

Frontier[®] PERCHLORIC[™]

Perchloric Acid Fume Hood

Introduction

Esco Frontier Perchloric Fume Hood is designed to be used when handling hot perchloric acid, hot nitric acid, or for routine use of perchloric acid. Do not handle sulfuric acid, acetic acid, organic solvents, or any combustible materials in perchloric acid hoods.

When heated, perchloric acid vaporizes and condenses on hood, duct and fan components. In addition to being highly corrosive, condensed vapors can react with hood gaskets, greases and other collected materials to form explosive perchloric salts and esters. To prevent perchlorate salt build up, the ductwork and fume hood are cleaned internally with a series of water sprays. Full stainless steel surfaces help ensure cleanability.

Superstructure

- Tri-wall construction for maximum robustness.
- Internal chamber constructed of stainless steel 304 with coved corners. Option to upgrade to stainless steel 316 is available.
- Chain and Sprocket Sash support system.
- Hood lighting is pre-wired. Lighting is electronically ballasted, energy efficient, instant start. Typical light intensity on work surface is >1076 lux in zero ambient conditions.

Safety Features

- Shaping vanes increase airflow "sweep" at the critical area at the sidewall to improve containment, especially when laboratory personnel walk past in front of the hood.
- Sash stop limits sash movement beyond 457mm (18.0"), 'encouraging' user to work at safe positions.
- When sash is raised above 457mm (18.0"), it will automatically and gently fall back to the safe level (Esco's creep-down mechanism) unless held in place. This allows the sash to be raised temporarily to the full open position for set up of equipment

and apparatus in hood, while enforcing regular operation of the hood with lowered sash.

- 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 457mm (18.0").
- The sash can also be locked down in the fully closed position with the key, in the event of a fume hood fault, facility shut-down, or, simply to restrict access to equipment set up in the hood.
- Wash down system behind baffles washes away any perchlorate salt deposits on the baffles and prevents any build-up of the salts which are explosive in nature.
- 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 cleaning inside the hood.
- Chain and sprocket system requires minimal service.

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.
- Wash down system is tested to ensure over 95% of area behind baffle is washed.
- Sash is clearly labeled with all operating instructions and illustrations.



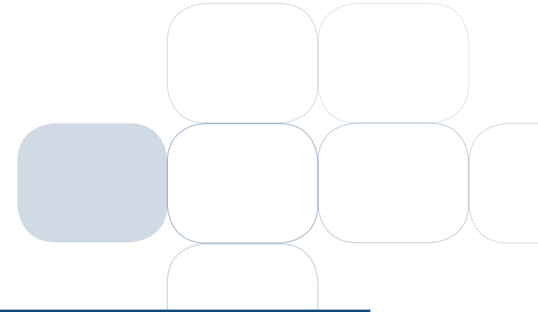
*Esco Frontier Perchloric Fume Hood,
Model EFP-5UD4VW-8*

Accessories and Options

- Esco offers a variety of options and accessories to meet application requirements.
- Additional services and electrical outlets.
- Base cabinetry is available for support requirements and additional storage area in the laboratory.

Warranty

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



Guide to Models											
E F P - 4 U D 4 V W - 8											
External Width		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	230V, AC, 50/60Hz	8
1525 mm (60.0")	5U			SS 316 (optional)	6	Combination*	C			110-120V, AC, 50/60Hz	9
1830 mm (72.0")	6U										
2440 mm (96.0")	8U										

* Combination Sash not available for EFP-8UD__W__ model.

