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# Supreme Air Venturi

## Laboratory Fume Hoods



KEWAUNEE®

encouraging new discovery... *Worldwide*

# Table of Contents

<b>Venturi Fume Hood Features .....</b>	<b>1</b>
<b>General Purpose Bench Fume Hood</b>	
Catalog Numbers & Description .....	2
Technical Information & Dimensions .....	3
<b>Venturi Fume Accessories</b>	
Work Tops .....	4
Air Alert Airflow Monitor .....	4
Service Fittings .....	5
<b>Base Cabinets</b>	
Base Cabinet Trim .....	6
Fume Hood Base Cabinets .....	6
Solvent Storage Cabinets .....	7
Acid Storage Cabinets .....	8
Vacuum Pump Storage Cabinets .....	9
<b>Recommended Fume Hood Work Practices .....</b>	<b>10</b>

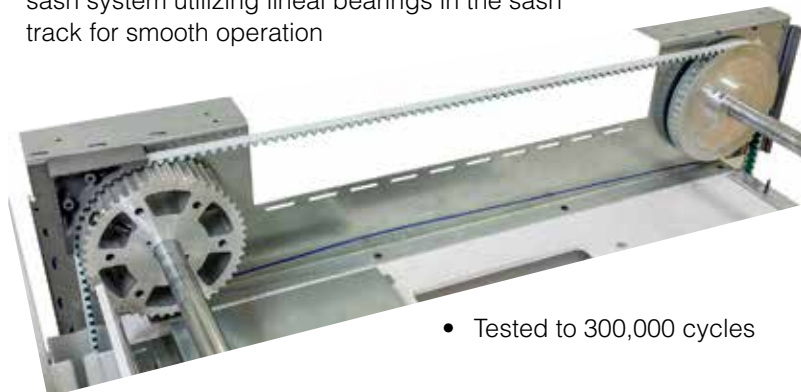
# Venturi Fume Hood Features



**Light & Sash Stop Controller**

## Belt Driven Sash & Pulley System

- Low maintenance, dual shaft, belt and gear driven, sash system utilizing lineal bearings in the sash track for smooth operation



- Tested to 300,000 cycles

## General Features

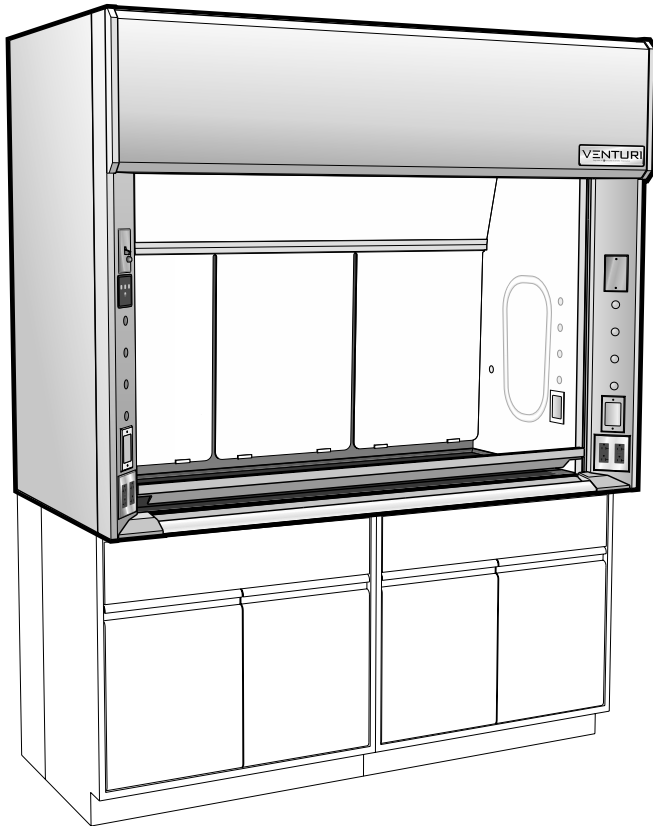
- LED interior lighting with 15 intensity and 3 color settings
- Large viewing height
- Unparalleled containment
- Low Flow/High Performance
- Energy Efficient
- Venturi post design improves corner airflow
- Electromechanical sash stop integrated into sash track  
*(mechanical sash stop on floor mounted hoods)*
- Flush airfoil for easy user access
- Easily removable, gasketed Access Panels
- Two GFCI protected duplex receptacles in each corner post
- Room for four service fittings per side post
- Cord pass-throughs in each side post.



**Venturi Port & Notched Sash Handle**

# KV05 – General Purpose Bench Fume Hood

## with Vertical Rising Sash



### Accessories Included:

- 4 120 VAC 20 amp GFCI protected ivory duplex receptacles wired to junction box at top of hood. (UL 6110A-1 Listed)
- 1 LED light fixture with illumination and color controller
- 1 Electromechanical sash stop with push button override
- 1 Motor rated Fan/Blower switch with pilot light. Double pole toggle switch with thermal overload protection (Thermal unit not provided) for 1 HP single phase 60 hertz 120/240 volt AC motors.
- 1 Cutout for Air Alert 300 Alarm. (Provided with blank face plate)
- 1 Type 304L Stainless Steel Airfoil
- 2 Cord Ports (one in each side post)

### Sizes: part no. code

**Sash Opening Height:**  
28 inches / 711mm **28**

**Inside Depth:**  
24 inches / 610mm **24**

**Available Overall Lengths:**

48 inches / 1219mm	<b>48</b>
60 inches / 1524mm	<b>60</b>
72 inches / 1829mm	<b>72</b>
96 inches / 2438mm	<b>96</b>

