

Thank you for purchasing this Esco Laboratory Fume Hood. Please read this manual thoroughly to familiarize yourself with the many unique features and exciting innovations we have built into your new equipment.

Esco provides many other resources at www.escolifesciences.com, to complement this manual and help you enjoy many years of productive and safe use of Esco Products.



For Technical Service, contact

NORTH AMERICA

Esco Technologies, Inc.

903 Sheehy Drive, Suite F, Horsham, PA 19044, USA

Tel 215 441 9661 • eti.sales@escolifesciences.com

REST OF THE WORLD

Esco Micro Pte. Ltd.

21 Changi South Street 1 • Singapore 486 777

Tel +65 6542 0833

escolifesciences.com • mail@escolifesciences.com

Esco Laboratory Fume Hood – Frontier Acid Digestion (EFQ)
User Manual | Version F – Released December 2022

User Manual

Frontier® ACID DIGESTION™
Acid Digestion Fume Hood

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Table of Contents

		INTRODUCTORY PAGES
i	Table of Contents	
ii	Warranty Terms and Conditions	
iv	Introduction	
iv	1. Products Covered	
iv	2. Safety Warning	
iv	3. Limitation of Liability	
iv	4. European Union Directives on WEEE and RoHS	
v	CE Declaration of Conformity	
vi	UKCA Declaration of Conformity	
		USER SECTION
1	Chapter 1 – Product Information	
1	1.1 About Frontier Acid Digestion Fume Hood	
1	1.2 Labels	
2	1.3 Quick View	
4	Chapter 2 – Installation Procedure	
4	2.1 Sash operation Checklist	
4	2.2 Counterweight Adjustment	
5	2.3 Sash Creep-Down Mechanism	
6	2.4 Baffle Installation	
7	2.5 Hood to Base Installation (only applicable if EBA is used)	
7	2.6 Airflow Alarm Kit Installation	
8	2.7 Service Fixture Addition	
9	2.8 Distillation Grid installation	
10	2.9 Drip-Cup Plumbing Installation	
11	2.10 Connecting Fume Hood to EBA with MCB Protection	
12	2.11 Connecting the Fume Hood Electrical Supply	
12	2.12 Connecting the Service Fixtures	
12	2.13 Connecting the Hood's Exhaust System	
12	2.14 Wiring the FAN Switch	
13	2.15 Sealing the Fume Hood	
13	2.16 Support Stand Installation Guide	
14	2.17 Hood to Support Stand Installation Guide	
16	Chapter 3 – Control System and Operation	
16	3.1 Basic ON/OFF Control	
16	3.2 General Fume Hood Operation	
17	Chapter 4 – Sentinel XL Monitoring System	
17	4.1 Sentinel XL Control System	
18	4.2 Menu Options	
20	Chapter 5– Service and Maintenance	
20	5.1 Scheduled Maintenance	
20	5.2 Maintenance/Service Log	
		APPENDIX

Warranty Terms and Conditions

Esco products come with a limited warranty. The warranty period will vary depending on the product purchased, beginning on the date of shipment from any Esco international warehousing location. To determine which warranty applies to your product, refer to the appendix below.

Esco's limited warranty covers defects in materials and workmanship. Esco's liability under this limited warranty shall be, at our option, to repair or replace any defective parts of the equipment, provided if proven to the satisfaction of Esco that these parts were defective at the time of being sold, and that all defective parts shall be returned, properly identified with a Return Authorization.

This limited warranty covers parts only, and not transportation/insurance charges.

This limited warranty does not cover:

- Freight or installation (inside delivery handling) damage. If your product was damaged in transit, you must file a claim directly with the freight carrier.
- Products with missing or defaced serial numbers.
- Products for which Esco has not received payment.
- Problems that result from:
 - External causes such as accident, abuse, misuse, problems with electrical power, improper operating environmental conditions.
 - Servicing not authorized by Esco.
 - Usage that is not in accordance with product instructions.
 - Failure to follow the product instructions.
 - Failure to perform preventive maintenance.
 - Problems caused by using accessories, parts, or components not supplied by Esco.
 - Damage by fire, floods, or acts of God.
 - Customer modifications to the product
- Consumables such as filters (HEPA, ULPA, carbon, pre-filters) and fluorescent / UV bulbs.
- Esco is not liable for any damage incurred on the objects used on or stored in Esco equipment. If the objects are highly valuable, user is advised to have in place independent external preventive measures such as connection to a centralized alarm system.

Factory installed, customer specified equipment or accessories are warranted only to the extent guaranteed by the original manufacturer. The customer agrees that in relation to these products purchased through Esco, our limited warranty shall not apply and the original manufacturer's warranty shall be the sole warranty in respect of these products. The customer shall utilize that warranty for the support of such products and in any event not look to Esco for such warranty support.

Esco encourages all users to register their equipment online at www.escolifesciences.com/services/warranty or complete the warranty registration form included with each product.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN TIME TO THE TERM OF THIS LIMITED WARRANTY. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THE LIMITED WARRANTY PERIOD HAS EXPIRED. ESCO DOES NOT ACCEPT LIABILITY BEYOND THE REMEDIES PROVIDED FOR IN THIS LIMITED WARRANTY OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY LIABILITY FOR THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES, FOR PRODUCTS NOT BEING AVAILABLE FOR USE, OR FOR LOST WORK. ESCO'S LIABILITY WILL BE NO MORE THAN THE AMOUNT YOU PAID FOR THE PRODUCT THAT IS THE SUBJECT OF A CLAIM. THIS IS THE MAXIMUM AMOUNT FOR WHICH ESCO IS RESPONSIBLE.

These Terms and Conditions shall be governed by and construed in accordance with the laws of Singapore and shall be subject to the exclusive jurisdiction of the courts of Singapore.

Technical Support, Warranty Service Contacts

USA: 1-877-479-3726

Singapore: +65 65420833

Global Email Helpdesk: support@escolifesciences.com

For more information, visit <http://www.escolifesciences.com/>.

Product Appendix, Warranty Listings

Laboratory Fume Hoods	2 years limited.
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Note: The warranty periods may vary by country. Contact your local distributor for specific warranty details.

For international distributors, warranty period starts two months from the date the equipment is shipped from Esco facility. This allows shipping time so the warranty will go into effect at approximately the same time the equipment is delivered to the user. The warranty protection extends to any subsequent owner during the warranty period. Distributors who stock Esco equipment are allowed an additional four months for delivery and installation, providing the product is registered with Esco. User can register their products online at www.escolifesciences.com/services/warranty or complete the warranty registration form include with each product.


Policy updated on 1st January 2015 (This limited warranty policy applies to products purchased on and after 1st January 2015)

Introduction

1. Products Covered

Model	Electrical Rating	1.2 meters 4 feet	1.5 meters 5 feet	1.8 meters 6 feet	2.4 meters 8 feet
Frontier Acid Digestion (EFQ)	230 V AC, 50/60 Hz, 1Φ	EFQ - 4UDCVW - 8 EFQ - 4UDCCW - 8 EFQ - 4UDPVW - 8 EFQ - 4UDPCW - 8	EFQ - 5UDCVW - 8 EFQ - 5UDCCW - 8 EFQ - 5UDPVW - 8 EFQ - 5UDPCW - 8	EFQ - 6UDCVW - 8 EFQ - 6UDCCW - 8 EFQ - 6UDPVW - 8 EFQ - 6UDPCW - 8	EFQ - 8UDCVW - 8 EFQ - 8UDPVW - 8
	110-120 V AC, 50/60Hz, 1Φ	EFQ - 4UDCVW - 9 EFQ - 4UDCCW - 9 EFQ - 4UDPVW - 9 EFQ - 4UDPCW - 9	EFQ - 5UDCVW - 9 EFQ - 5UDCCW - 9 EFQ - 5UDPVW - 9 EFQ - 5UDPCW - 9	EFQ - 6UDCVW - 9 EFQ - 6UDCCW - 9 EFQ - 6UDPVW - 9 EFQ - 6UDPCW - 9	EFQ - 8UDCVW - 9 EFQ - 8UDPVW - 9

2. Safety Warning

- Anyone working with, on or around this equipment should read this manual. Failure to read, understand and follow the instructions given in this documentation may result in damage to the unit, injury to operating personnel, and / or poor equipment performance.
- Any internal adjustment, modification or maintenance to this equipment must be undertaken by qualified service personnel.
- The use of any hazardous materials in this equipment must be monitored by an industrial hygienist, safety officer or some other suitably qualified individual.
- Before you process, you should thoroughly understand the installation procedures and take note of the environmental / electrical requirements.
- In this manual, important safety related points will be marked with the symbol. 
- If the equipment is used in a manner not specified by this manual, the protection provided by this equipment may be impaired.

