More than 0.40 at early stage, approx. 0.20 finally							
	(light) illuminance (lx)	1000 (in the center of working face)							
	Load bearing of working face (kg)	50 (static load)							
	Air volume (m ³ /min)	Approx. 16	Approx. 20	Approx. 22	Approx. 27	Approx. 27	Approx. 33	Approx. 32	Approx. 39
Composition	Exterior material	Cold roll steel sheet (chemical-resistant coating); White (similar with Munsell N9.02)							
	Material of working face	Stainless steel (SUS304), wire drawing processing							
	Material of rectifier	Stainless steel (SUS304), punched plate							
	HEPA filter	915×760×65/1	915×915×65/1	610×760×65/2	610×915×65/2	760×760×65/2	760×915×65/2	760×915×65/2	915×915×65/2
		Dust collection efficiency higher than 99.99% (according to PAO counting method of 0.3μm particle) sweep test qualified product							
	Front filter	400×400×15/1		400×400×15/2					
	Socket	AC220V or AC115V 5A 2 outlets with grounding wire 2 (total capacity is 5A)							
	Fluorescent lamp	8W×4		12W×4		16W×4			
	Blower	Single phase AC100V 150W×1		Single phase AC100V 120W×2			Single phase AC100V 150W×2		
	Horizontal adjustment	Use adjusting foot to adjust (-18~+40mm)							
	Display of differential pressure	Differential pressure gauge							
Over current protector	Differential pressure gauge AC 220V30AF/30AT 1								
Necessary device	Power supply	Single phase AC220V/15A 1 circuit (it can be changed to AC115V/15A 1 circuit)							
Weight (approx. kg)※		180		220		250		290	
Accessories		Fixing fittings of adjusting foot (4), instruction manual (1), warranty (1)							
Ambient temp. and humidity		Temp. 5°C~35°C, humidity lower than 85%RH (no frosting)							
Optional		Air velocity controller (V); display blow-off air speed and with variable air speed device							

※ Weight display is AHS1□1MC

9. Specifications

Outline dimensional drawing

- Standard / AHS□



Name

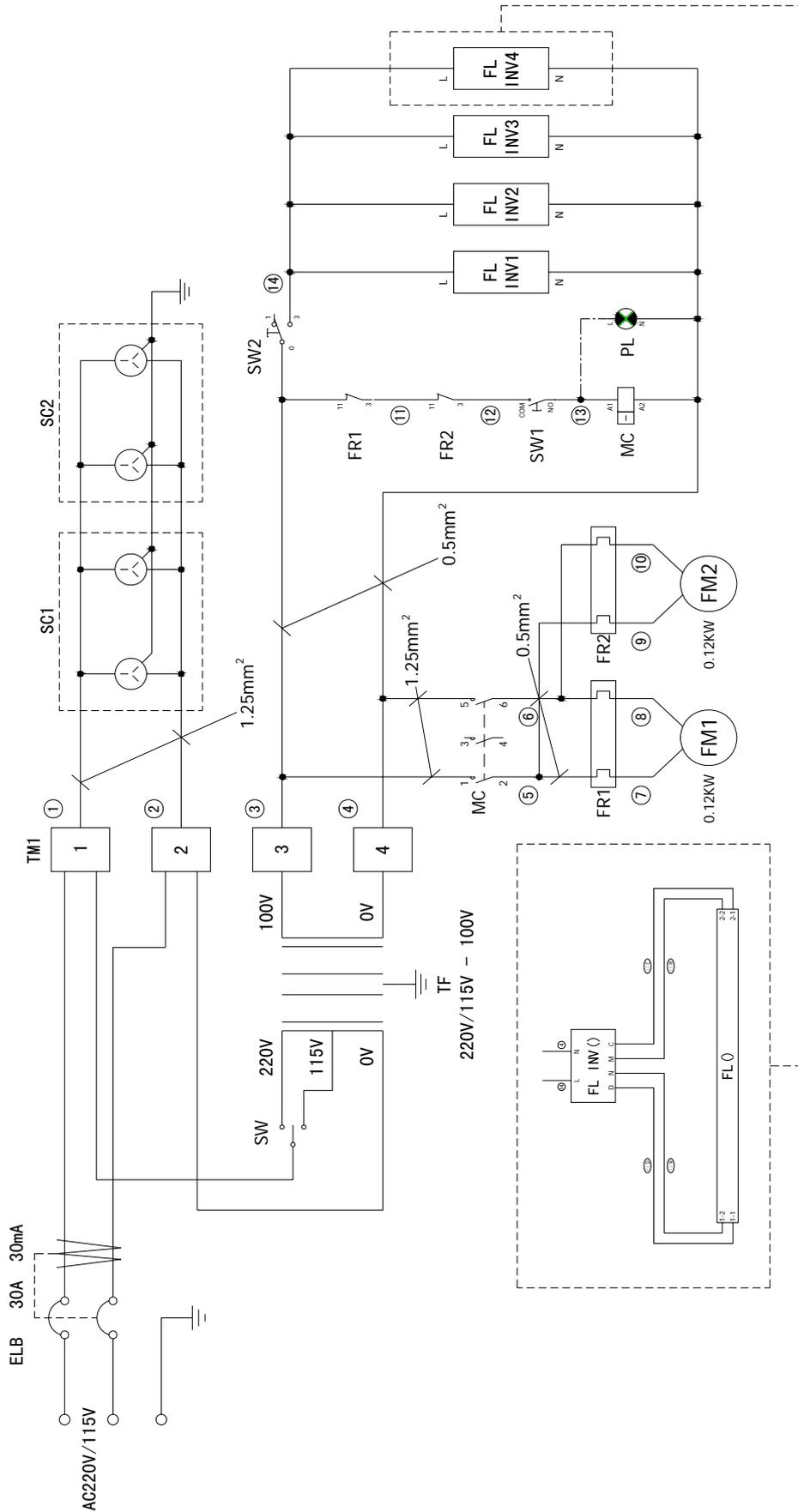
No.	Name	No.	Name	No.	Name
1	Exterior	7	Rectifier	13	Adjusting foot
2	Working face	8	Blower	14	Caster
3	Side glass	9	Differential pressure gauge	15	Power cord (1.6m)
4	Front filter	10	Socket	16	Transformer
5	HEPA filter	11	Switch of fluorescent lamp		
6	Fluorescent lamp	12	Switch of blower		

