

Frontier® PERCHLORIC ACID™

Perchloric Acid Fume Hood

Introduction

Esco Frontier® Perchloric Acid™ Fume Hood is designed to be used for routine handling of hot perchloric acid and hot nitric acid. However, it is not advisable for applications involving sulfuric acid, acetic acid, organic solvents or any combustible materials.

When heated, perchloric acid vaporizes and condenses to form metallic perchlorates on hood, duct and fan components. In addition to being highly corrosive, condensed vapors can react with hood gaskets, greaser and collected materials to form explosive perchloric salts. To prevent the formation of these salts, the fume hood has a built-in scrubber system that will clean the ducting and hood with series of water sprays.

Superstructure

- Tri-wall construction for maximum robustness.
- Internal chamber constructed of stainless steel 304 with covered corners. Has the option to upgrade to stainless steel Grade 316.
- Chain and Sprocket Sash support system.
- Energy-efficient hood lighting through a pre-wired, electronic ballast.
- Typical light intensity on work surface is >1076 lux in zero ambient conditions.

Safety Features

- Shaping vanes help improve containment by increasing airflow "sweep" at the critical area at the sidewall. This is important especially if there are sudden movements in front of the hood.
- Sash stop limits sash movement beyond 457 mm (18.0"), encouraging users to work at safe positions.
- Esco's Creep Down Mechanism will automatically lower the sash to its safe level (unless held in place) when sash is raised above 457 mm (18.0"). This allows the sash to be raised temporarily to the full open position for easy setting up of equipment and apparatus inside the hood.
- Sash creep down can only be disabled with a key, which permits the laboratory manager or safety officer to restrict operation at sash openings above 457 mm (18.0").
- The key can also be used to lock down the sash in its fully closed position to restrict access in case of faulty fume hood, facility shut down or simply to restrict access to equipment setup inside the hood.

- Wash down system behind baffles washes away any perchlorate salt deposits on the baffles.
- Water pump system ensures water pressure is constant during the wash down process.

Serviceability

- Stainless steel interior chamber allows easy cleaning of surface.
- Removable baffle system allows easy cleaning inside the hood.
- Chain and Sprocket system requires minimal service maintainance.

Safety Certified and Tested

All Esco fume hoods are manufactured for the most demanding laboratory applications.

- Frontier® Perchloric Fume Hoods are tested to ensure compliance with the ASHRAE 110:1995 Standard.
- UL1805 listed
- Wash down system has been tested to wash out over 95% of the area behind the baffle.
- Sash is clearly labeled with all operating instructions and illustrations.

Accessories and Options

Esco offers a variety of options and accessories to meet application requirements.

- Additional service fixtures and electrical outlets.
- Base cabinetry is available for support requirements and as an additional storage area for chemicals. Base cabinetry has the option to be installed with MCB/ELCB, a fume hood circuit which helps protects laboratory equipment during sudden fluctuation of current. This circuit is only available for 230 VAC, 50/60 Hz hoods.
- Esco EnviroSAFE Fume Hood Scrubber for air pollution control of water soluble chemicals present in the exhaust fumes.

Warranty

The Frontier® Perchloric Acid™ Fume Hood is warranted for 1 year excluding consumable parts and accessories. Contact your local sales representative for specific warranty details.



*Esco Frontier Perchloric Acid Fume Hood,
Model EFP-5UD4VW-8*

Guide to Models

E F P - D W -

External Width	Code	External Depth	Code	Internal Liner	Code	Sash Type	Code	Color Code	Code	Electrical Code	Code
1220 mm (48.0")	4U	900 mm (35.4")	D	SS 304	4	Vertical	V	Esco White	W	230 VAC, 50/60 Hz	8
1525 mm (60.0")	5U			SS 316 (optional)	6	Combination*	C			110-120 VAC, 50/60 Hz	9
1830 mm (72.0")	6U										
2440 mm (96.0")	8U										

*Combination Sash not available for EFP-8UD_ _W_ _ model.