### Additional Parts Required for a Complete Fume Hood Assembly

<b>Work Top</b>	see page 4
<b>Cupsink</b>	see page 4
<b>Service Fittings</b>	see page 5
<b>Base Cabinets</b>	see page 6-9

### Liner Material: part no. code

**Kemglass** **G**  
Fiberglass reinforced polyester  
1805 UL classified

### Sash Frame Type: part no. code

Frameless **N**

VWR Catalog Number	Length
<b>KV05F282448GNV</b>	48"
<b>KV05F282460GNV</b>	60"
<b>KV05F282472GNV</b>	72"
<b>KV05F282496GNV</b>	96"

# Technical Information

# KV05

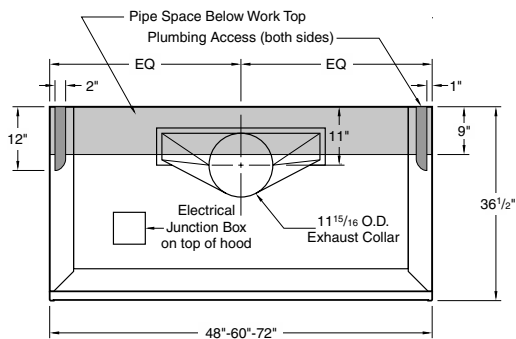
## Airflow (CFM) Requirements

Face Velocity	28" High Sash Opening								18" High Sash Opening							
	4'-0" / 48"		5'-0" / 60"		6'-0" / 72"		8'-0" / 96"		4'-0" / 48"		5'-0" / 60"		6'-0" / 72"		8'-0" / 96"	
	CFM	SP	CFM	SP	CFM	SP	CFM	SP	CFM	SP	CFM	SP	CFM	SP	CFM	SP
100 FPM	790	0.40	1030	0.50	1270	0.60	1750	0.45	510	0.20	670	0.25	830	0.30	1150	0.20
80 FPM	630	0.25	820	0.35	1020	0.40	1400	0.30	410	0.15	540	0.15	670	0.20	920	0.15
60 FPM	470	0.15	620	0.20	760	0.25	1050	0.20	310	0.10	400	0.10	500	0.10	690	0.10
50 FPM	390	0.10	510	0.15	630	0.15	880	0.10	260	0.05	340	0.10	420	0.10	570	0.05

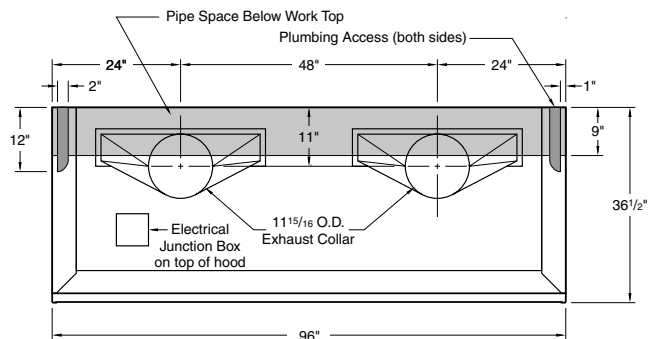
Static pressures shown are for the pressure drop through the hoods only. The total pressure drop through the hood and the duct system must be calculated to select the proper exhaust fan.

## ANSI Z9.5 Minimum Flow Rate

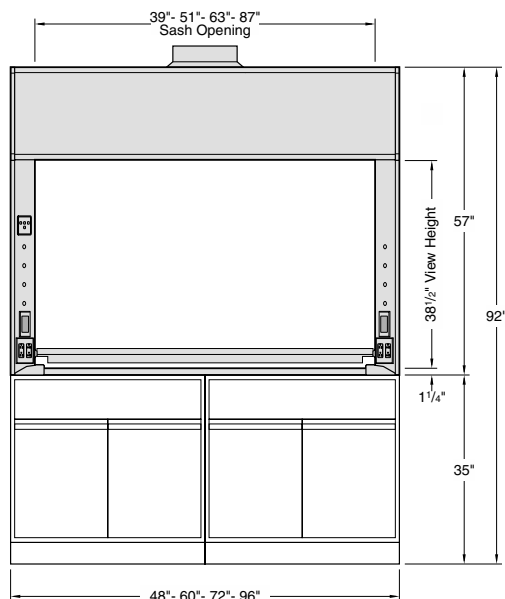
Inside Depth	150 Air Changes/Hour				375 Air Changes/Hour			
	4'-0" / 48"	5'-0" / 60"	6'-0" / 72"	8'-0" / 96"	4'-0" / 48"	5'-0" / 60"	6'-0" / 72"	8'-0" / 96"
24" deep	80 CFM	100 CFM	120 CFM	170 CFM	190 CFM	240 CFM	300 CFM	410 CFM