3. Limitation of Liability

The disposal and / or emission of substances used in connection with this equipment may be governed by various local regulations. Familiarization and compliance with any such regulations are the sole responsibility of the users. Esco's liability is limited with respect to user compliance with such regulations.

4. European Union Directive on WEEE and RoHS

The European Union has issued two directives:

- **Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)**

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:



Esco sells products through distributors throughout Europe. Contact your local Esco distributor for recycling/disposal.

Recommended method of disposal is according to The Federal, State and Local Government regulations.

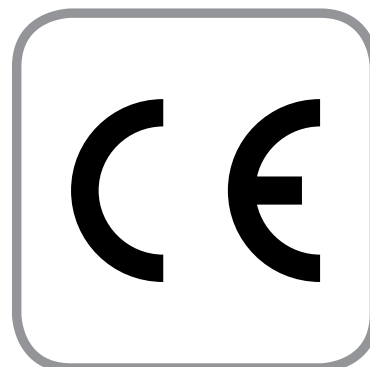
- **Directive 2002/95/EC on Restriction on the use of Hazardous Substances (RoHS)**

With respect to the directive on RoHS, please note that this hood falls under category 8 (medical devices) and category 9 (monitoring and control instruments) and is therefore exempted from requirement to comply with the provisions of this directive.

Declaration of Conformity

In accordance to EN ISO/IEC 17050-1:2010

We, Esco Micro Pte. Ltd.
of 21 Changi South Street 1
Singapore, 486777
Tel: +65 6542 0833



declare on our sole responsibility that the product:

Category : Laboratory Fume Hood
Brand : Frontier® Acid Digestion™
Model : EFQ - 4UDCVW - _ , EFQ - 4UDCCW - _ , EFQ - 5UDCVW - _ , EFQ - 5UDCCW - _ ,
 EFQ - 6UDCVW - _ , EFQ - 6UDCCW - _ , EFQ - 8UDCVW - _
 EFQ - 4UDPVW - _ , EFQ - 4UDPCW - _ , EFQ - 5UDPVW - _ , EFQ - 5UDPCW - _ ,
 EFQ - 6UDPVW - _ , EFQ - 6UDPCW - _ , EFQ - 8UDPVW - _

in accordance with the following directives:

2014/35/EU : The Low Voltage Directive and its amending directives
2014/30/EU : The Electromagnetic Compatibility Directive and its amending directives

has been designed to comply with the requirement of the following Harmonized Standard:

Low Voltage : EN 61010-1:2010
EMC : EN 61326-1:2013 Class B
Design/Performance Criteria : ANSI/ASHRAE 110-2016 and European Union Standard EN 14175-3

More information may be obtained from Esco Lifesciences' authorized distributors located within the European Union. A list of these parties and their contact information is available upon request.

Place of Issue: Singapore

Date of Issue: December 2022

Indra Setiawan

Indra Setiawan

Plant Manager, Esco Lifesciences

Declaration of Conformity

In accordance to EN ISO/IEC 17050-1:2010



We, Esco Micro Pte. Ltd.
Of 21 Changi South Street 1
Singapore, 486777
Tel: +65 6542 0833
Fax: +65 6542 6920

declare on our sole responsibility that the product

Category : Laboratory Fume Hood
Brand : Frontier® Acid Digestion™
Model : EFQ-4UDCCW-_, EFQ-4UDPCW-_, EFQ-4UDCVW-_, EFQ-4UDPVW-_,
EFQ-5UDCCW-_, EFQ-5UDPCW-_, EFQ-5UDCVW-_, EFQ-5UDPVW-_,
EFQ-6UDCCW-_, EFQ-6UDPCW-_, EFQ-6UDCVW-_, EFQ-6UDPVW-_,
EFQ-8UDCVW-_, EFQ-8UDPVW-_

in accordance with the following directives:

Electrical Equipment (Safety) Regulations 2016
Electromagnetic Compatibility Regulations 2016

has been designed to comply with the requirement of the following Harmonized Standard:

Low Voltage : EN 61010-1:2010
EMC : EN 61326-1:2013 Class B
Design/Performance Criteria : ANSI/ASHRAE 110-2016 and European Union Standard EN 14175-3

More information may be obtained from Esco Lifesciences' authorized distributors/local offices. A list of these parties and their contact information is available upon request.

Place of Issue: Singapore

Date of Issue: December 2022

Indra Setiawan

Indra Setiawan

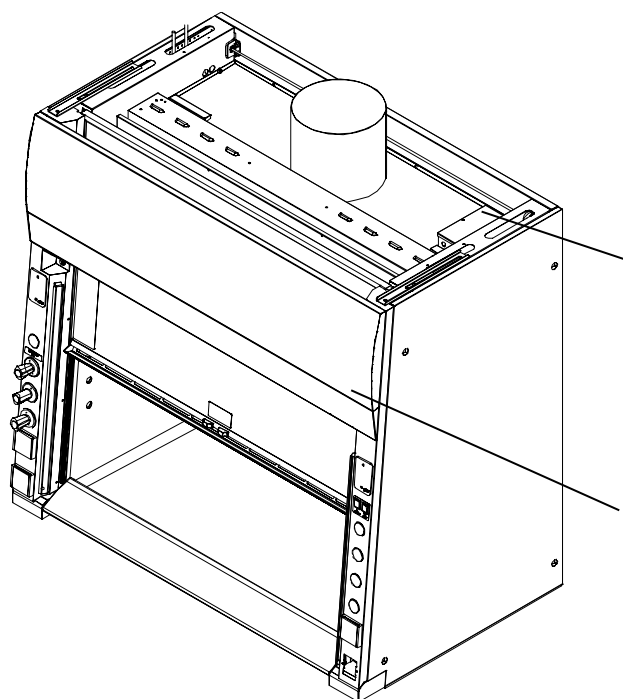
Plant Manager, Esco Lifesciences

Chapter 1 - Product Information

1.1 About Frontier Acid Digestion Fume Hood

Esco Frontier Acid Digestion Fume Hood (EFQ) is designed to be used when performing acid digestion applications. This fume hood is not meant for perchloric acid applications. This fume hood is a world-class laboratory fume hood with precisely tuned aerodynamics, outstanding user safety, total systems and design flexibility, energy-efficiency, aesthetics and ergonomics- all supported by Esco's solutions-based sales and service representatives in more than 100 countries.


1.2 Labels



Electrical Requirement

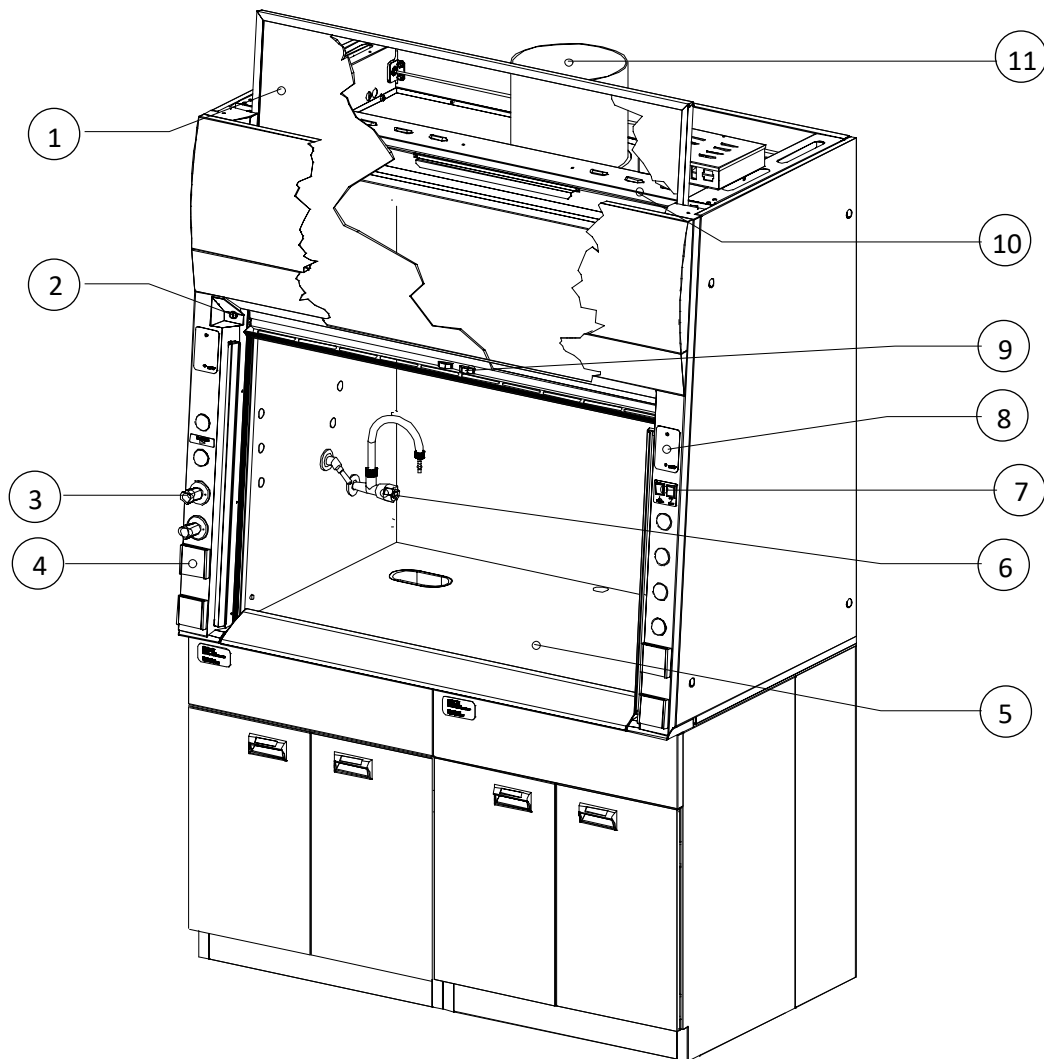
CABINET POWER INLET
220 - 240VAC, 50Hz, 10A ,single phase
Damage may result if the cabinet is
connected to an incorrect power source

