

## Pollution Control Unit Specification

### Construction

PCU Series shall be factory assembled pollution control unit capable of significantly reducing smoke, grease and odor from the exhaust air stream.

*Housing:* The PCU housing is to be constructed of 430 SS of polish 2B or better. All metal in contact with the air-stream is to be constructed of 430 SS. 1500°F Ceramic based gasket must be in place for all internal seams exposed to airflow. High temperature weatherproofing gasket must be used on all exterior seams.

*Base:* The base shall be constructed of galvanized steel for improved rigidity. Base shall be structurally reinforced to accommodate the filter assembly.

*Pre-Filter Section:* The pre filter section shall include 2 inch deep steel washable permanent filters. Filter frames shall be constructed of steel. Disposable Grease Lock filters (optional) placed upstream of the permanent filters shall be provided for improved filtration and longevity of High Efficiency Filters. Filters shall be arranged in a v-bank configuration to increase filter area and reduce static pressure. All filters shall be removable without the use of tools through side access doors with lift and turn latches. Filters are to be cleanable with a water hose and soapy water.

*High Efficiency Filter Section:* The phase two filters shall consist of 4 inch deep rigid cell extended surface filters. Filter cell sides shall be constructed of high strength, high impact polystyrene plastic for durability. Beverage board filter sides shall not be permitted. Filters shall be arranged in a v-bank configuration to increase filter area and reduce static pressure. All filters shall be removable without the use of tools through side access doors with lift and turn latches. Filters are to be rated MERV 15 minimum in accordance with ASHRAE standard 52.2 and have a minimum average arrestance of 98% in accordance with ASHRAE 52.1-1992. High Efficiency module must be installed downstream of pre-filter module.

*Odor Control Media Section (Optional):* The unit shall be provided with a \_\_\_\_\_ (50% potassium/permanganate 50% carbon blend) (100% permanganate) (100% carbon) (Caustic impregnated) media. The odor removal cartridges shall be encased in steel frames. The odor removal media shall be arranged in a v-bank configuration to increase filter area and reduce static pressure. All media shall be removable without the use of tools through side access doors with lift and turn latches. Odor control module must be installed downstream of High Efficiency module or HEPA module.

*Advanced Filter Monitoring System (Optional):* The Advanced Filter Monitoring includes a module that provides the necessary precision pressure measurements for accurate monitoring of the complete system. Based on the measurements the AFM will initiate suitable actions via the electric control package in case of a fault. Direct access to the operating conditions are also provided through the use of a HMI (Human Machine Interface), which is conveniently located on the PCU.

*CORE Protection Fire System (Optional):* The detection portion of the fire suppression system allows for automatic detection by means of an electric thermal detector located in the intake and outlet of the unit. If the Pollution Control Unit Firestat senses a temperature hotter than its internal setpoint, an electric signal is sent to the CORE Fire System Cabinet. An electric water solenoid is energized allowing the flow of water to the Pollution Control Unit mounted manifold. The CORE fire suppression system is a pre-engineered, pollution control unit fire system that utilizes a water spray system for fast flame knock-down and suppression.

### Certifications

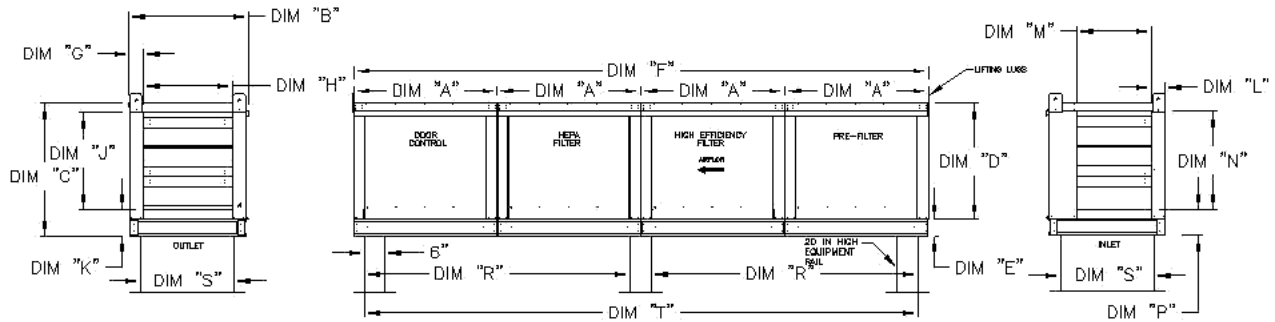
The PCU Series has been certified by ITS. This certification mark indicates that the product has been tested to and has met the minimum requirements of a widely recognized (consensus) U.S. and Canadian products safety standard, that the manufacturing site has been audited, and that the applicant has agreed to a program of periodic factory follow-up inspections to verify continued performance.