General Specifications, Frontier® Perchloric Acid™ Fume Hoods

Model	220-240 VAC, 50-60 Hz, 1Ø		EFP-4UD4VW-8 2090198	EFP-5UD4VW-8 2090265	EFP-6UD4VW-8 2090214	EFP-8UD4VW-8 2090316
				EFP-4UD4CW-8 2090073	EFP-5UD4CW-8 2090074	EFP-6UD4CW-8 2090039
			EFP-4UD6VW-8 2090525	EFP-5UD6VW-8 2090072	EFP-6UD6VW-8 2090077	EFP-8UD6VW-8 2090079
			EFP-4UD6CW-8 2090076	EFP-5UD6CW-8 2090075	EFP-6UD6CW-8 2090041	
	110-120 VAC, 50-60 Hz, 1Ø		EFP-4UD4VW-9 2090526	EFP-5UD4VW-9 2090527	EFP-6UD4VW-9 2090528	EFP-8UD4VW-9 2090529
			EFP-4UD4CW-9 2090303	EFP-5UD4CW-9 2090627	EFP-6UD4CW-9 2090629	
			EFP-4UD6VW-9 2090530	EFP-5UD6VW-9 2090531	EFP-6UD6VW-9 2090532	EFP-8UD6VW-9 2090533
			EFP-4UD6CW-9 2090626	EFP-5UD6CW-9 2090628	EFP-6UD6CW-9 2090630	
Nominal Size			1.2 meter (4')	1.5 meter (5')	1.8 meter (6')	2.4 meters (8')
External Dimensions (W x D x H)	Fume Hood unit only		1220 x 900 x 1400 mm (48.0" x 35.4" x 55.1")	1525 x 900 x 1400 mm (60.0" x 35.4" x 55.1")	1830 x 900 x 1400 mm (72.0" x 35.4" x 55.1")	2440 x 900 x 1400 mm (96.1" x 35.4" x 55.1")
	Exhaust Collar and Pump Housing		1220 x 900 x 1692 mm (48.0" x 35.4" x 66.6")	1525 x 900 x 1692 mm (60.0" x 35.4" x 66.6")	1830 x 900 x 1692 mm (72.0" x 35.4" x 66.6")	2440 x 900 x 1692 mm (96.1" x 35.4" x 66.6")
	With Fully-opened Sash		1220 x 900 x 1603 mm (48.0" x 35.4" x 63.1")	1525 x 900 x 1603 mm (60.0" x 35.4" x 63.1")	1830 x 900 x 1603 mm (72.0" x 35.4" x 63.1")	2440 x 900 x 1603 mm (96.1" x 35.4" x 63.1")
Internal Dimensions (W x D x H)			996 x 690 x 1258 mm (39.2" x 27.2" x 49.5")	1301 x 690 x 1258 mm (51.2" x 27.2" x 49.5")	1606 x 690 x 1258 mm (63.2" x 27.2" x 49.5")	2216 x 690 x 1258 mm (87.2" x 27.2" x 49.5")
Exhaust Volume/ Static Pressure Required	Face Velocity	Sash Opening				
	0.3 m/s (60 fpm)	Design Opening: 457 mm (18.0")	542 cmh at 7 Pa (319 cfm at 0.03" WG)	705 cmh at 9 Pa (415 cfm at 0.04" WG)	867 cmh at 12 Pa (510 cfm at 0.05" WG)	1192 cmh at 8 Pa (702 cfm at 0.03" WG)
	0.4 m/s (80 fpm)		723 cmh at 13 Pa (425 cfm at 0.05" WG)	939 cmh at 17 Pa (553 cfm at 0.07" WG)	1156 cmh at 20 Pa (680 cfm at 0.09" WG)	1590 cmh at 14 Pa (936 cfm at 0.06" WG)
	0.5 m/s (100 fpm)		903 cmh at 20 Pa (531 cfm at 0.08" WG)	1174 cmh at 26 Pa (691 cfm at 0.11" WG)	1445 cmh at 28 Pa (850 cfm at 0.12" WG)	1987 cmh at 22 Pa (1170 cfm at 0.09" WG)
	0.3 m/s (60 fpm)	Full Open: 736 mm (29.0")	642 cmh at 13 Pa (378 cfm at 0.06" WG)	834 cmh at 17 Pa (491 cfm at 0.07" WG)	1027 cmh at 22 Pa (604 cfm at 0.09" WG)	1412 cmh at 14 Pa (831 cfm at 0.06" WG)
	0.4 m/s (80 fpm)		856 cmh at 23 Pa (504 cfm at 0.10" WG)	1113 cmh at 30 Pa (655 cfm at 0.13" WG)	1369 cmh at 39 Pa (806 cfm at 0.17" WG)	1883 cmh at 25 Pa (1108 cfm at 0.11" WG)
0.5 m/s (100 fpm)	1070 cmh at 36 Pa (630 cfm at 0.15" WG)		1391 cmh at 47 Pa (819 cfm at 0.20" WG)	1712 cmh at 61 Pa (1008 cfm at 0.26" WG)	2354 cmh at 40 Pa (1386 cfm at 0.17" WG)	
Exhaust Outlet Diameter			305 mm (12.0")			
Number of Exhaust Collars			1		2	
Fluorescent Lamp Intensity			930 lux (86 foot-candles)	915 lux (85 foot-candles)	886 lux (82 foot-candles)	931 lux (86 foot-candles)
Construction	Main Body	Electrogalvanized steel with Epoxy-polyester hybrid Isocide™ powder coating				
	Internal Liner	Stainless Steel 304 (option to upgrade to SS 316)				
	Worktop					
Sash Specification	Sash Material	Tempered Laminated and Framed Sash Glass				
	Sash Configuration	Vertical or Combination			Vertical	
	Sloping	5° sloped				
	Maximum Sash Opening	740 mm (29.1")				
Electrical	Cabinet Full Load Amps (FLA)	34.4 A			36.8 A	
	Cabinet Nominal Power	470 W			840 W	
Net Weight*			230 Kg (506 lbs)	270 Kg (594 lbs)	332 Kg (731 lbs)	378 Kg (832 lbs)
Shipping Weight*			260 Kg (573 lbs)	295 Kg (650 lbs)	360 Kg (794 lbs)	410 Kg (904 lbs)
Shipping Dimension, maximum (W x D x H)**			1300 x 950 x 1940 mm (51.18" x 37.4" x 76.38")	1650 x 950 x 1940 mm (65" x 37.4" x 76.38")	1950 x 950 x 1940 mm (76.77" x 37.4" x 76.38")	2500 x 950 x 1940 mm (98.43" x 37.4" x 76.38")