Model - The model of the unit.
Serial - The serial number of the unit.
Power - The power consumption and electrical
requirement of the unit.
Manufactured year - The year of manufacture.

ESCO. 21 Chand South Street 1 Singapore 456777 Tel: +65 6542 0833 Fax: +65 6542 0809 email@escoglobal.com www.escoglobal.com	Model: EFQ - 5JDCVW-8 Serial: 2009 - 38661	
	Power: 100W 220 - 240VAC 50/60HZ 1PH	
	Manufactured in May 2009	

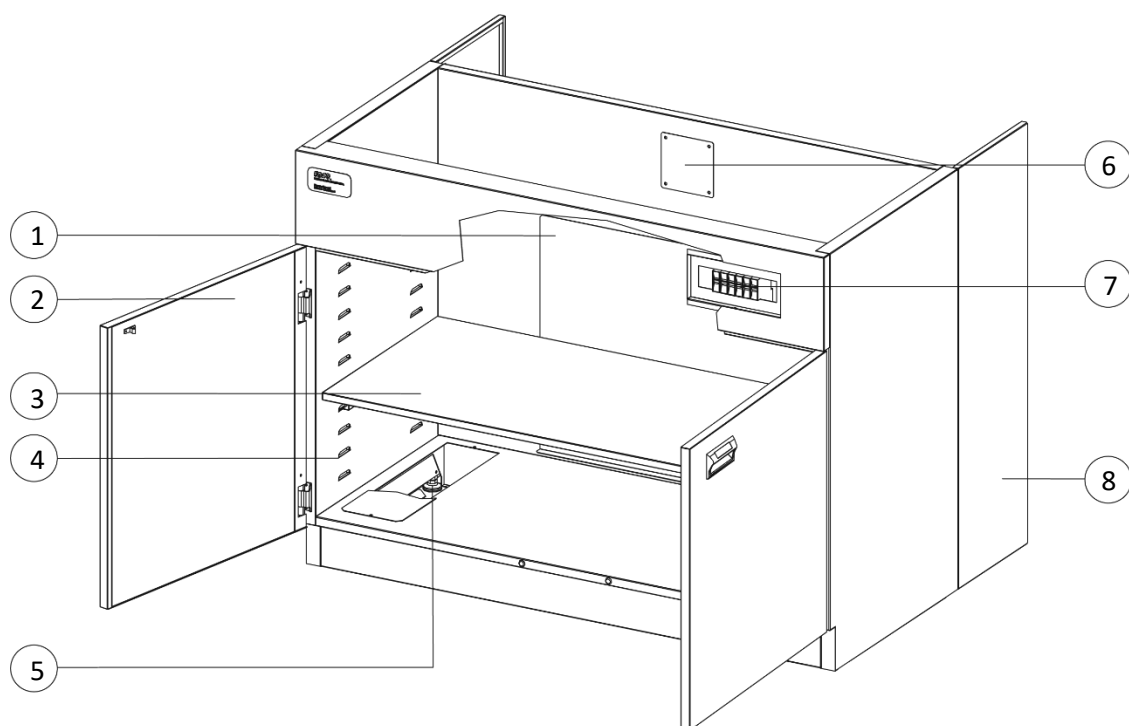
1.3 Quick View

1.3.1 EFQ Series Quick View



- | | |
|---------------------------|----------------------------|
| 1. Polycarbonate sash | 7. Light and fan switch |
| 2. Sash key lock | 8. Airflow alarm provision |
| 3. Remote control fixture | 9. Sash Stop |
| 4. Electrical outlet | 10. Light housing |
| 5. uPVC inner chamber | 11. Exhaust collar |
| 6. Swan-neck water faucet | |

1.3.2 EBA Series Quick View



1. Rear access panel
2. Soft close door
3. Adjustable shelf
4. Adjustable shelf slot
5. Base cabinet height leveler
6. Ventilation provision
7. MCB/ELCB set (optional)
8. Base cabinet filler panel (optional)

Chapter 2 – Installation Procedure

2.1 Sash Operation Checklist

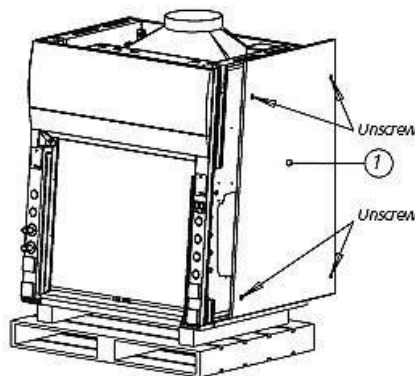


Sash condition has to be checked before proceeding to fume hood installation

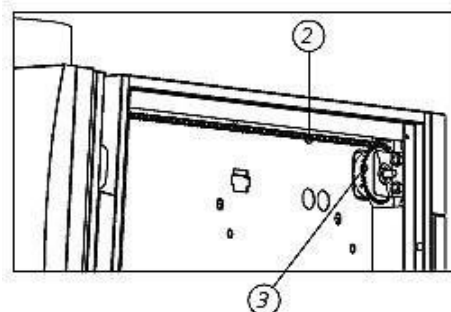
1. Holders restricting counterweight movements during shipment have been removed.
2. Counterweight does not bind in plastic guides.
3. Roller chains are properly aligned with sprockets.
4. Proper horizontal sash alignment by aligning sash handle with airfoil.
5. Unrestricted movement for both sash and counterweight.
6. Sash does not bind in plastic guides.
7. Creep Down system lowers sash to height between 18" and 16" from full open position.
8. Key lock able to lock sash in full open and full close position.

2.2 Counterweight Adjustment

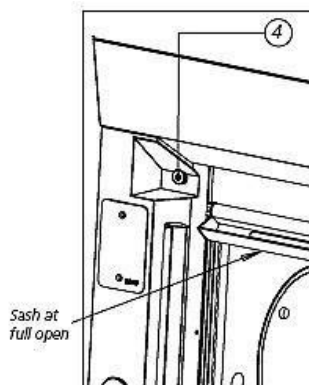
- A. After releasing the counterweight, unscrew and remove both panels (1).



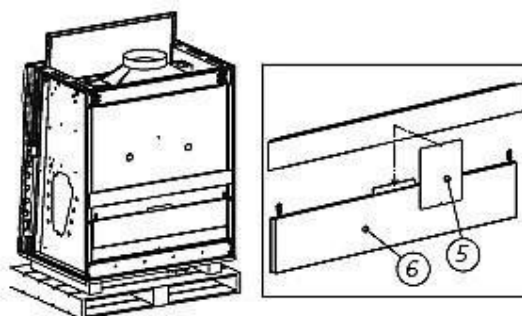
- B. Check and ensure the sash chain (2) is properly engaged to the sprockets (3) and check the alignment of rear sprocket. Do this on both sides.



- C. For counterweight adjustment, move sash to full open position. Press the push lock (4) to hold the sash in place.

