



Series 116

Vertical Flow Fan Filter Units

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The Series 116 fan filter units are decorative self-contained vertical-flow filter units designed to be suspended down from a ceiling or hung off a wall. Front servicing of filter, blower, and lights make these fan filter units ideal for applications where ceiling access is not possible. Prefilters can be located on the top or front of the unit.

Features

- ❖ White painted steel shell
- ❖ Designed to service blowers, filters, and lights from the front
- ❖ Interior lights
- ❖ Front light blower switch
- ❖ Speed control
- ❖ Front or top prefilters

Overview

The Series 116 vertical laminar flow clean benches consist of three basic components: The upper cabinet module houses the prefilters, HEPA or ULPA main filters, blower motors and lights. There is a lower support frame which is removable for easy shipment and moving. There are various options for the support frame, depending upon the application of the bench. The third major component is the lower work surface module which may be as simple as a flat table or as complex as a bench containing tanks, heated etch baths, gooseneck faucets, drains and other options. This modular design allows the clean bench to be easily shipped and assembled. Most sizes have been designed to fit thru standard doors and hallways. See the attached drawing and chart for sizes on your specific model. There are a number of mode options that may be ordered depending where the air is to be directed or exhausted.

Construction

The upper cabinet module is constructed of welded 16 gage cold rolled steel that is finish ground to remove all sharp edges and painted with baked white enamel. This module houses the blower, motor, HEPA or ULPA filter, fluorescent lights, on/off switches, circuit breakers and electrical junction box.

Standard height of the upper cabinet is 30 inches. Its length and depth will depend upon the size and style of unit. Standard widths are 2-1/2 inches over nominal 3, 4, 5, 6, 8, 10 foot widths with interior depths of 30, 36, 42 and 54 inches (interior table or working space). The overall cabinet width, depth and height will depend on the style of support frame and mode of operation.

The support frame is fabricated from heavy-duty 2x4 inch steel tubing. Horizontal cross bracing is 2x2 inch steel tubing. The open frame design permits cabinets to be butted end-to-end with no obstructions.

Finish

Standard finish is a white enamel that provides excellent corrosion protection. Custom colors are available.

Filters

The standard HEPA final filter is 99.99% efficient on particles 0.3 micron and larger. Most models have a final HEPA filter with an aluminum frame, white painted metal face guard and mini pleated filter media. Filters are removable through the front panel access. Optional ULPA filters, 99.999% on particles 0.12 micron, are available.

Negative Pressure Plenum for Final Filters: HEPA Or ULPA

The Series 116 utilizes flexible ducting connected from the blower to the HEPA filter. This ducting system provides negative pressure in the interior of the upper blower cabinet. The negative internal pressure is created by the blower drawing (sucking) air into the cabinet through the prefilters. The differential pressure drop across the prefilters creates the internal negative pressure. The entire interior of the upper cabinet, including the area that surrounds the HEPA filter, metal supply plenum and flexible ducting, is also under negative pressure; thus preventing any gasket seal leaks from entering the work area. If a gasket leak does occur, the negative pressure area would "draw" the leaked air back to the blower where it is then ducted back to the HEPA filter and preventing the contamination from reaching the work area.

The negative pressure plenum system consists of a metal plenum that is clamped over the HEPA filter and held in place by a threaded rod and leaf spring. A flexible duct attaches between the metal supply plenum and blower for vibration isolation. To replace the HEPA filter, loosen and remove the flexible duct from the blower, loosen the fastener from the threaded rod and remove the leaf spring. Remove the metal supply plenum and lift out the HEPA filter. To replace the HEPA filter, reverse the process. (See attached drawing showing cabinet dimension and chart showing filter size.)

Prefilter

The cabinet has a large prefilter area to keep the filtering efficiency high and minimize the pressure drop across the prefilters. The prefilters are housed on the top of the unit as standard but can be field relocated to the front or rear of the unit, if desired (see Note #1). The prefilters are a commonly available 20x25x1 disposable style that are interchangeable in size with prefilters of higher efficiency. The higher efficiency prefilters can be ordered with the unit or upgraded with the first prefilter change. Higher capacity (2 in. and 4 in. thick) prefilters can be installed on the top of the unit.

Airflow

The air flow velocity is factory set in accordance with Federal Standard 209E (90 ±20 FPM). The blower-motor assembly is sized to provide proper air flow with a minimum 50% increase in HEPA filter pressure drop. This ensures years of bench operation without HEPA filter change.

Light Level

White fluorescent lamps will provide approximately 90 foot candle illumination 6 inches above a 36-inch work surface. An on/off switch is provided for lamp control.

The standard unit has T12 lamps. Selected units are available with T8 lamps and energy saving electronic ballasts, however, they are not available in all sizes. T8 lamps must specifically be ordered. Consult factory for details. (See attached chart for the number of lamps and lamp type in the selected unit.)

Sound Level

The cabinets are designed for quiet operation. The typical sound level is approximately 65dbA. Larger size units and those with multiple blowers may have a slightly higher sound level. The sound levels are measured with ambient of 55dbA. The sound level of your particular unit may vary depending on the size of the unit surrounding room size and acoustics.

Electrical

Meets or exceeds requirements of the NEC electrical codes. The standard cabinet has a 120V, single-phase, 3-wire electrical system. Selected units are available with optional UL labeling, which must be specifically requested and will be quoted as a line item. Consult the factory for further details on UL listed cabinets. The UL label on the clean bench needs to be specifically ordered.

The electrical junction box is on the rear of the unit. Selected units can be provided with a power cord.

The blower motor has a variable solid state speed controller. Belt drive blowers (optional) use variable pitch pulleys for speed control. UL listed units have a multi-speed tap for blower speed adjustment.