Dimension

		ADS101□(M/H)		ADS131□(M/H)		ADS161□(M/H)		ADS191□(M/H)	
		M	H	M	H	M	H	M	H
Height (mm)	H1: working space	720	875	720	875	720	875	720	875
	H2: total height of main body	1,570	1,725	1,570	1,725	1,570	1,725	1,570	1,725
Width (mm)	W1: width of main body	980		1,300		1,600		1,910	
	W2: effective opening	920		1,240		1,540		1,850	
	W3: effective interior	940		1,260		1,560		1,870	

10. Wiring connection diagram

Standard



11. List of replacement parts

Electrical parts

Standard

Symbol	Part name	Specification	Manufacturer	
ELB	Electric leakage breaker	KD-LS2123 30A 30mA	YSJ	
MC	Electromagnetic contactor	SF12BAA-110	YSC	
TF	Transformer	AHS131MC_03_02	YSJ	
SC1、2	Socket	WN1512K	YSC	
SW	Toggle switch	E-TEN1321(15A 250V)	YSJ	
SW1	Switch of blower	WN5341K	YSC	
SW2	Switch of fluorescent lamp	WN5002	YSC	
FR1、2	Thermal relay	TR13NH-R	YSC	
FL1~4	Fluorescent lap	101	8W	YSC
		131	12 W	
		161/191	16W	YSC
M1、2	Blower	101	FY-30CHA2-S	YSC
		131/161	FY-30CFA2-S	YSC

11. List of replacement parts

Consumable parts

For consumable parts, even if in guarantee time, it may be chargeable to replace. If there is a failure during guarantee time, please contact the dealer or Yamato Scientific America sales office.

Part name		Specification	Qty.	Manufacturer
Fluorescent lamp	101	8W	4	YSC
	131	12W		YSC
	161/191	16W		
Front filter	101	NU-400	1	YSC
	131		2	
	161			
	191			
HEPA filter	101M	NGHY-37C-79AS	1	YSC
	131M	NGHY-24C-76AS	2	
	161M	NGHY-32C-77AS		
	191M	NGHY-37C-79AS		
	101H	NGHY-45C-99AS	1	
	131H	NGHY-29C-96AS	2	
	161H	NGHY-37C-97AS		
	191H	NGHY-45C-99AS		
Blower	101	FY-30CHA2-S	1	YSC
	131	FY-30CFA2-S	2	
	161	FY-30CFA2-S		
	191	FY-30CFA2-S		

12. List of dangerous materials



Never use an explosive substance or flammable substance or a substance containing them for this device.

