

MODEL NUMBER NOMENCLATURE

PFU	Model	"PFU" Packaged Filter Unit	
2000		CFM	
H	Configuration	H	Horizontal
		V	Vertical
2	Stages	1, 2, or 3	
SS	Construction	EC	Epoxy Coated
		SS	Stainless Steel (304 / 316L)
XXX		Options (See List Below)	

OPTIONS

- + PH(E or G) (Preheater Electric or Glycol);
- + AC (Packaged Air Conditioning);
- + INS (Insulated); DW (Double Wall);
- + PW (Prewired);
- + DW (Double Wall);
- + RF (Redundant Fans)

The model described above is a Packaged Filter Unit, 2,000 CFM, horizontal cabinet unit, 2 stages, 304SS, 14 Ga construction.

SYSTEM DESCRIPTION

The Unisorb Canada PFU SYSTEM is a complete self-contained, horizontal or vertical airflow packaged cell system. It provides continuous medium efficiency air purification for contaminated air streams ranging in volume from 500 to 16,000 CFM for recirculating air or air supply into a building..

The standard PFU air purification system includes the following:

CONSTRUCTION

Standard casing construction is 304SS, 14-gauge welded mild steel with epoxy coated base frame. An optional insulated or double wall casing is available to prevent unit heat loss, condensation, and sound dampening. The blower is enclosed within the unit casing.

PRE-FILTER SECTION

This section provides a pre-filter to protect the downstream system components. The 2" deep - 35% MERV 8 pre-filter is used for the retention of particulates, protecting the chemical media bed section from being blinded by particulates. Optional 95% MERV 14 after filters are available for protection against blinding of the media bed by smaller particulates.

A magnehelic differential pressure gauge is used to locally monitor the pressure drop across the particulate filter sections to determine when changeout of the filters is necessary. An optional photohelic differential pressure gauge/switch is used when a set of contacts is required to provide local monitoring and to send an alarm signal to a remote location to indicate when the filters need to be checked or changed. A side access door with quick release, snap acting type, positive pressure latches is used for quick, easy access to the filters.

CHEMICAL MEDIA SECTION

This section houses the Unisorb Canada chemical media(s) as selected to suit the specific contaminant control application. PFU units are designed for removable cells for media replacement. Door access is on the front or side of the unit through quick release; snap acting type, positive pressure latches for quick, easy access.

Multiple cell stages are provided when higher efficiency, capacity or more than one type of chemical media is required to facilitate removal of all the different types of contaminants, which are present in any particular air space.

FINAL-FILTER SECTION

This section provides high efficiency particulate filtration to remove any fine dust, which may be released from the system during media changeout, or initial startup of the system. The high efficiency 6" deep - 95% MERV 14 final-filter is used for the retention of fine particulates to protect the downstream air space.

A magnehelic differential pressure gauge is used to monitor the pressure drop across the filter section to determine when the changeout of filters is necessary. An optional photohelic differential pressure gauge/switch is used when a set of contacts is required provide local monitoring and to send an alarm signal to a remote location to indicate when the filters need to be checked or changed. A side access door with quick release, snap acting type, positive pressure latches are used for quick, easy access to the filters.

BLOWER SECTION

This section contains the blower, motor, and belt drive components to move the appropriate quantity of air through the system. The blower system is designed to overcome the static pressure losses involved with the air purification system and the external system loses. The components are selected to provide reliability for continuous 24 hour, 365 days per year operation in a contaminated environment.

Corrosion resistant pressure blowers are used for most applications. Plenum style fans are selected for each unique application to ensure an operating point, which will allow flexibility for field adjustments should the operating parameters change. The blower is isolated from the remainder of the system for vibration, and acoustic purposes.

Where spark proof or special corrosion resistant construction is required, they will be provided.

Standard motors are TEFC. Special explosion proof construction features are available as required to suit field requirements.

The standard unit comes ready for field wiring connections to the electrical box on the motor. Starters, disconnects, controls, and panel lights are all available as required.