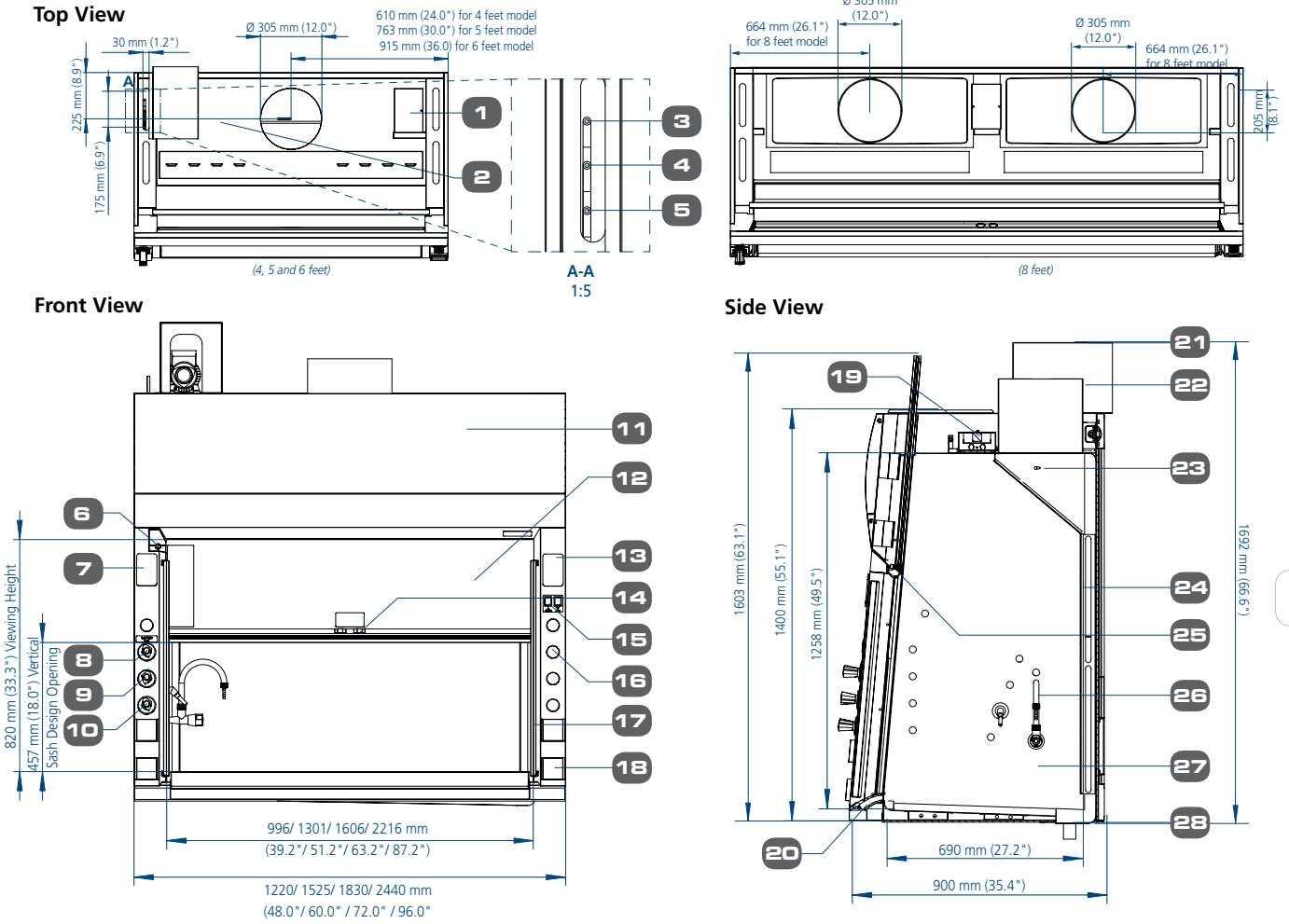
*Fume hood unit only. Exclude base cabinet/optional stand.