Explosive substance	Explosive substance	① Nitroglycol, glycerine trinitrate, cellulose nitrate and other explosive nitrate esters	
	Explosive substance	② Nitrobenzene, trinitrotoluene, picric acid and other explosive nitro compounds	
	Explosive substance	③ Acetyl hydroperoxide, methyl ethyl ketone peroxide, benzoyl peroxide and other organic peroxides	
Flammable substance	Flammable substance	Metal "lithium", metal "potassium", metal "natrium", yellow phosphorus, phosphorus sulfide, red phosphorus, celluloids, calcium carbide (a.k.a, carbide), lime phosphide, magnesium powder, aluminum powder, metal powder other than magnesium and aluminum powder, sodium dithionous acid (a.k.a., hydrosulphite)	
	Acidic substance	Acidic substance	① Potassium chlorate, sodium chlorate, ammonium chlorate, and other chlorates
		Acidic substance	② Potassium perchlorate, sodium perchlorate, ammonium perchlorate, and other perchlorates
		Acidic substance	③ Potassium peroxide, sodium peroxide, barium peroxide, and other inorganic peroxides
		Acidic substance	④ Potassium nitrate, sodium nitrate, ammonium nitrate, and other nitrates
		Acidic substance	⑤ Sodium chlorite and other chlorites
		Acidic substance	⑥ Calcium hypochlorite and other hypochlorites
	Flammable substances	Flammable substances	① Ethyl ether, gasoline, acetaldehyde, propylene chloride, carbon disulfide, and other substances with ignition point at a degree 30 or more degrees below zero.
		Flammable substances	② n-hexane, ethylene oxide, acetone, benzene, methyl, ethyl, ketone, and other substances with ignition point between 30 degrees below zero and less than zero.
		Flammable substances	③ Methanol, ethanol, xylene, pentyl acetate, (a.k.a. amyl acetate) and other substances with ignition point between zero and less than 30 degrees.
		Flammable substances	④ Kerosene, light oil, terebinth oil, isopenthyll alcohol (a.k.a. isoamyl alcohol), acetic acid and other substances with ignition point between 30 degrees and less than 65 degrees.
	Combustible gas	Combustible gas	Hydrogen, acetylene, ethylene, methane, ethane, propane, butane and other gases combustible at 15 degrees at one air pressure.

13. Installation and connection

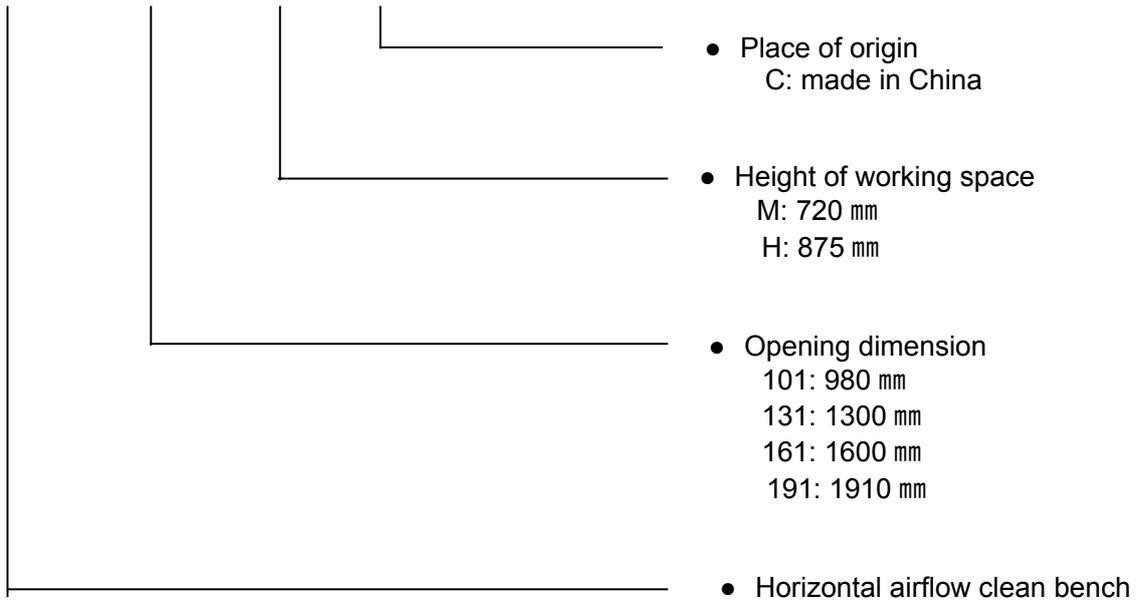
Installation procedures and preparation before using it