Models PCU are ETL Listed under file number 3130718COL-001 and comply with UL710, ULC-S647 and ULC-S646 Standards.

CaptiveAire Systems, Inc. certifies that KB models shown herein are ETL Listed under file numbers 3158877SAT-001 and comply with UL762 Standards and CSA Std C22.2, No. 113

## Typical Installation

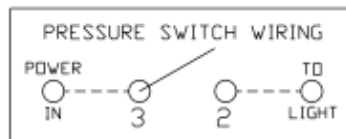


UNIT INFORMATION		UNIT DIMENSIONS										DISCHARGE OPENING				INTAKE OPENING				RAIL DIMENSIONS	
MODEL	WEIGHT	FILTER SIZE & QTY*		A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	
SIZE 1	515 LBS	20" x 25" x 4" (3)		32-1/8	28-3/4	29-3/4	28	3-3/4	128-7/8	3-1/8	19-7/8	21-7/8	8-3/4	3-1/8	18-3/4	21-7/8	8-3/4	59-7/16	21	124-7/8	
SIZE 2	855 LBS	18" x 20" x 4" (6)		32-1/8	38-3/4	38-3/4	33	3-3/4	128-7/8	5-1/8	27-7/8	28-7/8	8-3/4	5-1/8	24-3/4	28-7/8	5-3/4	59-7/16	31	124-7/8	
SIZE 3	1030 LBS	20" x 25" x 4" (6)		38-1/8	40-3/4	43-3/8	38-1/8	5-1/4	152-7/8	4-5/8	32-3/8	33-1/8	7-1/2	4-5/8	29-1/4	33-7/8	7-1/2	71-7/16	35	148-7/8	
SIZE 4	1435 LBS	18" x 20" x 4" (15)		35-1/4	47-7/8	51-3/8	48-1/8	5-1/4	141-3/8	4-5/8	35-3/8	41-7/8	7-1/2	4-5/8	36-1/4	41-7/8	7-1/2	85-11/16	42	137-3/8	
SIZE 5	1450 LBS	20" x 25" x 4" (12)		35-1/4	58-5/8	58-3/8	53-1/8	5-1/4	141-3/8	4-5/8	50-1/8	48-7/8	7-1/2	4-5/8	47	48-7/8	7-1/2	85-11/16	52-3/4	137-3/8	