General Specifications, Frontier Perchloric Fume Hoods

Model	EFP-4UD__W__	EFP-5UD__W__	EFP-6UD__W__	EFP-8UD__W__		
Nominal Size	1.2 meters (4')	1.5 meters (5')	1.8 meters (6')	2.4 meters (8')		
External Dimensions * (W x D x H)	1220 x 900 x 1731 mm 48.0" x 35.4" x 68.2"	1525 x 900 x 1731 mm 60.0" x 35.4" x 68.2"	1830 x 900 x 1731 mm 72.0" x 35.4" x 68.2"	2440 x 900 x 1731 mm 96.0" x 35.4" x 68.2"		
Internal Dimensions (W x D x H)	996 x 672 x 1240 mm 39.2" x 26.5" x 48.8"	1301 x 672 x 1240 mm 51.2" x 26.5" x 48.8"	1606 x 672 x 1240 mm 63.2" x 26.5" x 48.8"	2216 x 672 x 1240 mm 87.2" x 26.5" x 48.8"		
Maximum Sash Opening	740 mm (29.1")					
Exhaust Volume/ Static Pressure Required	Face Velocity	Sash Opening				
	0.3 m/s (60 fpm)	Design Opening: 457 mm (18.0")	542 cmh @ 7 Pa 319 cfm @ 0.03" WG	705 cmh @ 9 Pa 415 cfm @ 0.04" WG	867 cmh @ 12 Pa 510 cfm @ 0.05" WG	1192 cmh @ 8 Pa 702 cfm @ 0.03" WG
	0.4 m/s (80 fpm)	Design Opening: 457 mm (18.0")	723 cmh @ 13 Pa 425 cfm @ 0.05" WG	939 cmh @ 17 Pa 553 cfm @ 0.07" WG	1156 cmh @ 20 Pa 681 cfm @ 0.09" WG	1590 cmh @ 14 Pa 936 cfm @ 0.06" WG
	0.5 m/s (100 fpm)	Design Opening: 457 mm (18.0")	903 cmh @ 20 Pa 532 cfm @ 0.08" WG	1174 cmh @ 26 Pa 691 cfm @ 0.11" WG	1445 cmh @ 28 Pa 851 cfm @ 0.12" WG	1987 cmh @ 22 Pa 1170 cfm @ 0.09" WG
	0.3 m/s (60 fpm)	Full Open: 736 mm (29.0")	642 cmh @ 13 Pa 378 cfm @ 0.06" WG	834 cmh @ 17 Pa 491 cfm @ 0.07" WG	1027 cmh @ 22 Pa 605 cfm @ 0.09" WG	1412 cmh @ 14 Pa 831 cfm @ 0.06" WG
	0.4 m/s (80 fpm)	Full Open: 736 mm (29.0")	856 cmh @ 23 Pa 504 cfm @ 0.10" WG	1113 cmh @ 30 Pa 655 cfm @ 0.13" WG	1369 cmh @ 39 Pa 806 cfm @ 0.17" WG	1883 cmh @ 25 Pa 1108 cfm @ 0.11" WG
0.5 m/s (100 fpm)	Full Open: 736 mm (29.0")	1070 cmh @ 36 Pa 630 cfm @ 0.15" WG	1391 cmh @ 47 Pa 819 cfm @ 0.20" WG	1712 cmh @ 61 Pa 1008 cfm @ 0.26" WG	2354 cmh @ 40 Pa 1385 cfm @ 0.17" WG	
Exhaust Outlet Diameter	305 mm (12.0")					
Number of Exhaust Collars	1	1	1	2		

* When sash is in full open position, total height of fume hood is 1731 mm (68.2"). Please ensure sufficient ceiling height clearance is available.