1. Please confirm the model

Please confirm the arrival of goods ordered by your company. Refer to the following illustration and then carry on the installation.

Refer to the following specifications about different models.

AHS 101 M -C



13. Installation and connection



Warning

2. Always ground this unit



- Be sure to connect the grounding wire to prevent accidents caused by electric leakage. If there is no grounding terminal, grounding construction is necessary which requires the qualification of electrical construction worker. Please contact the dealer or our company's sales office. Electric shock may result if not connecting grounding wires.
- Grounding wires cannot be connected with air pipe, grounding wire of telephone line, lightning conductor, etc., or else may result in fire.
- Grounding wires cannot be connected with water pipe. If there is chloroethylene pipe in piping, do not ground.

3. Choose a proper place for installation



● Do not install the unit at following places

- Ambient temperature is above 35°C, or maybe frosty
- Flammable gas or corrosive gas is generated
- There is excessive humidity, ambient temperature fluctuates violently
- Rough or dirty surface
- Where may be frozen
- There is a constant vibration
- There is device to generate electromagnetic wave
- The voltage fluctuates violently
- There is salt damage such as shore
- There is water or oil (including machine oil) scattered, much steam.

4. The capacity of socket is specified



● Confirm the socket capacity and connect with appropriate plug. Use it within specified electric capacity.

Electric capacity of socket: single phase AC220V 5A or AC115V 5A (total capacity)

5. Installation



● Unexpected earthquake or vibration might have the unit topple down, which might hurt people. Suggest using accessorial fixing fittings to fix the unit body or apply other accident prevention.

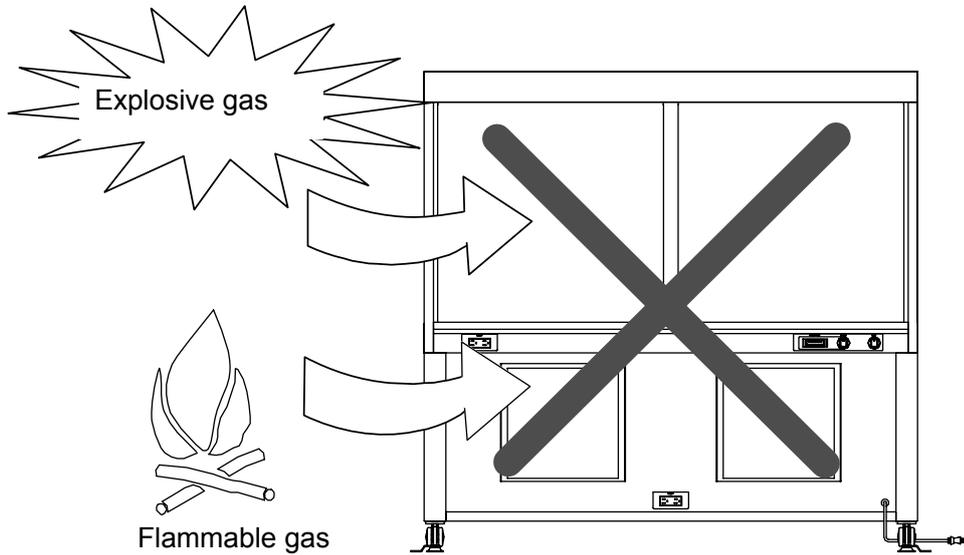
13. Installation and connection

6. Do not use this unit in an area where there is flammable or explosive gas



● Never use this unit in an area where there is flammable or explosive gas. This unit is not explosion-proof. An arc may be generated when the power switch is turned ON or OFF, and fire/explosion may result