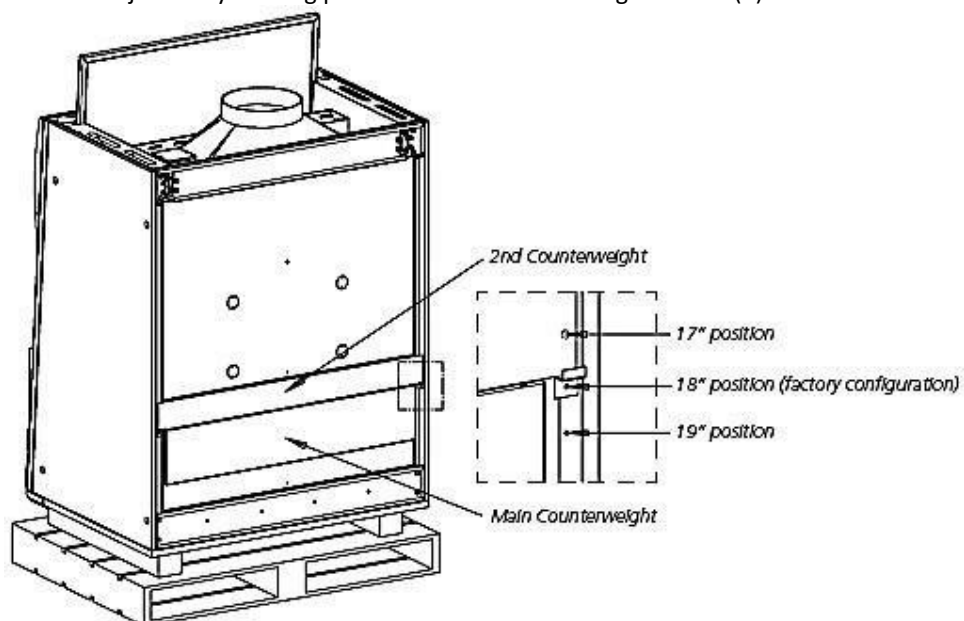


- D. Insert the weight adjustor (5) into main counterweight (6). Release the sash by unlocking the push lock. Check the sash movement.



2.3 Sash Creep-Down Mechanism

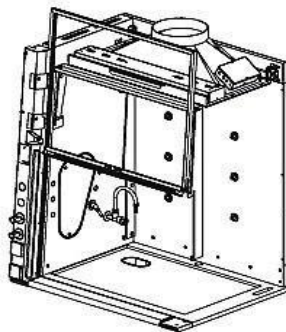
- Creep-down mechanism able stop the sash at 3 positions: 17", 18", and 19".
- Standard configuration is for the sash to stop at 18" height position.
- Height can be adjusted by altering position of 2nd counterweight holder (1).



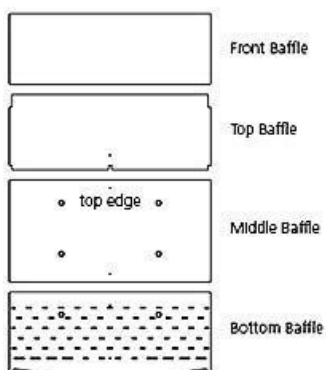
Holder for 2nd counterweight to be moved from original position to new position.

2.4 Baffle Installation

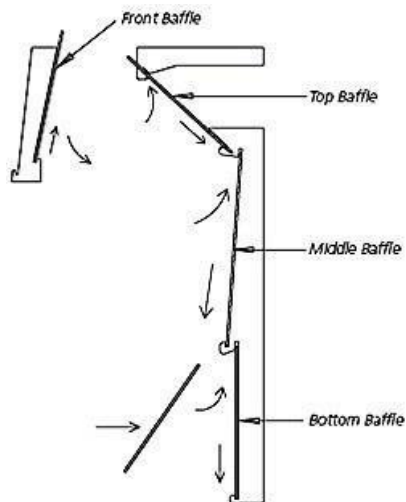
- A. To install baffles, move the sash to full open position and press the key lock to fix sash position.



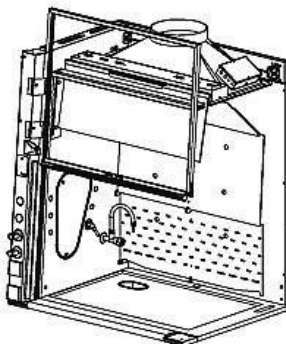
- B. 4 pieces of baffle boards are sent unassembled as shown below:



- C. Install the baffles following the arrows in the drawing below:

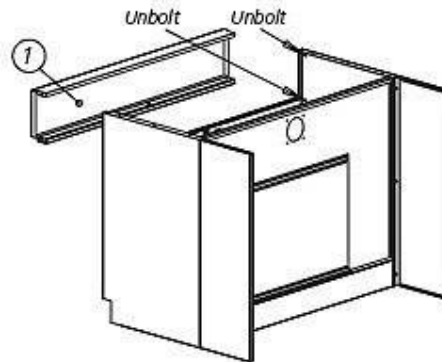


- D. Fume hood with baffles fully installed.

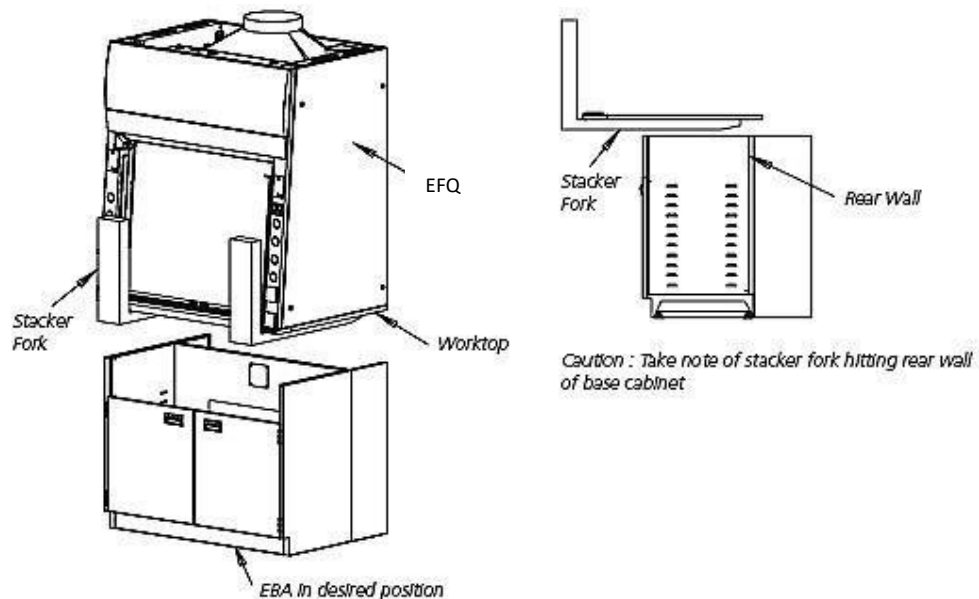


2.5 Hood to Base Installation (only applicable if EBA is used)

- A. Position the base cabinet at desired location, remove front panel (1) by unbolting (only necessary if stacker is used to move fume hood).



- B. If fume hood is ordered with the worktop, use a stacker and place the EFQ on top of the EBA as shown. Replace EBA front panel.

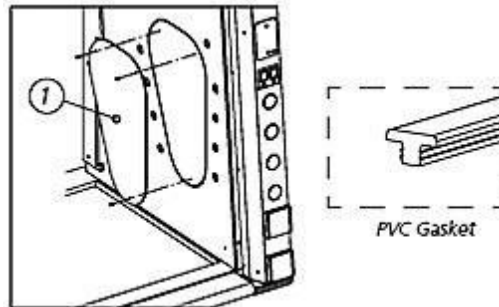


2.6 Airflow Alarm Kit Installation (refer to Sentinel XL user manual in retrofit kit)

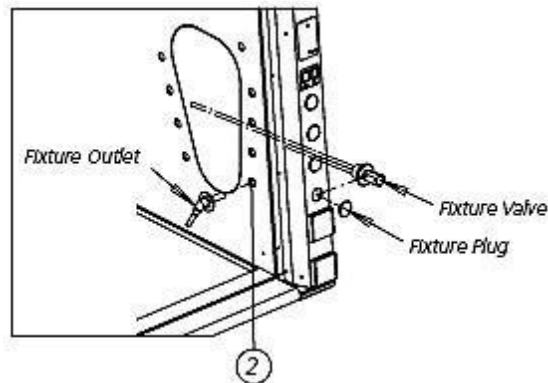
- Airflow alarm kit will be factory-installed if ordered together with fume hood. To calibrate/troubleshoot airflow alarm kit, please refer to separate Sentinel XL User and Service Manual in the fume hood package.
- Please refer to separate Sentinel XL User and Service Manual in the retrofit box if alarm kit was ordered separately.