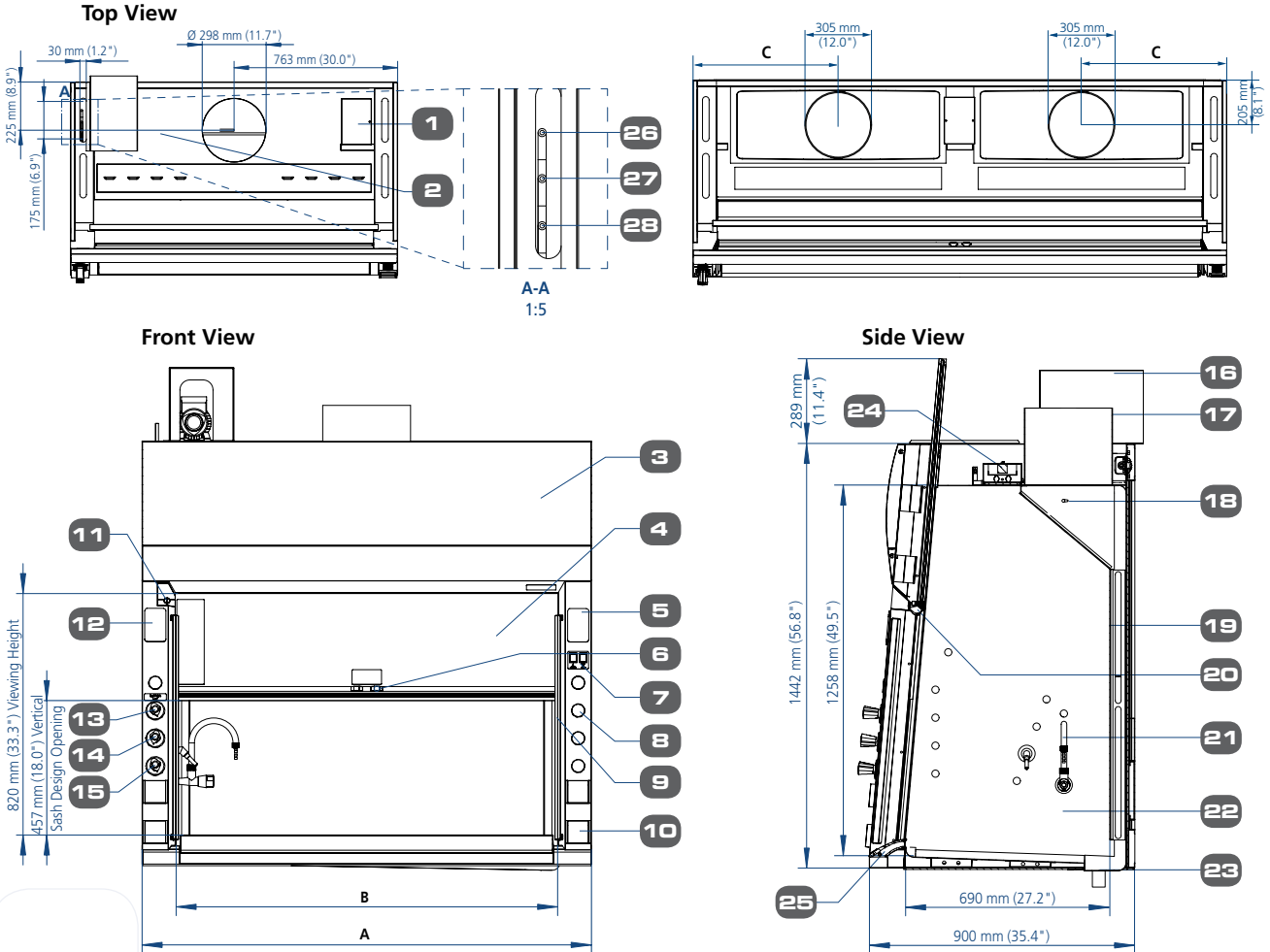
General Specifications, Base Cabinet for Frontier Perchloric Fume Hoods