The upper cabinet contains the motor,

light on/off switches, circuit breaker thermal protection and main cabinet power disconnect switch.

Blower/Motor Assembly

The system utilizes a PSC direct drive motor with a dynamically balanced blower wheel. This assembly is double vibration isolated from the cabinet to provide excellent vibration control. The motor itself is vibration isolated from the blower by multiple shear rubber isolation mounts. The blower/motor assembly is again vibration isolated from the cabinet by a second set of shear rubber vibration isolation mounts. The flexible duct connection between the blower and metal filter supply plenum also serves to further reduce vibration.

Each cabinet has a blower/motor assembly sized for reserve capacity to ensure a long HEPA filter life. A motor speed control mounted on the side of the blower can be adjusted to compensate for extra pressure drop caused by loading or contamination build-up on the HEPA filter surface.

Speed Control

A solid-state speed control is provided to maintain correct air flow velocity. It has RFI suppression and transient high voltage protection.

Certification

Each cabinet is tested to Federal Standard 209E class 100 requirements. Every cabinet meets or exceeds this standard before it is allowed to ship.

Service Access

The three-piece access panels are easily removable and allow service to the top cabinet from the front, top or rear of the unit. The access panels are interchangeable to field convert the

location of the prefilters.

A one-piece front panel is used with the counter-weighted sliding front window or when a slightly more decorative front is desired.

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Blower, Motor, Electrical, and Filter Sizes

Model	HEPA Filter	Prefilter	Blower	Motor	Lamp	Electrical*
3T30	(1) 24x36x3	(1) 20x25x1	(1) DD-10-6	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
4T30	(1) 24x48x3	(1) 20x25x1	(1) DD-10-6	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
5T30	(2) 24x30x3	(2) 20x25x1	(1) DD-10-8	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
6T30	(1) 24x72x3	(3) 20x25x1	(1) DD-10-8	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
8T30	(2) 24x48x3	(3) 25x25x1	(2) DD-10-6	(2) 1/2HP PSC	(2)	120V/10/60HZ 13.4 amp
10T30	(2) 24x60x3	(5) 20x25x1	(2) DD-10-8	(2) 1/2HP PSC	(2)	120V/10/60HZ 13.4 amp
3T36	(1) 30x36x3	(1) 20x25x1	(1) DD-10-6	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
4T36	(1) 30x48x3	(1) 20x25x1	(1) DD-10-8	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
5T36	(1) 30x60x3	(2) 20x25x1	(1) DD-10-8	(1) 1/2HP PSC	(2)	120V/10/60HZ 5.4 amp
6T36	(1) 30x72x3	(2) 20x25x1	(1) DD-10-8	(1) 3/4HP PSC	(2)	120V/10/60HZ 18.4 amp
8T36	(2) 30x48x3	(3) 25x25x1	(2) DD-10-8	(2) 1/2HP PSC	(2)	120V/10/60HZ 13.4 amp
10T36	(2) 30x60x3	(4) 20x25x1	(2) DD-10-8	(2) 3/4HP PSC	(2)	120V/10/60HZ 19.4 amp
3T42	(1) 36x36x3	(1) 20x20x1	(1) DD-10-6	(1) 1/2HP PSC	(4)	120V/10/60HZ 6.8 amp
4T42	(1) 36x48x3	(2) 20x25x1	(1) DD-10-8	(1) 1/2HP PSC	(4)	120V/10/60HZ 6.8 amp
5T42	(2) 36x30x3	(2) 20x20x1	(1) DD-10-8	(1) 3/4HP PSC	(4)	120V/10/60HZ 9.8 amp
6T42	(2) 36x36x3	(3) 20x25x1	(2) DD-10-6	(2) 1/2HP PSC	(4)	120V/10/60HZ 14.8 amp
8T42	(2) 36x48x3	(3) 25x25x1	(2) DD-10-8	(2) 3/4HP PSC	(4)	120V/10/60HZ 20.8 amp
10T42	(2) 36x60x3	(4) 20x25x1	(2) DD-10-8	(2) 3/4HP PSC	(4)	120V/10/60HZ 20.8 amp

* Includes 4 amp receptacle.

Interior Work Area Dimensions (Standard)

Depth in inches (front to rear)

T30 Series = 30.0

T36 Series = 36.0

T42 Series = 42.0

Width in inches: (end to end)

3 ft. = 38.5

4 ft. = 50.5

5 ft. = 62.5

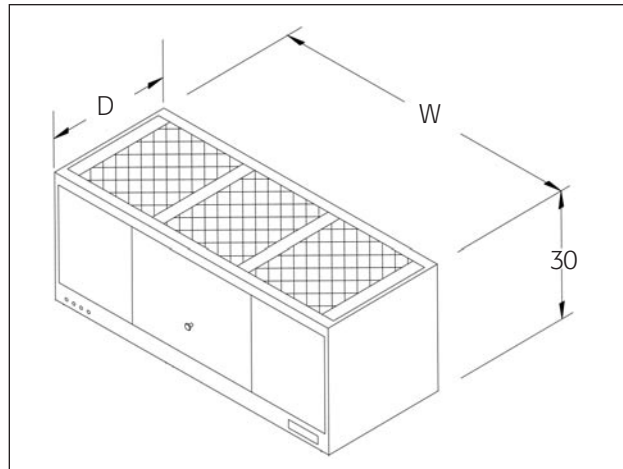
6 ft. = 74.5

7 ft. = 84.5

8 ft. = 98.5

9 ft. = 110.5

10 ft. = 122.5



Guarantee

A written 1 year warranty is furnished with each fan filter unit.

Specifications subject to change. Please contact factory for details.

Clean Air
PRODUCTS

Solutions Built to Your Specifications.

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