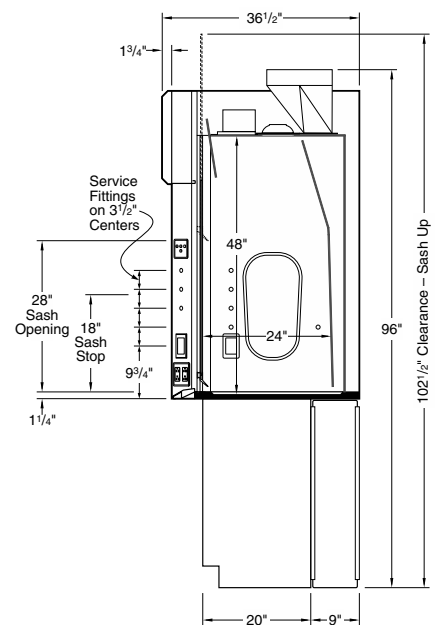
**4'-5'-6" Rough-in**



**8' Rough-in**



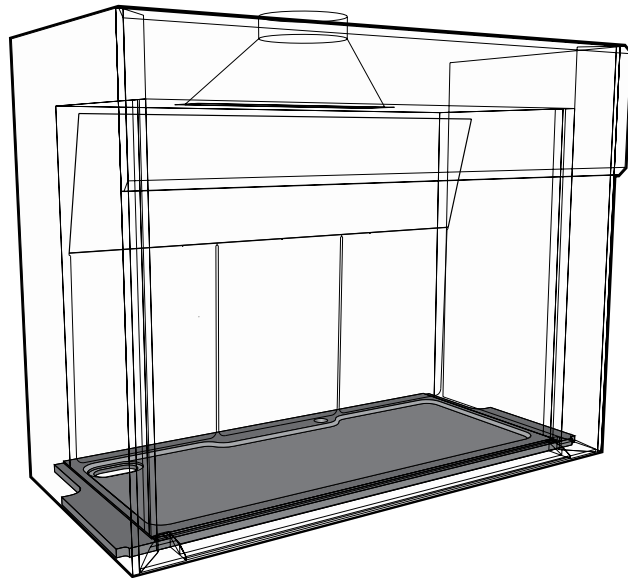
**Elevation**



**Vertical Section**

# Venturi Fume Hood Tops

## Work Tops – Cupsink



Venturi Bench Hoods require a Work Top that must be ordered separately. Work Tops are Black Kemresin, dished 1/2" to retain spillage, and incorporate a 2" wide safety rim at the front.

They include a cupsink cutout in the left rear and are available with or without a vent hole in the right side of the rear vent bump-out.

**Cupsinks must be ordered separately.**

## Oval Cupsink



## Black Kemresin Work Top (with Cupsink Cutout)



### With Vent Hole on Right

VWR Catalog Number	Length
<b>KVBTR012448-AC</b>	48"
<b>KVBTR012448-AC</b>	60"
<b>KVBTR012448-AC</b>	72"
<b>KVBTR012448-AC</b>	96"



### Without Vent Hole

VWR Catalog Number	Length
<b>KVBTR012448-A</b>	48"
<b>KVBTR012448-A</b>	60"
<b>KVBTR012448-A</b>	72"
<b>KVBTR012448-A</b>	96"



**97006-004** Black Poly  
Complete with removable strainer. 6"x 3" inside dimension. 1 1/2" IPS male straight thread outlet. (Overall height is 8 1/2")

## Air Alert Fume Hood Monitor – VWR Part No. VF-9041-00



VWR Catalog Number **VF-9041-00**

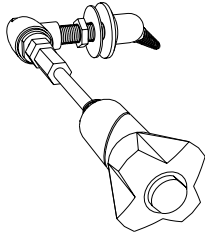
**Air Alert 300** consists of a thermistor sensor mounted through the end wall of the hood, and a control monitor that gives both a visual and audible alarm. The alarm monitors the fume hood face velocity and sounds an alarm when the airflow falls below safe levels. A glowing green light signals when conditions are again safe. The

control monitor, which is mounted on the hood fascia, also contains a test/reset button that allows the hood user to verify alarm readiness.

The Air Alert 300 operates on a 9 volt DC circuit and comes complete with an adapter that can be plugged into any 120 VAC receptacle.

# Venturi Fume Hood Service Fittings

## Rod Driven Needle Valves – Front Location

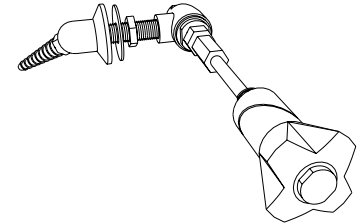


**K3185**  
Needle Valve with  
Color Coded Nylon Service Outlet



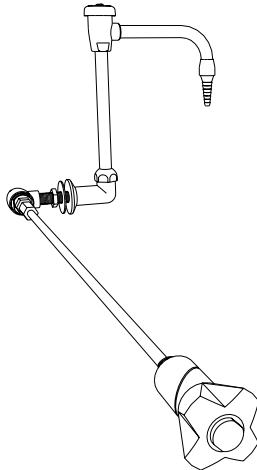
VWR Catalog Number	Service
<b>K3185A-LFMNAN</b>	Air
<b>K3185G-LFMNAN</b>	Gas
<b>K3185V-LFMNAN</b>	Vacuum
<b>K3185N-LFMNAN</b>	Nitrogen
<b>K3185W-LFMNAN</b>	Cold Water

**K3185 valve assemblies may be installed on either right or left side of fume hood**



**K3185**  
Needle Valve with  
Color Coded Nylon Service Outlet

## Rod Driven Needle Valves – Back Location

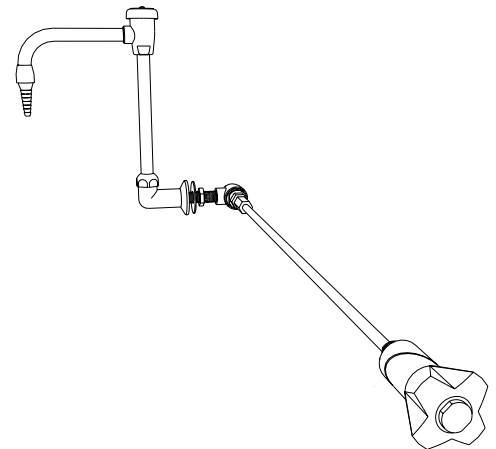


6" Rigid/Swing Gooseneck  
with Vacuum Breaker  
Color Coded Brass



VWR Catalog Number	Service
<b>K3185W-RBMN6GVB</b>	Cold Water

**K3185 valve assemblies may be installed on either right or left side of fume hood**



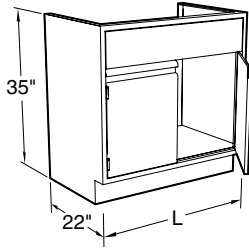
6" Rigid/Swing Gooseneck  
with Vacuum Breaker  
Color Coded Brass