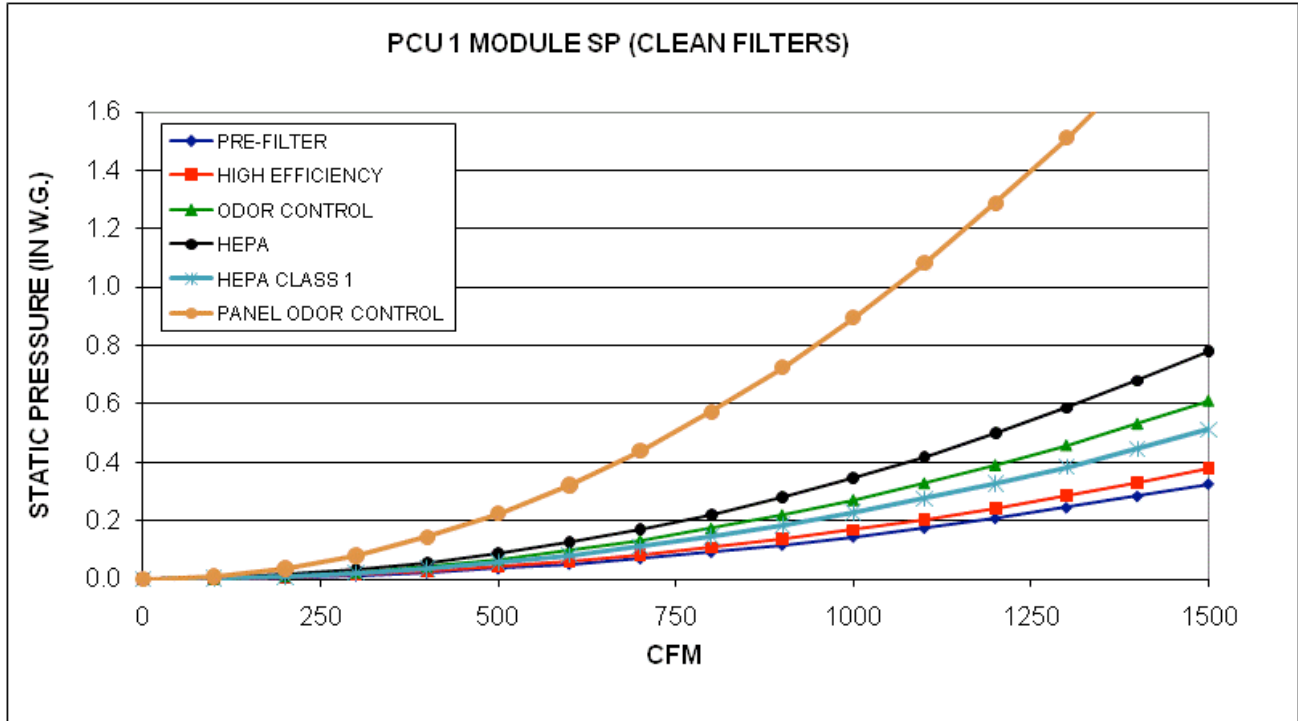
ALL DIMENSIONS ARE NOMINAL AND GIVEN IN INCHES.  
 C/US UL710 LISTED FOR GREASE DUCT INSTALLATION  
 WHEN USED IN KITCHEN GREASE DUCT, UNIT MUST BE INSTALLED DOWNSTREAM OF A LISTED HOOD ASSEMBLY  
 \*FILTER QUANTITY SHOWN IS PER MODULE  
 DRAIN SUPPLIED IN EACH MODULE FOR WASH/DOWN

## Typical Installation of Air Pressure Switch

Switches are preset from plant to 0.15" w.c. above the internal static pressure of the PCU with clean filters. The Air pressure switch is located in the downstream filter module. Route wiring from hood control panel to PCU using 1/2" conduit through quick seal located near lower right area of filter module containing switch. Use existing conduit in module to route wires from exterior of module to switch. Install wiring according to label above switch. Be sure all conduit fittings are tight. Once filters become clogged, switch closes illuminating light in kitchen. User should then clean or replace filters as required.



## Pressure Drop Curve PCU Size 1 Shown



## Centrifugal PCU Exhaust Fan Specification

Model KB fan shall be a backward incline, roof mounted or indoor, belt drive, up-blast centrifugal exhaust ventilator. Steel centrifugal roof exhausters are engineered to discharge grease laden vapors, fumes and other contaminants.

### Construction

*Housing:* The fan housing shall be constructed of stainless steel. The internal structural support and external mounting material shall be 14 GA G90 galvanized steel minimum.

*Base:* The base shall be constructed of galvanized steel for improved rigidity. Bolt patterns shall be provided in the base to allow connection to a pollution control unit.

*Wheel:* The fan wheel shall be centrifugal backward inclined and non-overloading. Wheels shall be balanced in two planes and done in accordance with AMCA standard 204-96, Balance Quality and Vibration Levels for Fans. The wheel blades shall be aerodynamically designed to minimize turbulence, increase efficiency and reduce noise. The wheel blades shall be welded to the wheel inlet cone. In the event that balancing weights are required they shall be riveted to the blades or wheel. The wheel inlet shall overlap the fan inlet for maximum performance and efficiency. The wheel shall be firmly attached to the motor shaft with two setscrews.

*Motor & Motor Compartment:* Motors shall be heavy-duty ball bearing type, mounted on an adjustable base and furnished at the specified voltage, phase and enclosure. Motor mounting plate shall be constructed of heavy gauge steel and isolated from the fan structure with vibration isolators. The motor shall be Totally Enclosed and Fan Cooled and have high temp class F insulation. Motors shall be washdown duty. The motor compartment shall be of a two-piece construction quick release clips to provide quick and easy access to the motor compartment.