500 CFM - 16,000 CFM

Packed Filter Unit (PFU) – Cabinet Cell System



STANDARD CONSTRUCTION

- + 14-Gauge SS
- + 2" - 35% MERV 8 Pre-Filter
- + Doors Sealed With - Closed Cell Neoprene Gasketing
- + Snap Acting Positive Pressure Latches
- + Blower - Plenum Fan Configuration
- + TEFC Motor
- + Magnehelic Gauges for Pre-Filter & Final-Filter Sections
- + 6" - 95% MERV 14 Final-Filter

OPTIONS

- 16 Ga Stainless Steel Construction
- Epoxy Coated Cells With ¼ Turn Twist Locks
- Insulated Casing
- Double Wall Construction
- Media Cell Stages: 1, 2 or 3
- Preheat Coil - Electric or Glycol
- Cooling Coil
- Photohelic Differential Pressure Gauges
- Control Panel, Starter, and Disconnect
- Explosion Proof Blower Motor
- Spark Proof Blower Construction)
- Redundant Fans
- Discharge Silencer
- Structural Steel Base (Epoxy Coated)
- Other _____

500 CFM - 16,000 CFM

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PFU – VERTICAL AIRFLOW CONFIGURATION SELECTION GUIDE

PFU Model No.	Air Flow Range (CFM)	Motor Range (HP)	Media Volume (FT3) *	Shipping Weight Empty (LBS)	Operating Weight (LBS) *
PFU-500-V-2	250-500	1	2	500	600
PFU-1000-V-2	500-1000	1	4	530	730
PFU-1500-V-2	750-1500	2	6	740	1040
PFU-2000-V-2	1000-2000	2	8	980	1380
PFU-3000-V-2	1500-3000	3	12	1220	1820
PFU-4000-V-2	2000-4000	5	16	1305	2105
PFU-5000-V-2	2500-5000	7.5	20	1710	2710
PFU-6000-V-2	3000-6000	10	24	1955	3155

*Dimensions are Approximate, Based on 2 Stage Media Cell Selection

PFU – HORIZONTAL AIRFLOW CONFIGURATION SELECTION GUIDE

PFU Model No.	Air Flow Range (CFM)	Motor Range (HP)	Media Volume (FT3) *	Shipping Weight Empty (LBS)	Operating Weight (LBS) *
PFU-500-H-2	250-500	1	2	750	850
PFU-1000-H-2	500-1000	1 ½	4	780	980
PFU-1500-H-2	750-1500	2	6	890	1190
PFU-2000-H-2	1000-2000	2	8	1030	1430
PFU-3000-H-2	1500-3000	3	12	1170	1770
PFU-4000-H-2	2000-4000	5	16	1455	2255
PFU-5000-H-2	2500-5000	5	20	1760	2760
PFU-6000-H-2	3000-6000	7.5	24	1905	3105
PFU-8000-H-2	4000-8000	10	32	2310	3910
PFU-12000-H-2	6000-12000	15	48	2870	5270
PFU-16000-H-2	8000-16000	20	64	3400	6600

*Dimensions are Approximate, Based on 2 Stage Media Cell Selection

SPECIFICATIONS

1.0 PURPOSE

A Unisorb Canada PFU air purification system is to be provided for this application. The system shall be a complete package designed for the removal of all organic and inorganic vapors or gases. The system shall ensure no bypass of contaminants and shall provide a medium removal efficiency of constituent contaminants.

2.0 DESIGN

- 2.1 The manufacturer shall have a minimum of 5 years of history in design, fabrication, and testing of similar air purification systems. The system shall provide a minimum airflow capacity as outlined in the specification parameters.
- 2.2 The air purification system shall have pre-filters, chemical media cells, final-filters, and a blower section to suit the specific requirements.
- 2.3 The system shall be configured either in a blow-thru or draw-thru configuration as suited to the application.
- 2.4 The manufacturer shall guarantee a minimum life expectancy for the system according to the inlet and outlet contaminant levels for this application. Discharge contaminant levels shall not exceed defined parameters at any time before media expiry.
- 2.5 The manufacturer shall have the capability of providing in house laboratory analysis for testing media and air samples to assist in determining media bed consumption rates.
- 2.6 Where corrosion control is involved, the equipment manufacturer shall provide corrosion monitoring assistance for the controlled space. In house support and analysis of corrosion coupons shall be provided by the equipment manufacturer.
- 2.7 The media cells can be disposable or have the capability of media change-out.