General Specifications, Base Cabinets for Frontier® Acid Digestion™ Fume Hoods

Model*	EBA-4UDG-0 2090153	EBA-4UDG-8 2090154	EBA-5UDG-0 2090157	EBA-5UDG-8 2090158	EBA-6UDG-0 2090161	EBA-6UDG-8 2090162	EBA-8UDG-0 2090163	EBA-8UDG-8 2090167
Nominal Size	1.2 meter (4')		1.5 meter (5')		1.8 meter (6')		2.4 meters (8')	
External Dimensions (W x D x H)	1220 x 900 x 915 mm (48.0" x 35.4" x 36.0")		1525 x 900 x 915 mm (60.0" x 35.4" x 36.0")		1830 x 900 x 915 mm (72.0" x 35.4" x 36.0")		2440 x 900 x 915 mm (96.0" x 35.4" x 36.0")	
Shipping Dimension, maximum (W x D x H)	1350 x 750 x 1150 mm (53.1" x 29.5" x 45.3")		830 x 960 x 2240 mm (32.7" x 37.8" x 88.2")		1120 x 720 x 2240 mm (44.1" x 28.3" x 88.2")		1450 x 720 x 2200 (57.1" x 28.3" x 86.6")	

*Model EBA-UDG-0 is standard base cabinet without MCB/ELCB (MCB/ELCB panel is always mounted on the top right hand corner of base cabinet set)
Model EBA-UDG-8 is with MCB/ELCB protection and only applicable for 230 VAC, 50/60 Hz units.

Model EFP, Frontier® Perchloric Acid™ Fume Hood Engineering Drawing

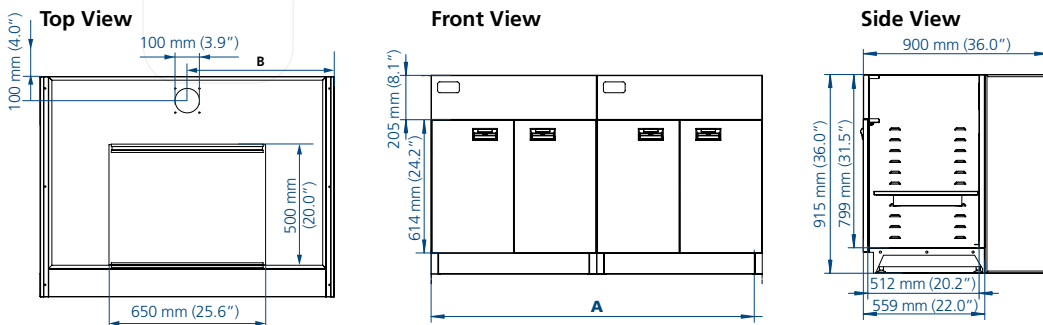


1. Electrical junction box
2. Collar wash down system pipe
3. Cold water inlet pipe
4. Gas inlet pipe
5. Water outlet from discharge pump for duct wash down system
6. Sash keylock
7. Provision for additional outlets
8. Wash down fixture remote
9. Gas fixture remote
10. Cold water fixture remote
11. Curved removable front panel
12. Tempered laminated and framed sash glass
13. Provision for Sentinel™ XL Airflow Alarm
14. Sash stop
15. Light and fan switch
16. Provision for additional service
17. Shaped side vane
18. Electrical outlet(s)
19. Light housing
20. Flush Airfoil
21. Pump housing
22. SS 304 Exhaust Collar
23. Piping and sprayer for wash down system
24. SS 304 Baffle
25. Sash handle
26. Enhanz™: 1 set Cold Water Fixture, 1 set Gas Fixture
27. Full stainless steel internal chamber
28. Drip Cup