2.7 Service Fixture Addition

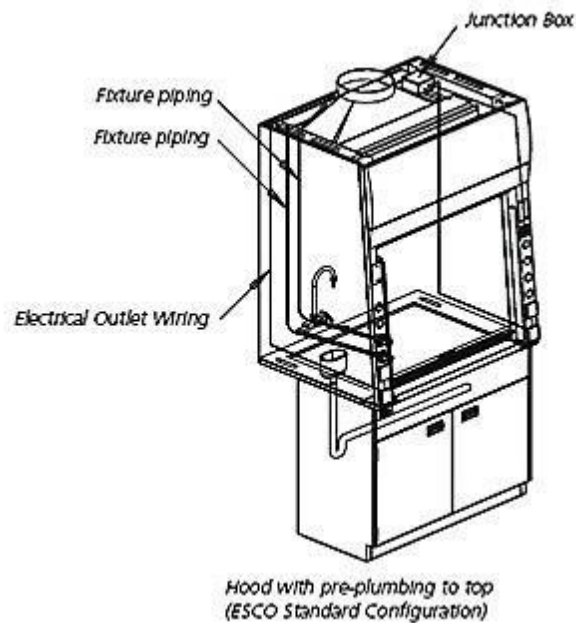
- A. Open gasket side access panel by peeling off the PVC gasket and unscrewing the side access panel (1).



- B. Remove desired fixture plug (2), Assemble the fixture valve from front post and outlet nozzle from internal liner provision.

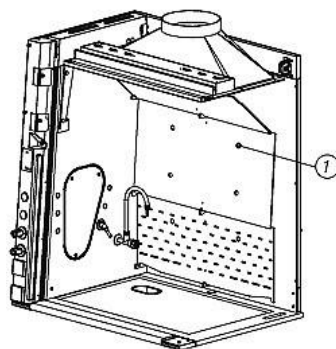


- C. Reinstall side access panel and gasket. Make sure that gasket fully snaps into position. Gasket should be smooth and tight when properly seated.

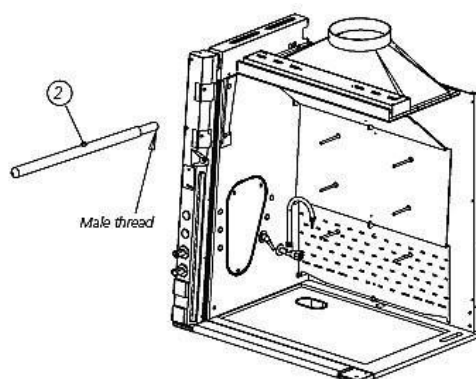


2.8 Distillation Grid Installation

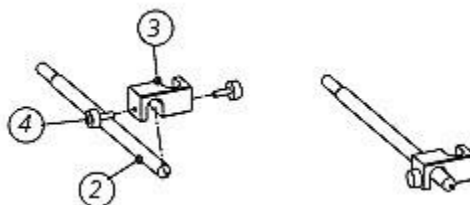
- A. Remove all plastic covers (1) on the back baffles.



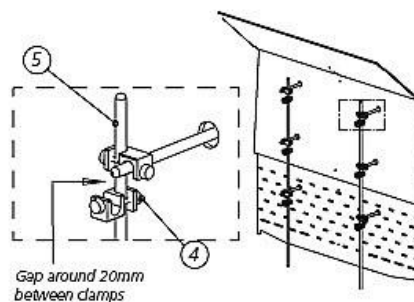
- B. Screw grid holders (2) into the exposed holes.



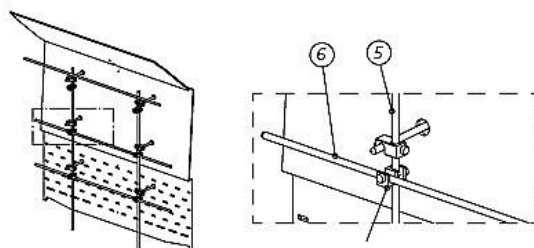
- C. Install a plastic clamp (3) to every grid holder (2) and tighten with plastic thumb screw (4).



- D. Attach the vertical rods (5) to grid holders (2) and tighten with plastic thumb screws (4) as shown:

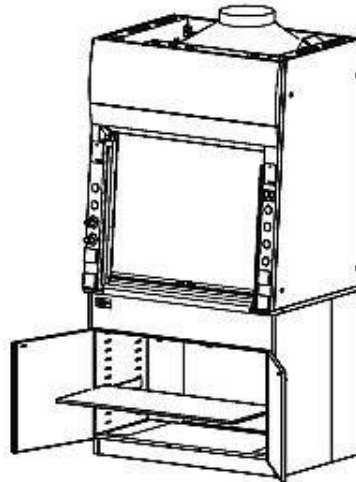


- E. Attach horizontal rods (6) to vertical rods (5) and tighten with plastic thumb screws (4).

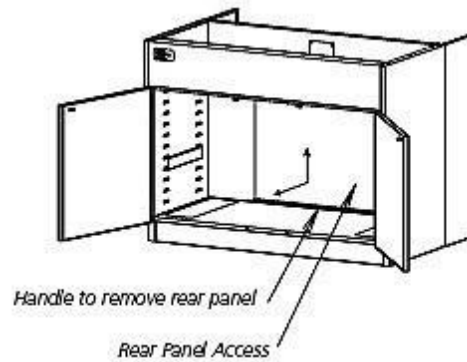


2.9 Drip-Cup Plumbing Installation

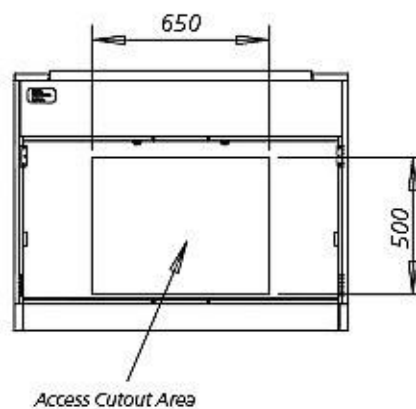
- A. Remove all plastic covers (1) on the back baffles.



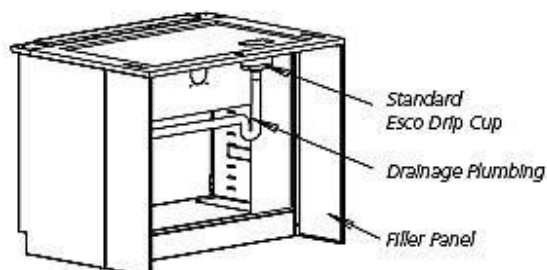
- B. Remove rear access panel by sliding up and pulling forward.



- C. 650 x 500 mm access area for plumbing



- D. Drainage plumbing can be completed.

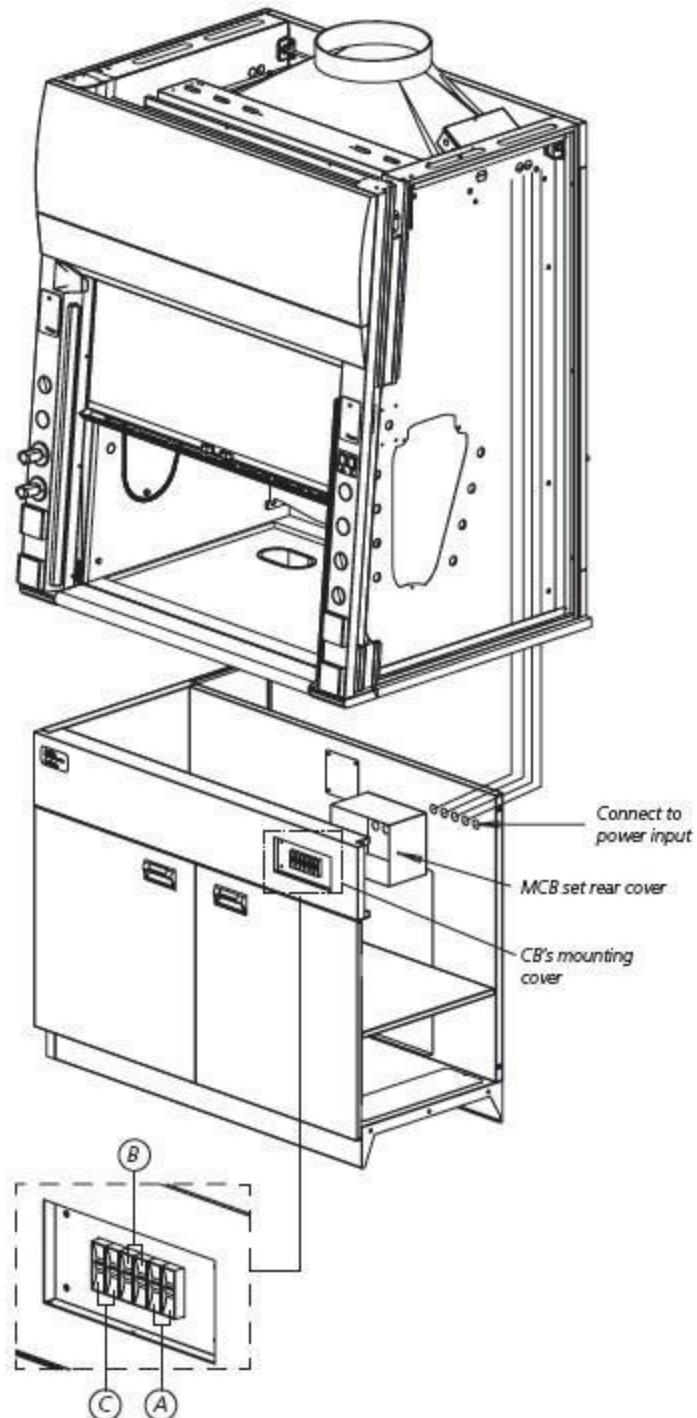


2.10 Connecting Fume Hood to EBA with MCB Protection



This connection must be done by professional technician.