Model*	EBA-4UDG-0 / EBA-4UDG-8	EBA-5UDG-0 / EBA-5UDG-8	EBA-6UDG-0 / EBA-6UDG-8	EBA-8UDG-0 / EBA-8UDG-8
Nominal Size	1220 mm (24")	1525 mm (60.0")	1830 mm (72")	2440 mm (96")
External Dimensions (W x D x H)	1220 x 849 x 915 mm 48.0" x 33.4" x 36.0"	1525 x 849 x 915 mm 60" x 33.4" x 36.0"	1830 x 849 x 915 mm 72" x 33.4" x 36.0"	2440 x 849 x 915 mm 96" x 33.4" x 36.0"
Net Weight	76 kg (167 lbs)	115 kg (253 lbs)	140 kg (308 lbs)	160 kg (325 lbs)
Shipping Weight	90 kg (198 lbs)	147 kg (324 lbs)	160 kg (325 lbs)	180 kg (360 lbs)
Shipping Dimensions, Maximum (W x D x H)	1370 x 102 x 1100 mm 54" x 40.2" x 43.3"	1675 x 1020 x 1100 mm 66.0" x 40.2" x 43.3"	1980 x 1020 x 1100 mm 78" x 40.2" x 43.3"	2590 x 1020 x 1100 mm 102" x 40.2" x 43.3"

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

Model EBA-____-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.

Model EFP, Frontier Perchloric Fume Hood Technical Specifications



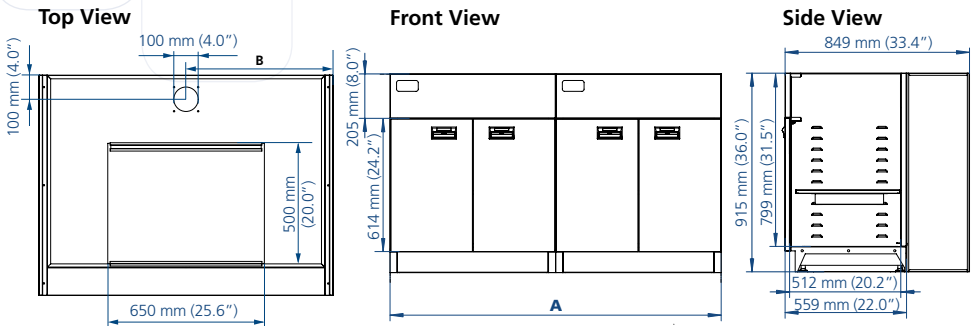
1. Electrical junction box
2. Collar wash down system pipe
3. Curved removable front panel
4. Tempered laminated framed sash glass
5. Provision for airflow alarm
6. Sash stop
7. Light and fan switch
8. Provision for additional service
9. Shaped side vane
10. Electrical outlet(s)
11. Sash keylock (lock sash at fully open and fully close)
12. Provision for additional outlets
13. Wash down fixture remote
14. Gas fixture remote
15. Cold water fixture remote
16. Pump housing
17. Stainless steel exhaust collar
18. Piping and sprayer for wash down system
19. Stainless steel baffle
20. Aerodynamic full length sash handle
21. Enhanz™ service fixture, powder coat finished CW (Cold Water) 1 set, gas(Gas) 1 set
22. Full stainless steel internal chamber
23. Drainage system with 2" BSPT bushing
24. Light housing
25. Flash airfoil, hinged for cleaning, spillage containment 0.4 Litres/0.1 gallons
26. Cold water inlet pipe
27. Gas inlet pipe
28. Water outlet from discharge pump for duct wash down system

Fume Hood Dimensional Data			
Model	A	B	C
EFP-4UD__W_	1220 mm (48.0")	996 mm (39.0")	610 mm (24.0")
EFP-5UD__W_	1525 mm (60.0")	1301 mm (51.0")	762.5 mm (30.0")
EFP-6UD__W_	1830 mm (72.0")	1606 mm (63.0")	915 mm (36.0")
EFP-8UD__W_	mm (96.0")	2216 mm (87.0")	664 mm (26.0")

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)
 - Contactor (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 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 (96.0")	381 mm (15.0")



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Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and cleanroom equipment solutions. Products sold in more than 100 countries include biological safety cabinets, cleanroom products, compounding pharmacy equipment, containment / pharma products, ductless fume hoods, in vitro fertilization workstations, lab animal research products, laboratory fume hoods, laboratory ovens and incubators, laminar flow clean benches and PCR products and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community. www.escoglobal.com.

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