Fume Hood Installation Requirements

- Proper location (refer to Esco recommendations)
- Exhaust system capable of delivering airflow and pressure drop requirements
 - Exhaust ductwork and connection accessories
 - Exhaust blower (or building exhaust system)
 - Contractor (if applicable)
 - Means of adjusting exhaust flow (damper or frequency inverter)
- Sufficient laboratory supply air
- Plumbing and electrical hook-up
- Unless otherwise specified, items and services specified above are not provided by Esco

Model EBA, Technical Specification of Base Cabinet for Frontier® Perchloric Acid™ Fume hood

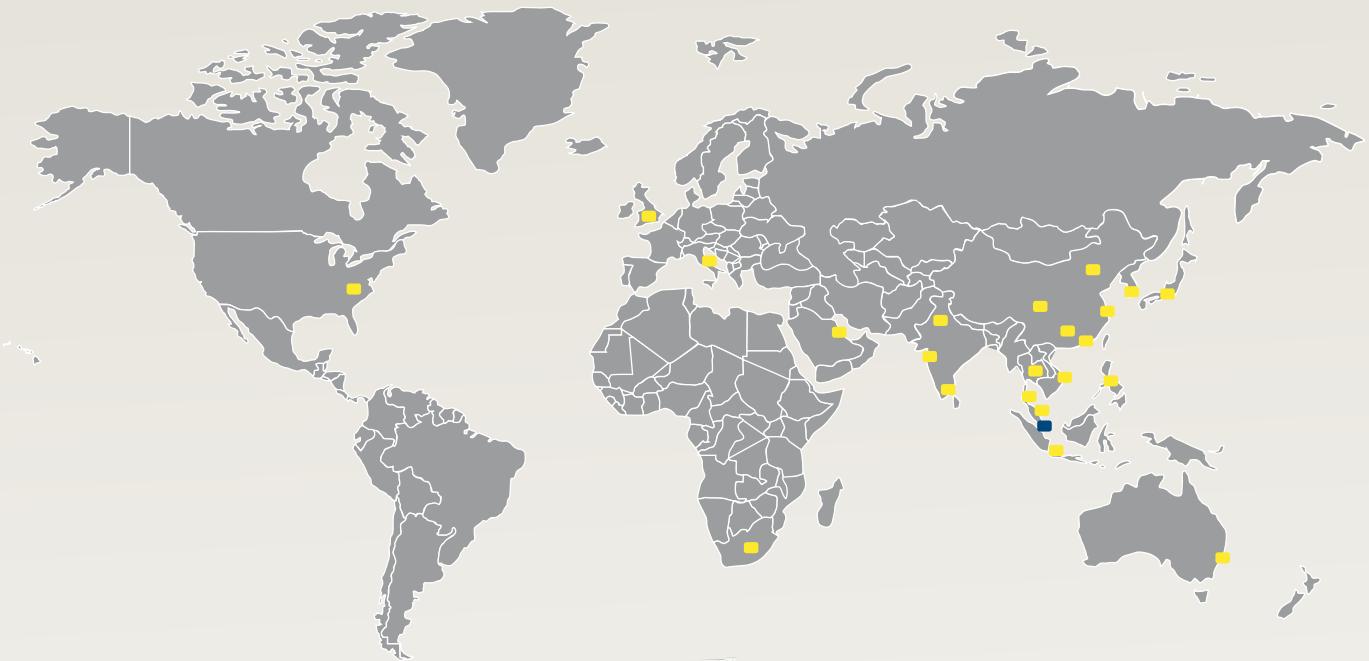


Model	A	B
EBA-4UDG-0 / EBA-4UDG-8	1220 mm (48.0")	610 mm (24.0")
EBA-5UDG-0 / EBA-5UDG-8	1525 mm (60.0")	381 mm (15.0")
EBA-6UDG-0 / EBA-6UDG-8	1830 mm (72.0")	457.5 mm (18.0")
EBA-8UDG-0 / EBA-8UDG-8	2440 mm (96.1")	381 mm (15.0")

* Model EBA-UDG-0 is standard base cabinet without MCB/ELCB

Model EBA-UDG-8 is with MCB/ELCB protection and only applicable for 230VAC, 50/60Hz units. MCB/ELCB panel is always mounted on the top right hand corner of base cabinet set.

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