- A. Remove side cover.
- B. Guide wires to EBA.
- C. Reinstall side cover.
- D. Remove rear cover of MCB set in EBA.
- E. Remove CB's mounting cover.
- F. Connect the wires following the attached labels:
 - Wire #1: Live wire from D1 to 16 A MCB
 - Wire #2: Neutral wire from D4 to 16 A MCB
 - Wire #30: Live wire from 16 A MCB to terminal bar
 - Wire #31: Neutral wire from 16 A MCB to terminal bar
 - Wire #15: Live wire from ELCB to 16 A MCB
 - Wire #16: Neutral wire from ELCB to 16 A MCB
 - Wire #26: Live wire from D2 to 3 A MCB
 - Wire #27: Neutral wire from D5 to 3 A MCB
 - Wire #28: Live wire from A1 to 3 A MCB
 - Wire #29 : Neutral wire from A2 to 3 A MCB
- G. Connect the labeled wires into the MCB/ELCB connectors:
 - A: ELCB 40 A 2 pole
 - B: MCB 3 A 2 pole for light
 - C: MCB 16 A 2 pole for outlet
- H. Reinstall MCB set rear cover.
- I. Reinstall CB's mounting cover.

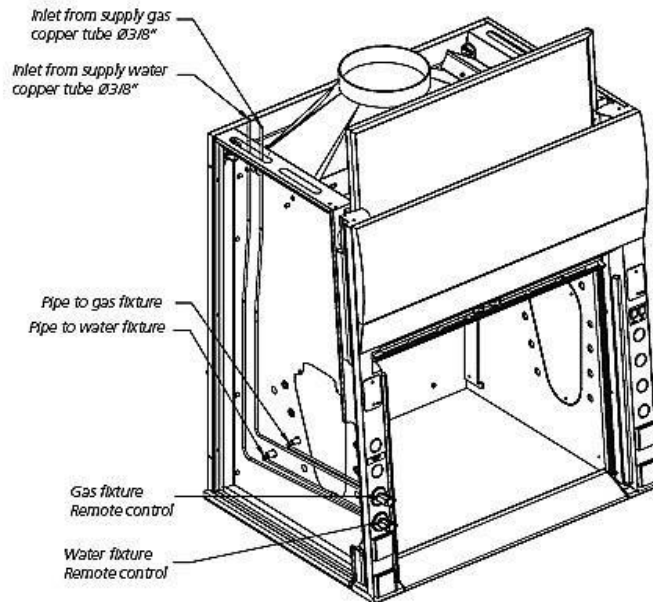


2.11 Connecting the Fume Hood Electrical Supply

- Fume Hood with no connection to MCB on EBA
- Fume Hood with connection to MCB on EBA

Note: Connection to power supply is to be done by local electrical contractor.

2.12 Connecting the Service Fixtures



- The service fixture(s) for Frontier Mono is located on the base hood (EBC-_A_)
- If you have purchased service fixtures for your fume hood these will have been factory installed.
- Connecting the fume hood to service lines must be performed by a suitably qualified and certified engineer, in accordance with all applicable local, state and government regulations.
- Where applicable, each connection should be tested and certified by the installations engineer.
- Connections to service lines may be subject to the provision of pressure regulators and should always have an emergency shut off valve installed within easy reach of the fume hood operator.

Utility service lines recommendations:

1. Size of 3/8" outer diameter.
2. Soft metal material like brass, copper or stainless steel with blunted end.
3. Equip certified shut-off valve within easy reach.
4. Equip certified pressure regulator to high pressure line.
5. Ensure that the line is properly seated, secured and tighten.
6. Ensure the use of proper, good ferrule and materials.
7. Ensure that the line is not in contact with any electrical wires.
8. Avoid the use of combustible gases or solvents. Do careful evaluation, by safety personnel, in accordance to the national, state and local codes, if you are considering using the flammable substances.
9. Slowly open the shut-off valve and test for any leakages.

2.13 Connecting the Hood's Exhaust System

The ductwork is connected to the hood exhaust collar and the weight must not be supported by the hood structure as it may damage it.

2.14 Wiring the FAN Switch

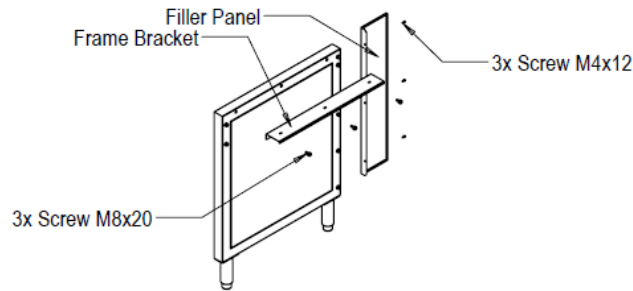
The fan switch must be wired properly.

2.15 Sealing the Fume Hood

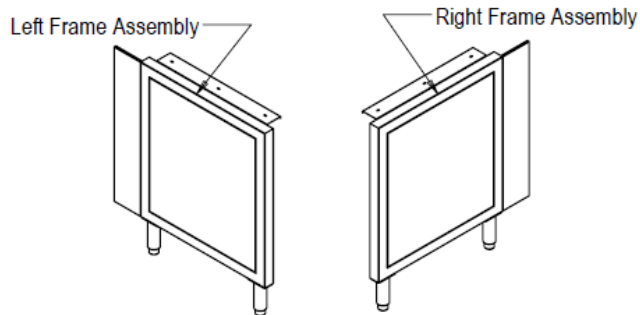
Once the fume hood is set in position and all plumbing and exhaust ducting connections are complete, it should be sealed to its work surface. The sealing of the hood structure to the work surface will prevent spilt chemicals from collecting underneath the walls of the fume hood. Epoxy sealant is recommended for use.

2.16 Support Stand Installation Guide

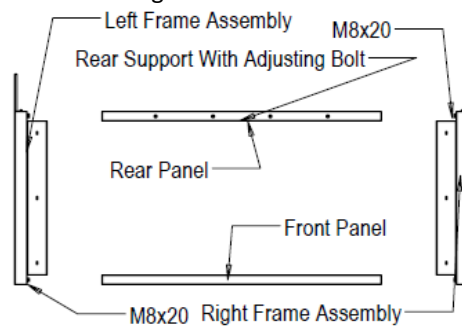
- A. Install frame bracket with Hex screw M8x20 and Filler panel with Pan Screw M4x12 of any side frame.



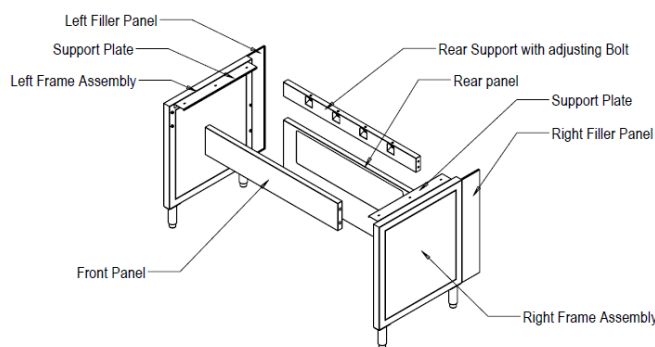
- B. After installing a side frame, continue on the middle for balance of support stand.



- C. Install the rear and front panel to keep the back of the support stand and rear support with adjusting bolt. Use hex screw M8x20 to tighten.