### Service Fitting Colors & Index Symbols

Service	Fitting Color	Index Symbol	Index Color	Letter Color
Air	Orange	AIR	Orange	Black
Gas	Blue	GAS	Blue	White
Vacuum	Yellow	VAC	Yellow	Black
Nitrogen	Brown	NIT	Brown	White
Cold Water	Green	CW	Green	White

# Fume Hood Base Cabinets

## DIMENSIONAL VIEW



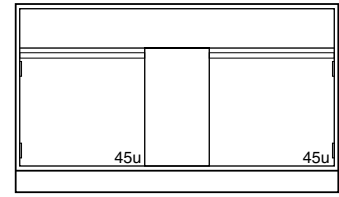
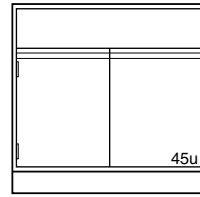
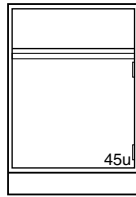
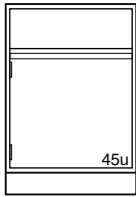
## Specifications

Standing Height Steel and Wood Fume Hood Base Cabinets are 35" high and a nominal 20" deep. ADA Height Steel Fume Hood Base Cabinets are 32" high and 20" deep; ADA Height Wood Fume Hood Base Cabinets are 32 1/2" high and nominal 20" deep. Lengths as shown.

### Cabinet Style Option:

Specify cabinet door and hardware style when ordering by replacing blanks in last four digits of catalog number with style numbers. See the Research Collection Steel and Signature Series Wood Catalogs for available styles and details.

## Standing Height Fume Hood Base Cabinets



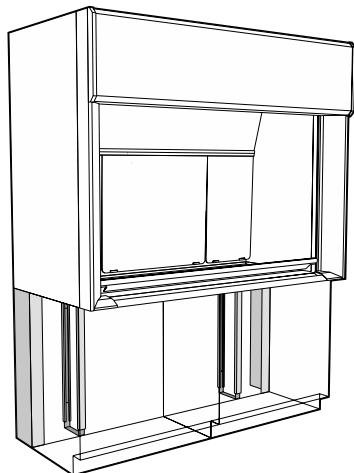
### Steel Cabinets

(35" High)



<b>CFG-2084-VL</b>	24"L	<b>CFG-2084-V</b>	24"L	<b>CFG-2085-V</b>	30"L	<b>CFG-2086-V</b>	36"L	<b>CFG-2088-V</b>	48"L	<b>CFG20860-V</b>	60"L
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# Fume Hood Base Trim



## Specifications

**Base Cabinet Rear Fillers** are designed to close opening between wall and rear of fume hood base cabinet.

**Kemstruts** are steel frame assemblies consisting of steel channels and spacers designed to provide support and stability to the rear overhang of fume hood work tops and provides mounting struts for plumbing and electrical service lines.

### Steel Rear Fillers



VWR Catalog Number	D	H
<b>CFL-0936-R</b>	9"	35"

### Kemstruts



VWR Catalog Number	D	H
<b>CFK-0012-0A</b>	9"	35"



# Solvent Storage Fume Hood Base Cabinets

## Specifications

Solvent Storage Cabinets are specifically designed for the storage of flammable and combustible liquids. Both steel and wood cabinets meet UFC, OSHA and NFPA No. 30-1993 construction standards and are UL listed.

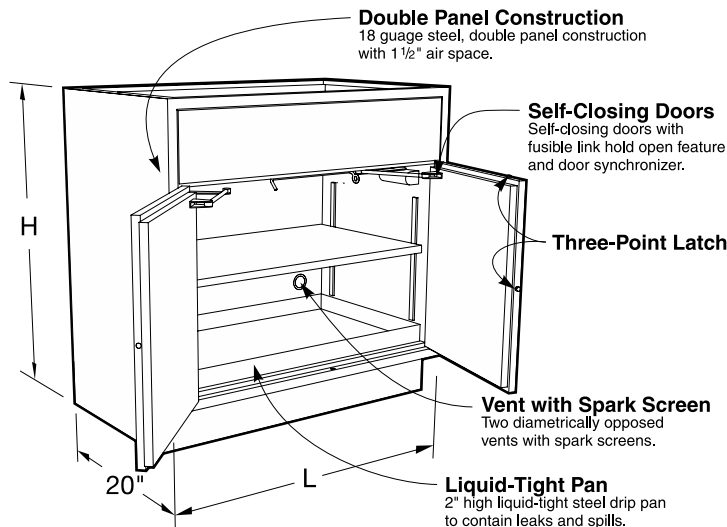
A 2" deep, steel, liquid-tight pan covers the entire bottom to contain liquid leaks and spills. A second pan is provided as a full-depth adjustable shelf.

Two diametrically opposed vents with spark screens are provided in the back for cases when ventilation is required.