*Shaft & Bearings:* Shafts shall be precision ground and polished. Heavy duty, pre-lubricated bearings shall be selected for a minimum (L50) life in excess of 200,000 hours of operation at maximum cataloged operating speed. They shall be designed for and individually tested specifically for use in air handling applications.

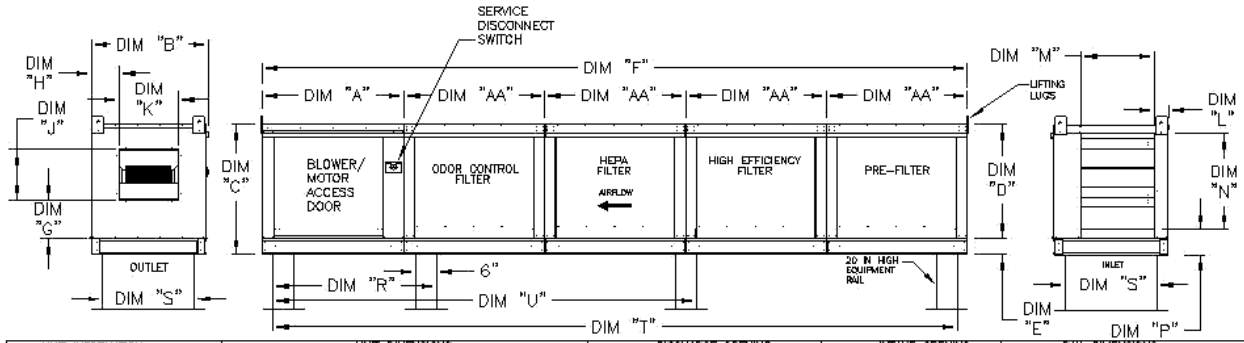
*Belts & Drives:* Belts shall be oil and heat resistant, non-static type. Drives shall be cast type, precision machined and keyed and secured attached to the fan and motor shafts. Drives shall be sized for a minimum of 150% of the installed motor horsepower. Fan operating speed shall be factory set using adjustable pitch motor pulleys.

*Safety Disconnect Switch:* A safety disconnect switch shall be standard on all units. Switches shall be installed in a NEMA3R enclosure and mounted to exterior of the fan for easy access.

### Certifications

Captive-Aire Systems, Inc. certifies that KB models shown herein are ETL Listed under file numbers 3158877SAT-001 and comply with UL762 Standards and CSA Standard C22.2, No. 113.

## Typical Installation



UNIT INFORMATION		UNIT DIMENSIONS													DISCHARGE OPENING				INTAKE OPENING				RAIL DIMENSIONS			
MODEL	WEIGHT	W	H	D	A	AA	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U			
11720	185	20 1/2	34 1/2	13	32-1/8	32-3/8	29-3/4	28	3-3/4	16 1/8	1-7/8	8-5/8	8-1/2	13-1/8	13-1/8	5-1/8	18-3/4	1-7/8	5-3/4	38-1/4	21	15-1/8	87-11/16			
21215	225	20 1/2	34 1/2	16	40-1/8	32-3/8	36-3/4	33	3-3/4	16 1/8	1-7/8	10-3/16	8-15/16	18-5/16	18-5/16	5-1/8	18-3/4	1-7/8	5-3/4	46-1/4	31	18-5/16	105-11/16			
31485	265	20 1/2	34 1/2	18	45-1/8	38-1/8	43-3/8	39-1/8	3-3/4	16 1/8	1-7/8	12-15/16	11-1/2	22-7/8	22-7/8	4-5/8	29-1/4	1-7/8	5-3/4	51-1/4	35	18-5/16	122-11/16			
42170	305	20 1/2	34 1/2	20	54-3/16	44-3/8	51-1/8	46-1/8	3-3/4	16 1/8	1-7/8	14-1/2	13-1/2	25-5/8	25-5/8	4-5/8	36-1/4	1-7/8	5-3/4	60-1/2	42	20-11/16	135			
52555	345	20 1/2	34 1/2	22	64-3/16	54-3/8	61-1/8	56-1/8	3-3/4	16 1/8	1-7/8	16-1/2	15-1/2	32-1/8	32-1/8	4-5/8	47-1/4	1-7/8	5-3/4	70-1/2	47	22-11/16	148			

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 DRAIN SUPPLIED IN EACH MODULE FOR WASHDOWN

## Pressure Drop Curve Model KB10 Shown