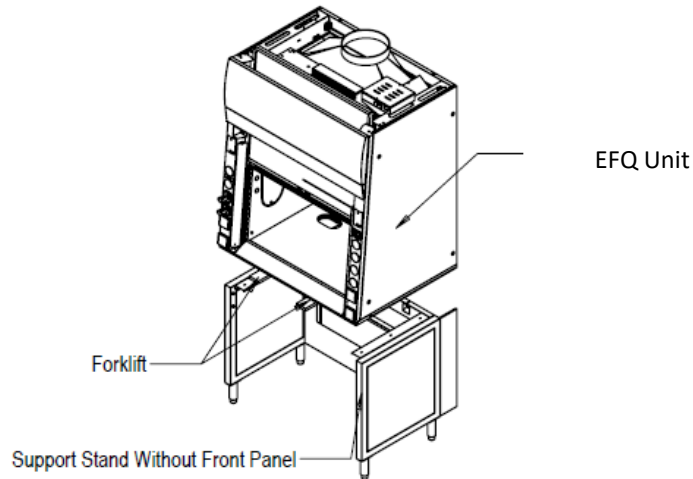
- D. Finish installation of support stand.



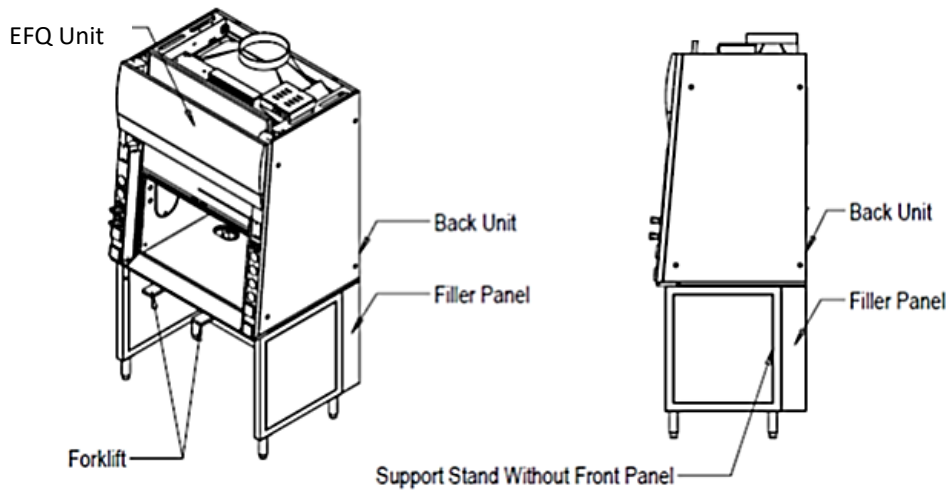
Note : Installation guide for 4 feet, 5 feet, 6 feet and 8 feet.

2.17 Hood to Support Stand Installation Guide *(if applicable)*

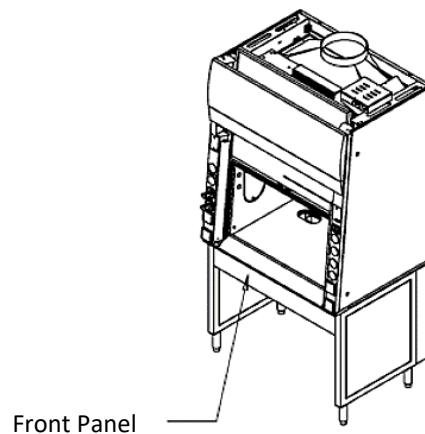
- A. Open or remove Front Panel on support Stand.
- B. Lift the unit with forklift or another equipment and put on top of support stand.



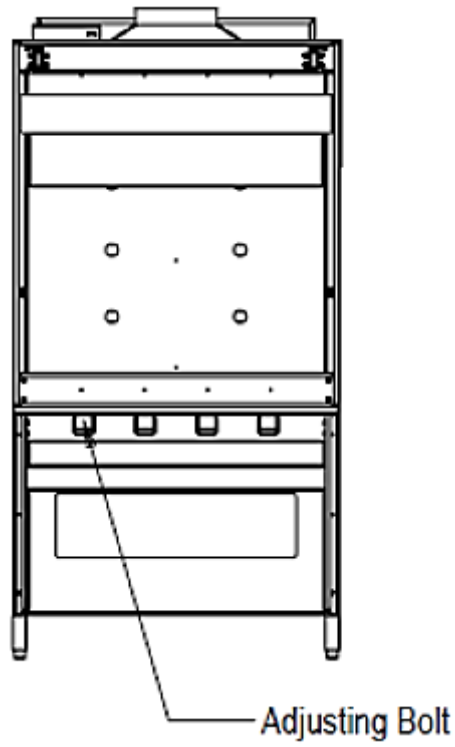
- C. Push down unit and place on top of support stand
- D. Ensure that the back unit and filler panel are levelled.



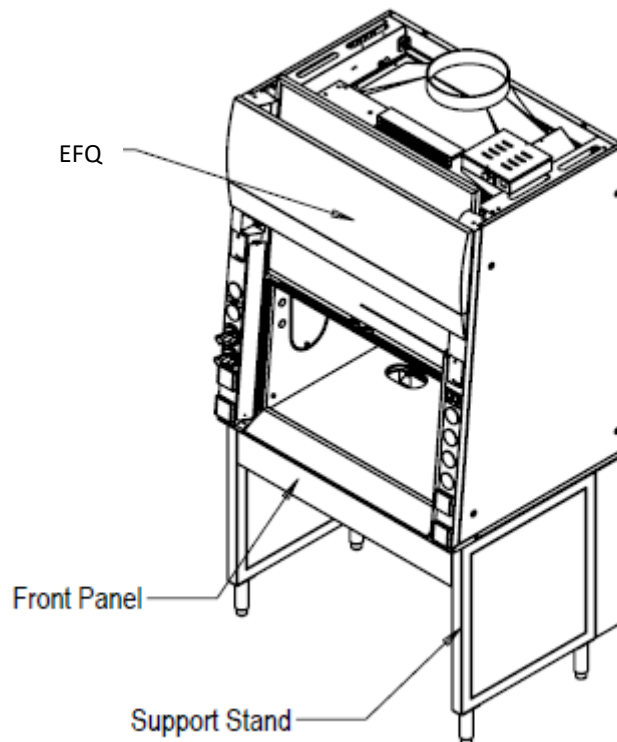
- E. Take out the Forklift and reinstall the front panel of the support stand



F. Tighten the bolts

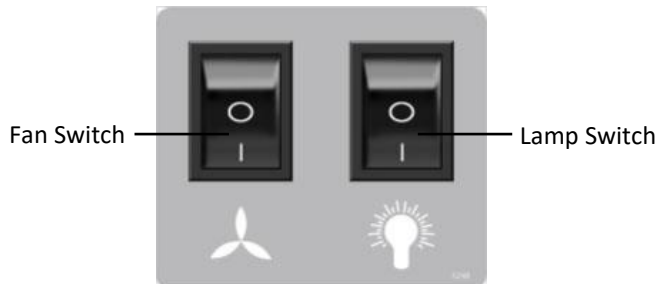


G. Installation is finished.



Chapter 3 – Control System and Operation

3.1 Basic On/Off Control



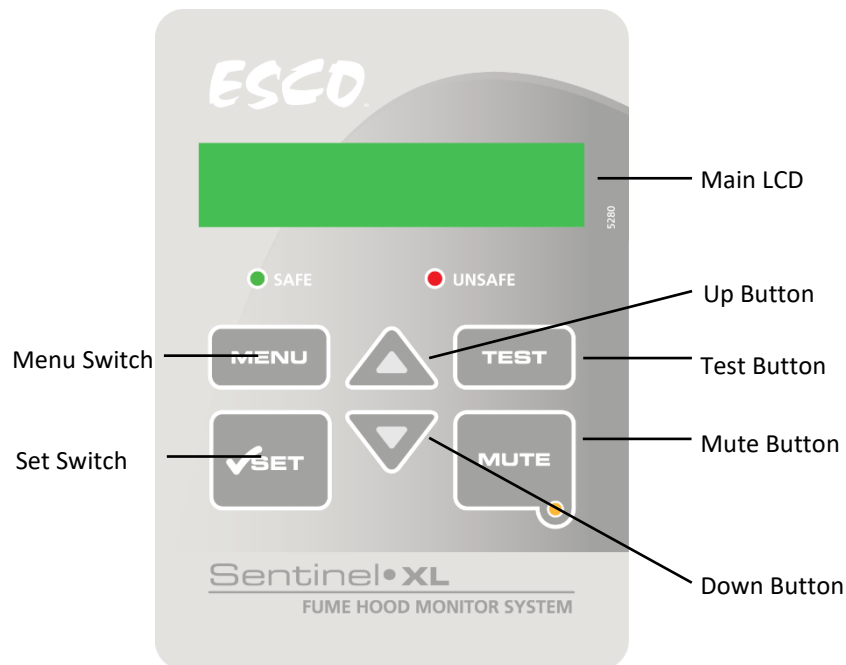
1. Fan Switch
 - Turns the external exhaust blower on and off (if connected).
2. Lamp Switch
 - Turns the fluorescent lamps on and off.