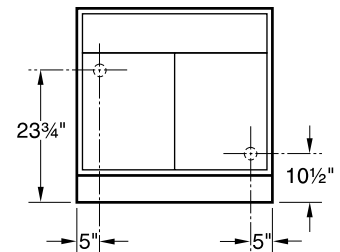
The steel cabinet is all 18 gauge steel, double panel construction with self-closing doors, synchronized so that both doors will always fully close. The right hand door is equipped with a three-point latching system that automatically engages the cabinet

frame. Each door is equipped with a fusible-link hold-open feature that ensures the doors close should the temperature outside the cabinet exceed 165°F. Steel cabinets are provided with a grounding screw at the rear.

All Solvent Storage Cabinets are labeled: CAUTION FLAMMABLE – KEEP FIRE AWAY in English, Spanish, and French.



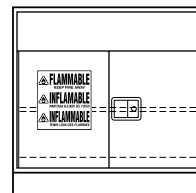
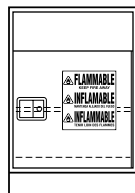
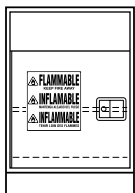
## Vent Locations



**Steel Solvent Cabinets**  
Vent outlets 2" dia. Female NPT

**Wood Solvent Cabinets**  
Vent outlets 1 1/2" dia. Male NPT

## Standing Height Solvent Storage Fume Hood Cabinets



**Steel Cabinets** (35" High)



Capacity

Capacity

CFG-2684-VL

24"L

CFG-2684-V

24"L 12 gal

CFG-2685-V

30"L 12 gal

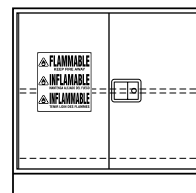
CFG-2686-V

36"L 15 gal

CFG-2688-V

48"L 20 gal

## Standing Height Solvent Storage Cabinets



**Steel Cabinets** (35" High)



Capacity

CFG-2636-V

36"L 15 gal

CFG-2638-V

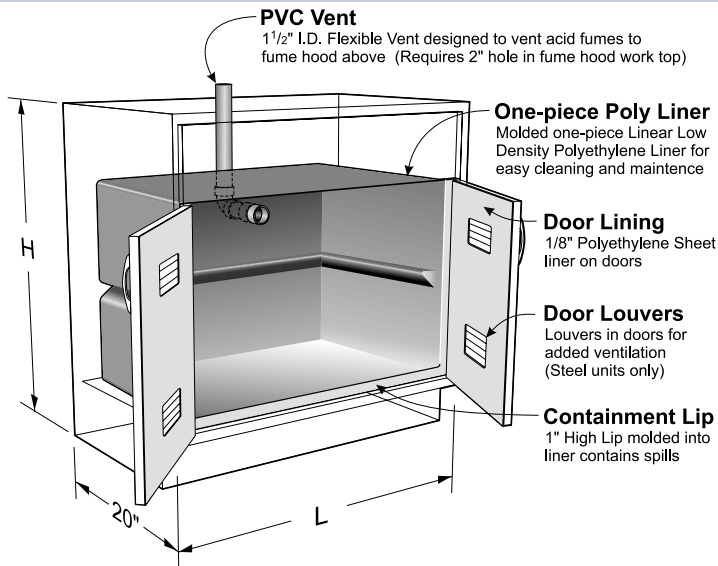
48"L 20 gal

# Acid Storage Fume Hood Base Cabinets

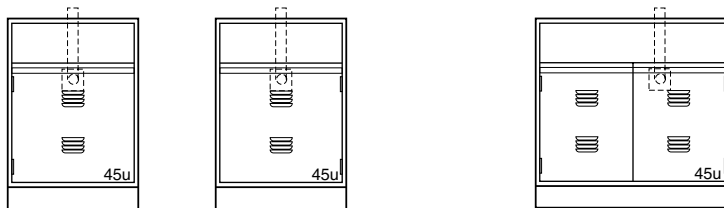
## Specifications

Acid Storage Fume Hood Base Cabinets are specifically designed for the storage of corrosive chemicals. They are available in either steel or wood. These cabinets are lined with a molded one piece linear low density polyethylene tub with covered corners and a 1" lip at the bottom

front. The cabinet doors are lined with 1/8" sheet polyethylene and the doors are latched using a nylon roller catch. Each cabinet is furnished with a 1 1/2" I.D. flexible polyolefin tube for venting to the fume hood above. (Requires a 2" hole in the hood work top.)