● Refer to page 26 [12. List of dangerous materials]

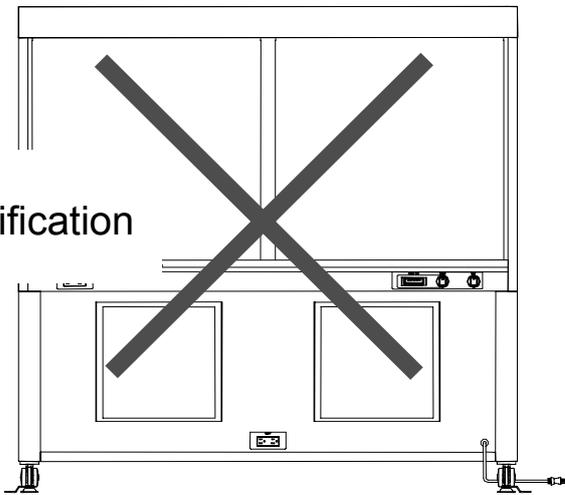


7. Do not modify



● Modification of this unit is strictly prohibited. This could cause a failure.

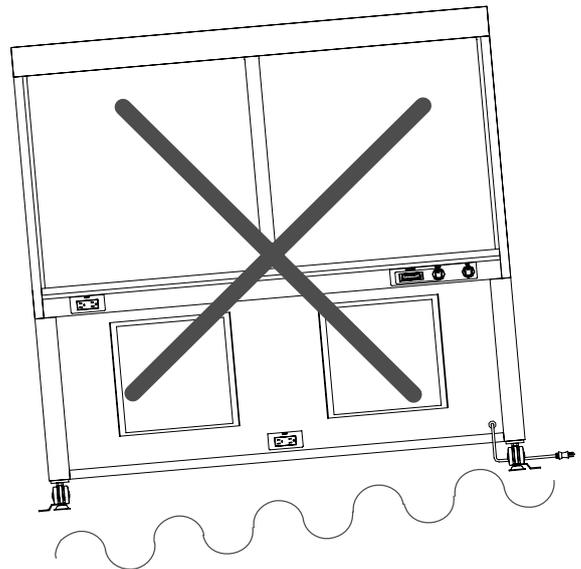
Modification



8. Do not topple or tilt this unit



● Set this unit to the flattest place. Setting this unit on rough or slope place could cause the unexpected malfunction.



13. Installation and connection

Installation procedures



Warning

Please have the dealer or our company's sales office to install the unit. If install by yourselves, it may result in electric shock or fire.



Caution

- The operation temperature of this unit is 5~35°C, please set the unit at a place with 5~35°C temperature.

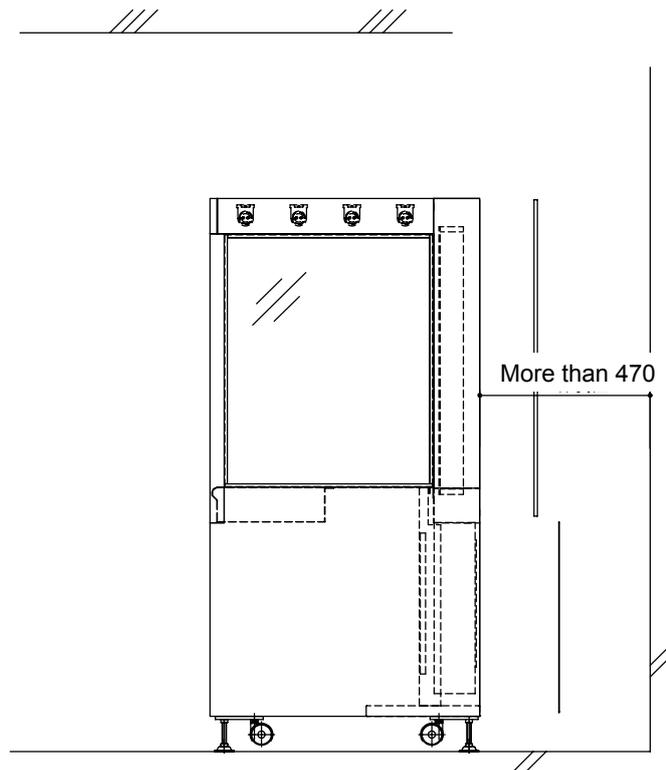
- Disassemble 2 pieces of lumber which fix two sides of clean bench. (Lumber is fixed by M8 screws with 4 fixing plates)
- Move the clean bench.