3.2 General Fume Hood Operation

- Follow your laboratory procedure on the use of personnel protective equipment and fume hood.
- Ensure the exhaust is operating before commencing work.
- Keep your head outside of the hood.
- Work as far into the hood as possible and with slow, deliberate movements, to minimize airflow disturbances.
- Work with the sash as fully lowered as possible, utilizing the sash as a natural barrier to accidents which may occur in the hood.
- If a combination sash is installed, do not open the vertical and horizontal sashes simultaneously.
- Do not use this hood as a storage area. Items can block airflow and interfere with containment.
- Do not let organic chemicals evaporate in the hood – use a proper waste bottle. Do not leave uncapped bottles of chemicals or waste in a hood.
- If performance is suspected, or an airflow alarm is triggered (if installed), terminate usage, close the sash completely, and cease work.
- Do not use perchloric acid in a fume hood unless it is specially designed for this purpose. Explosive perchlorate salts could accumulate in the exhaust system.
- Minimize external airflow disturbances, including foot traffic.
- Certify this hood annually to verify airflow velocity, smoke patterns and containment.
- Perform routine maintenance in accordance with the manufacturer's instructions.
- In case of spills, please refer to the laboratory procedure.

Chapter 4 – Sentinel XL Monitoring System

4.1 Sentinel XL Control System



LCD Display

- Displays the face velocity value, the face velocity condition, and also operational messages and alarm messages.

SAFE and UNSAFE Indicator Lights

- Indicate whether the fume hood is in a safe or unsafe state of operation.

MENU Button

- Enters and exits from the menu options
- Goes back to the previous level of the menu options
- Goes back from the diagnostic data display

SET Button

- Chooses the menu or sub-menu currently displayed on the LCD display
- Proceeds to the next step or sequence inside one of the menu options
- Accesses the fume hood diagnostic data (useful for service technician)

UP and DOWN Button

- Moves upwards and downwards the menu options
- Increases and decreases corresponding value inside one of the menu options.

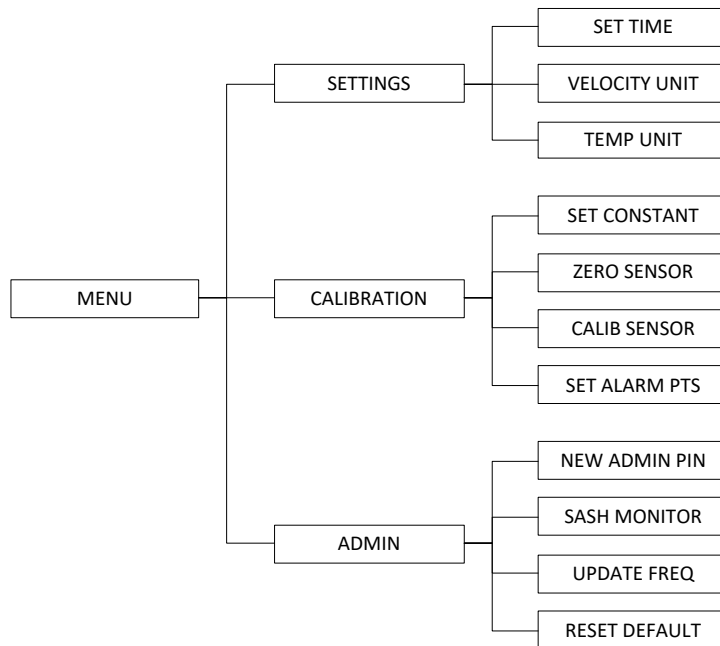
TEST Button

- Performs the fume hood self-test procedure. The procedure will check the functionality of the components inside the control system.

MUTE button

- Used to disable/enable the audible alarm.
- The yellow LED indicator turns on when the alarm is muted. The alarm can be muted either temporarily or permanently.
 - The alarm is muted temporarily if the MUTE button is pressed once. The audible alarm will be enabled again when a safe state has been reached, or the MUTE button is pressed again.
 - The audible alarm is muted permanently when the MUTE button is pressed twice within two seconds.

The audible alarm can be enabled again by pressing the MUTE button. The audible alarm is always enabled after power off or reset.

4.2 Menu Options**4.2.1 SETTINGS****4.2.1.1 SET TIME**

Users can set the time of the day by adjusting the hour and minute. The correct time will be maintained even after the unit is turned off.

4.2.1.2 VELOCITY UNIT

Using this option, user can change the air velocity unit from meters per second (m/s) to feet per minute (fpm) and vice versa. This will affect the display of the face velocity when the fan is running, and the velocity unit during calibration.

4.2.1.3 TEMP UNIT

Using this option, user can change the temperature unit from Celsius to Fahrenheit and vice versa. This will affect the display of the air temperature in the diagnostic data.

4.2.2 CALIBRATION

The purpose of calibrating the controller is to let the controller record particular output voltages from the face velocity sensor and relate them to air velocity values. Once the calibration is completed, the control system will be able to show the air velocity.

Calibration should be done at initial operation, when the face velocity accuracy is in question, and at least once a year.

4.2.3 ADMIN

4.2.3.1 NEW ADMIN PIN

ADMIN PIN restricts access to MENU functions, including service functions such as calibration. User must enter four-digit PIN before accessing MENU.

Setting PIN to 0000 will disable this feature. This feature is disabled by default.

4.2.3.2 SASH MONITOR

This option enables or disables the sash alarm. When enabled, an alarm will be activated when the sash opening height is detected to be more than the height determined during micro switch installation.

4.2.3.3 UPDATE FREQ

This option sets the velocity display update frequency. The default is NORMAL. The velocity display update can be set faster or slower. Each step doubles the update frequency or cuts it in half. With a slower velocity display update, the velocity reading is less affected by brief face velocity disturbances.

4.2.3.4 RESET DEFAULT

User can reset the default setting by choosing this option. The features being reset are the velocity unit (m/s), the temperature unit (Celsius), the ADMIN PIN (0000), and the sash monitor setting (disabled). Note that the calibration settings are not reset to prevent the fume hood being unsafe to use.

Always follow your laboratory procedure for using chemicals in the fume hood.

Chapter 5 – Service and Maintenance

5.1 Scheduled Maintenance

Proper and timely maintenance is crucial for trouble free functioning of any device and your Esco fume hood is no exception to this rule. We strongly recommend that you follow the maintenance schedule suggested hereunder in order to obtain optimal performance from your Esco fume hood.

No.	Description of Task to Perform	Maintenance to be carried out every			
		Week	Month	Quarter	1 Year
1	Clean the interior work surface and walls	√			
2	Clean the sash and all glass surfaces	√			
3	Airflow patterns check using a source of visible smoke	√			
4	Inspect the controls of the services to the fume hood		√		
5	Clean the exterior surfaces of the fume hood		√		
6	Check for any blockages at the hood baffles		√		
7	Determine the face velocity and ensure that the hood is operating properly		√		
8	Inspect the fume hood for any physical abnormalities or malfunction			√	
9	Check the sash for proper operation			√	
10	Change the fluorescent lamps				√
11	Re-certification				√
12	Check & clean the ducting system				

Cleaning the fume hood

- Clean the work surface and walls with appropriate disinfectant agent and soap water afterward
- Clean the sash window using an appropriate disinfectant agent and glass cleaner afterward
- Use a damp cloth to clean the exterior surface of the fume hood, particularly on the front and top in order to remove dust that accumulated there
- Use clean water to finish the cleaning and wash away any residue of disinfectant agent, soapy water and glass cleaner
- For removing stubborn stains or spots on the stainless steel surface, make use of MEK (Methyl-Ethyl-Ketone). In such cases, make sure that you wash the steel surface immediately afterwards with clean water and some liquid detergent. Use a polyurethane cloth or sponge for washing. Regularly cleaning the stainless steel surface can help you retain the attractive factory finish.
- Ensure that there's no blockage in and behind the baffle

Check the hood's functionality

- Check the hood's mechanical functionality; ex: sash window – lubricate if necessary
- Check the hood's electrical functionality; ex: fluorescent lamp – replace if necessary
- Check the hood for any defect, repair immediately
- Check the hood's airflow pattern and face velocity to ensure that the hood is functioning properly

Re-certification

All fume hoods must be re-certified annually by a certified engineer. See test report for recertification procedure.

Check and clean the ducting system

5.2 Maintenance/Service Log

It is good practice (and in some cases regulatory requirement) to maintain a log of all maintenance work carried out on your cabinet.