## Standing Height Acid Storage Fume Hood Cabinets



**Vent Location**  
On Center  
11 5/8" from Top of Cabinet

**Vent Location**  
30" - 7 5/8" Right of Center  
36" & 48" - 5" Right of Center  
11 5/8" from Top of Cabinet

**Steel Cabinets** (35" High)

<b>CFG-2804-VL</b>	24"L Left Hand
<b>CFG-2804-V</b>	24"L Right Hand



<b>CFG-2805-V</b>	30"L
<b>CFG-2806-V</b>	36"L
<b>CFG-2808-V</b>	48"L

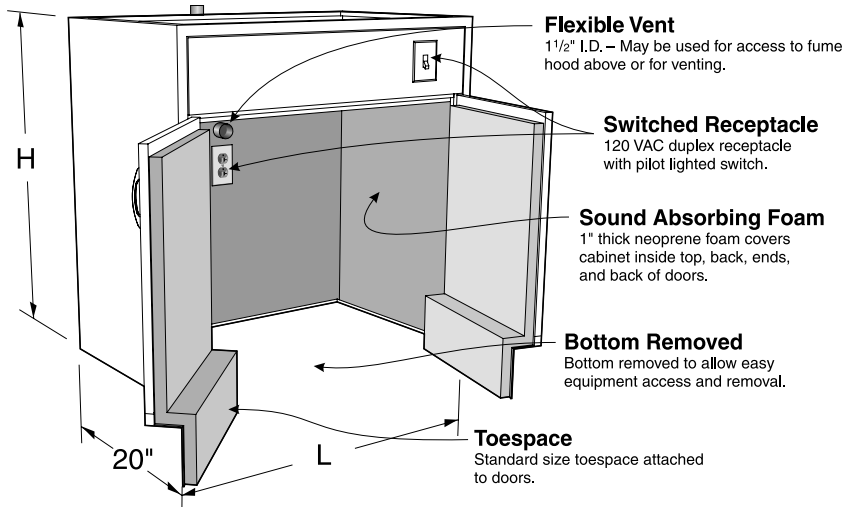
# Vacuum Pump Storage Base Cabinets

## Specifications

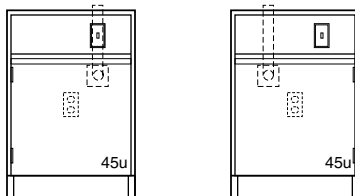
Vacuum Pump Storage Fume Hood Cabinets are designed without a bottom to allow vacuum pumps and other equipment to be rolled in or out of the cabinets. The interior is lined with 1" thick neoprene foam for sound deadening and easy cleaning. Each

cabinet is furnished with a 120 VAC, 20 amp, duplex receptacle mounted on the inside cabinet back and a pilot lighted toggle switch mounted in the top front rail. (Wiring is not included.) Each cabinet is furnished with a 1½" I.D. flexible polyolefin tube for venting

to the fume hood above. (Requires a 2" hole in the hood work top.) The toespace rail is attached to the door to allow total access to the cabinet. Cabinet inside clearance at the floor is 14½" front-to-back, 25" high, and 3" less than the overall cabinet length.



## Standing Height Vacuum Pump Storage Fume Hood Cabinets



**Vent Location**  
5" Off Center  
11⅝" from Top of Cabinet

Steel Cabinets	(35" High)
CFG-2354-VL	24"L Left Hand
CFG-2354-V	24"L Right Hand



# Recommended Fume Hood Work Practices

## A Safe, Healthy Work Environment

Most people think of a scientific laboratory as a clean, safe place to work. But for the people who work there every day, the typical laboratory—filled with flammable and toxic chemicals, harmful vapors, gases and corrosive acids—can be an extremely hazardous place.

By containing harmful contaminants and venting them out of the work area, laboratory fume hoods help create and maintain a safe, healthy environment for you—the laboratory worker—and your co-workers.

Your fume hood is designed to protect you by providing an enclosed work area that has an air barrier between you and the harmful materials you

work with. Behind this protective air barrier, the hood's directional air flow carries harmful contaminants away from you toward the rear of the hood. Also, the properly tuned hood and its exhaust system dilutes the contaminants with large volumes of air and safely exhausts them.

If anything interferes with the protective air barrier of the fume hood or disrupts the proper air flow, the hood's ability to protect you and your co-workers may be seriously reduced.

Since 1906, we at Kewaunee Scientific Corporation have been designing and building laboratory fume hoods to help keep laboratory work environments safe and healthy.

Based on our knowledge and experience, we've outlined a number of basic safety practices for you and your co-workers to follow when choosing, using and maintaining laboratory fume hoods. The following practices are based on the superior design found in Kewaunee Supreme Air Venturi hoods.

We urge you to familiarize yourself with these recommended fume hood work practices and with your facility's safety guidelines and standard operating procedures. We think you'll agree—it's the best way to help ensure a safe, healthy work area for you and your co-workers.

## The Right Fume Hood for the Job

If your laboratory fume hood is to properly protect you, it must be designed for the type of work you're doing.

For example, if you work with radioisotopes, carcinogens or other toxic materials for which decontamination is important, you should always use a hood with a non-

absorbent lining that is designed to be easily decontaminated.

If you work with large volumes of flammable substances, you may need a hood equipped with such features as a non-absorbent lining, explosion-proof lights and electrical receptacles, a fire-suppression system, and a spark-resistant exhaust fan.

If you use perchloric acid heated above ambient temperature then you need a fume hood and exhaust system specifically designed for this hazard.

To be sure your fume hood is the right one for the work you're doing, contact your local Kewaunee sales representative.

## Venturi Fixed Baffle Configuration

Kewaunee Supreme Air Venturi fume hoods are provided with a fixed baffle

configuration. (See Figures 1 and 2.) The slots in the baffle are optimized to

provide the best performance.