Caution

Please confirm that the adjusting feet suspend higher, or else the unit may topple if gets stuck by staircase.

In order to avoid the vibration of this unit transmitting to other places, please spare 50mm between the unit and wall, and left and right sides. In addition, when doing maintenance (replace HEPA filter, maintain fan blades, etc.), it should move forward more than 470mm. Please set the unit at a place where there is enough space to move forward.



13. Installation and connection

- ④ Move the unit to proper place, and use adjusting feet to have the unit horizontal.
- ⑤ Connect the power cord, finish installation.



Always ground this unit to avoid electric shock.

Pay attention that expertise is required for piping • wiring connection or else may result in leakage of water and gas, or electric shock and fire.



Caution Always ground this unit

- Be sure to connect the grounding wire to prevent accidents caused by electric leakage. If there is no grounding terminal, grounding construction is necessary which should be carried on by electrical construction worker.
- Grounding wires cannot be connected with air pipe which may result in fire.
- Grounding wires cannot be connected with grounding wire of telephone line, lightning conductor, etc., or else may result in fire and electric shock.
- Grounding wires cannot be connected with water pipe. If there is chloroethylene pipe in piping, do not ground.

14. Standard installation manual

※Install the product according to the followings: (Confirm separately for optional items or special specifications).

Model	Serial number	Date	Installation mgr. (company name)	Installation mgr.	Judgment
AHS					

No	Item	Implementation method	TOC No. Reference page of the operating instruction manual	Judgment
Specification				
1	Model, accessories	<ul style="list-style-type: none"> Confirm the specification according to model Confirm according to accessories 	13. Installation and connection P24 9. Specification form P18	
2	Setting	<ul style="list-style-type: none"> Visual check of environmental conditions Caution: Take care for environment	13. Installation and connection P24	
		<ul style="list-style-type: none"> Confirm enough space 		
Operation-related matters				
1	Power voltage	<ul style="list-style-type: none"> Measure the user's voltage (switchboard, outlet) with a multimeter Measure voltage during operation (shall meet the standard) Caution: Always use a plug that meets the specification for attaching to the power switch or breaker.	13. Installation and connection P24 <ul style="list-style-type: none"> must connecting grounding wire 9. Specification P18 <ul style="list-style-type: none"> Specification—power supply 	
2	Operation start	<ul style="list-style-type: none"> Operation start 	3. Using procedures P8	
Explanation				
1	Operation instruction	Explain operations of each part according to the instruction manual	3. Using procedures P8 <ul style="list-style-type: none"> Operating procedures 1. Safety precautions P1 ~ 12. List of dangerous materials	
2	Error codes	Explain the customer about error codes and procedures for release according to the instruction manual	7. Trouble shooting P14 ~ 8. After sales service and warranty	
3	Maintenance and inspection	Explain operations of each part according to the instruction manual	5. Maintenance method P12 <ul style="list-style-type: none"> Daily maintenance 8. After sales service and warranty P16	
4	Completion of installation Entries	<ul style="list-style-type: none"> Fill in the installation date and the installation mgr. on the nameplate of the main unit Fill in necessary information to the warranty card and hand it over to the customer Explanation of the route for after-sales service 	8. After sales service and warranty P16 15. Product • Connection construction control P30	

15. Product • Connection construction control

In order to maintain after delivery, please fill in the following information.

After a period, it's inconvenient for maintenance if the construction responsibilities are not defined.

Please fill in the information of product and constructor for further maintenance after delivery.

Item	Name	Manufacturer, constructor	Model	Date
Product	Clean bench	Yamato scientific America	AHS	
Construction	Electric			

Limited liability

Be sure to use the unit strictly following the handling and operating instructions in this operating instruction.

Yamato Scientific America Co., Ltd. assumes no responsibility for an accident or a malfunction caused by use of this product in any way not specified in this operating instruction.

Never attempt to perform matters prohibited in this operation instruction.

Otherwise, an unexpected accident may result.

Notice

- Descriptions in this operating instruction are subject to change without notice.
- We will replace a manual with a missing page or paging disorder.

Instruction Manual

Clean Bench

AHS101C/131C/161C/191C

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Revision

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