3.0 CONSTRUCTION AND FABRICATION

- 3.1 The base frame shall be epoxy coated mild steel channel.
- 3.2 The unit casing shall be welded with similar metals. Any dissimilar metals shall be fastened together by mechanical fasteners.
- 3.3 To produce high quality low distortion welds, the GTAW (TIG) welding process shall be used.
- 3.4 All access doors and hatches shall use closed cell neoprene gasketing to prevent any air leakage.
- 3.5 All gasket material shall be ¼" thick by ¾" wide closed cell neoprene foam.
- 3.6 Service doors and all unit access shall be oriented to suit field conditions or requirements.
- 3.7 Hinges shall be of continuous piano type pin, and constructed of 300 series stainless steel. Doors shall be held closed with quick release, snap acting type, positive pressure latches.

4.0 PRE-FILTER SECTION

- 4.1 The pre-filter section shall prevent particulates into the downstream sections of the air purification system.
- 4.2 The pre-filter section shall include a 2" deep 35% MERV 8 roughing pre-filter for ASHRAE Standard 52.1, and shall carry Class 2 certification in accordance with UL Standard 900.
- 4.3 Filter face velocities and filter resistances shall not exceed the allowances for the project.
- 4.4 Access doors to the filters shall be with quick release, snap acting type, positive pressure latches.
- 4.5 The pre-filter section shall be monitored by a magnehelic differential pressure gauge or an optional photohelic pressure switch/gauge.
- 4.6 Access doors to the filters shall be with ¼ turn positive pressure latches.
- 4.7 The pre-filter section shall be monitored by a magnehelic differential pressure gauge or a photohelic pressure switch/gauge.

5.0 CHEMICAL MEDIA

- 5.1 The chemical media(s) shall be as selected for this application with minimum performance and physical characteristics as defined for the application. Media data sheets, current MSDS information and original samples are to be provided by the manufacturer.
- 5.2 The media cells, cell stages, and residence times shall meet or exceed the minimum requirements.
- 5.3 Media bed face velocities shall not exceed the specified rate for this application.
- 5.4 Media pressure losses shall not exceed the design limitations.

6.0 FINAL-FILTERS

- 6.1 The final-filter section shall include a 6" deep 95% MERV 14 high efficiency after-filter based on ASHRAE Standard 52.1, and shall carry Class 2 certification in accordance with UL Standard 900.
- 6.2 Filter face velocities and filter resistances shall not exceed the allowances for the project.
- 6.3 Access doors to the filters shall use quick release; snap acting type, positive pressure latches.
- 6.4 The final-filter section shall monitor the pressure drop by a magnehelic differential pressure gauge or a photohelic pressure switch/gauge.

7.0 BLOWER SECTION

- 7.1 Standard plenum fan blower arrangement shall be used for a draw thru or blow thru application. The blower shall be an industrial centrifugal type of suitable corrosion resistance construction. Bearings shall be based on L10 minimum life of 40,000 hours of average life of 200,000 hours. Adjustable motor base shall have a two-point leveling and tension adjustment.
- 7.2 The blower assembly shall be installed utilizing isolation mounts for vibration purposes.
- 7.3 Sheaves shall be sized for a minimum of 150% of motor horsepower, fully machined, cast iron, keyed and securely attached to the shaft. The blower shall be driven using a heavy industrial adjustable V belt assembly, which is oil and heat resistant and non-static conducting.
- 7.4 The blower section shall have accessibility for maintenance purposes, including balancing, grease nipples, tachometer (RPM) opening.

500 CFM - 16,000 CFM

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- 7.5 Optional spark proof blower construction shall be provided for such rated environments.
- 7.6 The motor shall be totally enclosed fan cooled (T.E.F.C.) type rated for the intended duty cycle.
- 7.7 Optional explosion proof motor construction shall be provided for such rated environments.
- 7.8 Optional disconnect, starter, and controls shall be provided as required to suit the application.

8.0 PACKAGING & HANDLING

- 8.1 The air purification system shall be capable of preventing any deflection during rigging, handling, transportation, operation, or servicing.
- 8.2 Lifting lugs and/or anchor bolt locations shall be provided for safe handling and operation of the system.