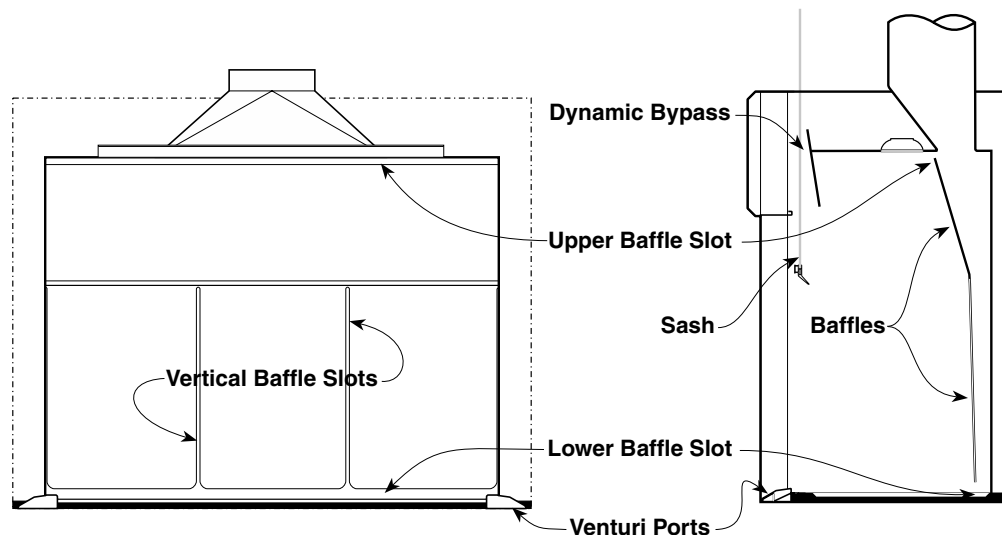


Figure 1. Face Section View

Figure 2. End Section View

# Recommended Work Practices (continued)

## Checking Fume Hood Performance

To confirm that your fume hood exhaust system is working properly, the Occupational Safety and Health Administration (OSHA) recommends that all hoods be equipped with an airflow monitor. Inspect both the monitor and the system periodically for malfunctions.

For some applications a pressure gauge connected to the exhaust duct is sufficient. The safe pressure

range should be marked on the gauge. When using more hazardous contaminants, a fume hood alarm such as the Kewaunee Air Alert 300 or Air Alert 600 Digital Face Velocity Alarms should be used. These alarms provide both a visual and audible warning when the exhaust flow becomes unsafe.

If your hood is equipped with a variable air volume controller (VAV)

with alarm capabilities, then an additional alarm is not necessary.

You should have a qualified technician thoroughly test your fume hood before you use it the first time and at least once a year after that. You should also have your hood tested after any modification to the laboratory ventilation system or other factors which may affect hood exhaust capability or room air flow patterns.

## Maintaining the Protective Air Barrier for a Safe Work Area

When you stand in front of a laboratory fume hood, the air passing your body to enter the hood forms a zone of low air pressure directly in front of you which extends into the hood. Since contaminants may enter this turbulent area from inside the hood, you should keep all hazardous materials at least six inches inside the hood, behind the protective air barrier. (See Figure 3.)

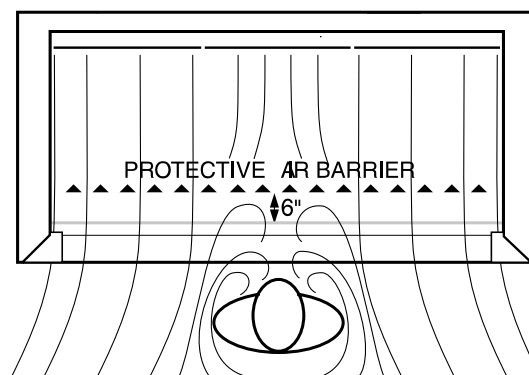


Figure 3  
Formation of Protective Air Barrier

The farther behind the fume hood protective air barrier you place the source of contaminants, the greater the protection the hood provides. Therefore, place the equipment and

contaminants as far back inside the hood as possible, being careful not to block the slots in the rear baffle. (See Figure 4.) Never place apparatus so far back that you have to put your head

into the hood while the procedure is generating contaminants.

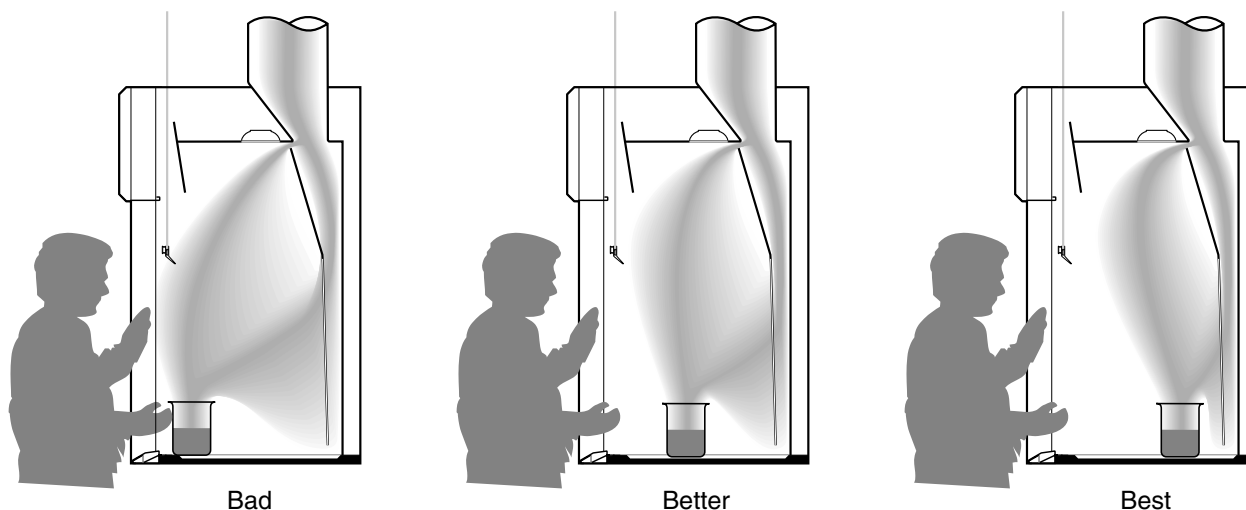


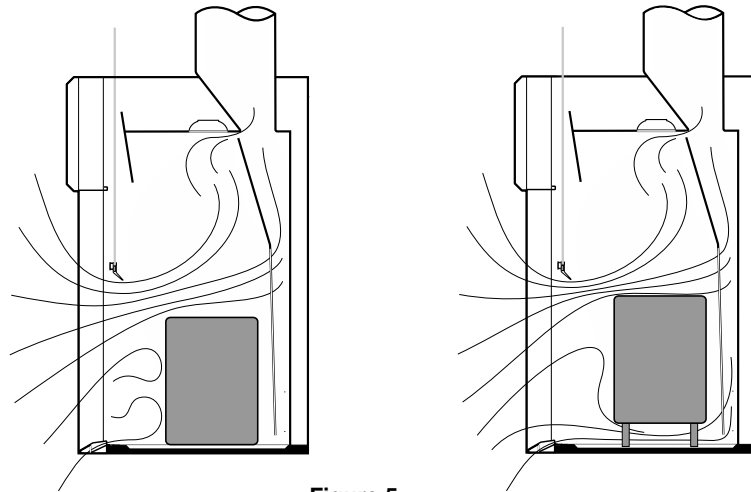
Figure 4  
Effect of placement of contaminate source

# Recommended Work Practices (continued)

## Maintaining the Protective Air Barrier for a Safe Work Area (continued)

Large containers or equipment such as furnaces, incubators and oil baths often interfere with air flow inside the fume hood by causing lazy air and reverse flows which may affect airflow patterns. Placing large, bulky equipment on legs will help improve airflow patterns by allowing air to circulate beneath the equipment. (See **Figure 5.**)

The fume hood should not be used for storage of chemicals and apparatus. Remove all unnecessary containers and equipment from the hood.

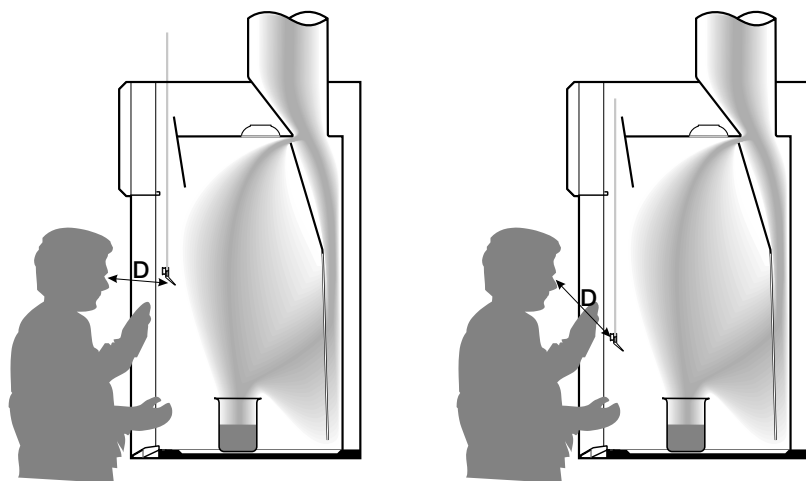


**Figure 5**  
*Effect of large equipment*

The air velocities used to provide containment in fume hoods are relatively low and the air flow patterns are easily disrupted. Avoid making rapid movements while working at the hood or while walking past the hood.

When working at a fume hood, always open the sash only as far as needed to access to the work area. The lowered sash increases the distance (**D** in **Figure 6**) between your breathing zone and the area where contaminants may escape. In addition the smaller hood face area makes the hood less susceptible to room drafts and other external air disturbances.

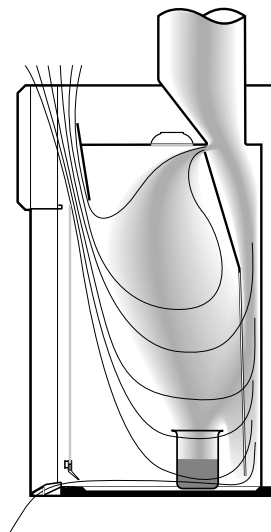
The sash also provides protection by replacing part of the protective air barrier with a solid barrier against contaminants and splashing chemicals.



**Figure 6**  
*Effect of lowering the sash*

If the hood has a sash stop to limit sash travel or is marked for a safe sash height, the sash should not be raised above this point while contaminants are being generated within the hood.

If continuous access is not needed to the inside of the fume hood, the sash should be closed completely. (See **Figure 7**) A closed sash provides protection from flying debris or a runaway reaction. It also eliminates the effects of room drafts or other adverse air currents.



**Figure 7**  
*Airflow through By-Pass with Sash Closed*

If your hood has horizontal sashes, be sure they are all in place when working with contaminants inside the hood. Operating the hood with any of the sashes removed reduces the protection they provide by decreasing the velocity of the air entering the hood face. If you remove any hood sashes while setting up equipment, be sure to replace them before beginning the actual procedure. On hoods with a combination vertical/horizontal sash, the hood should be operated either with the vertical frame closed while the horizontal panels are open or the horizontal panels closed while the vertical frame is open.

# Recommended Work Practices (continued)

## For More Information

We at Kewaunee Scientific hope these guidelines will be helpful to you as you choose, use and maintain your laboratory fume hood. If you have questions we haven't answered in this section, please contact your local Kewaunee sales representative.

### Fume Hood Safety Checklist

- The hood is the correct type for the work to be performed.
- The airflow monitoring device indicates adequate airflow.
- There are no unnecessary chemicals or equipment in the fume hood.
- All chemicals and equipment are at least six inches behind the plane of the sash.
- All procedures are performed with the laboratory worker's head remaining outside the hood.
- Large equipment is placed on stands with legs.
- The sash is not above the safe operating height while the fume hood is in use.
- The sash is open only as far as needed.
- Safety equipment is close to the hood in case of fire or explosion.
- All laboratory workers are following the procedures outlined in these instructions, as well as any additional fume hood safety guidelines supplied by your laboratory safety manager.



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