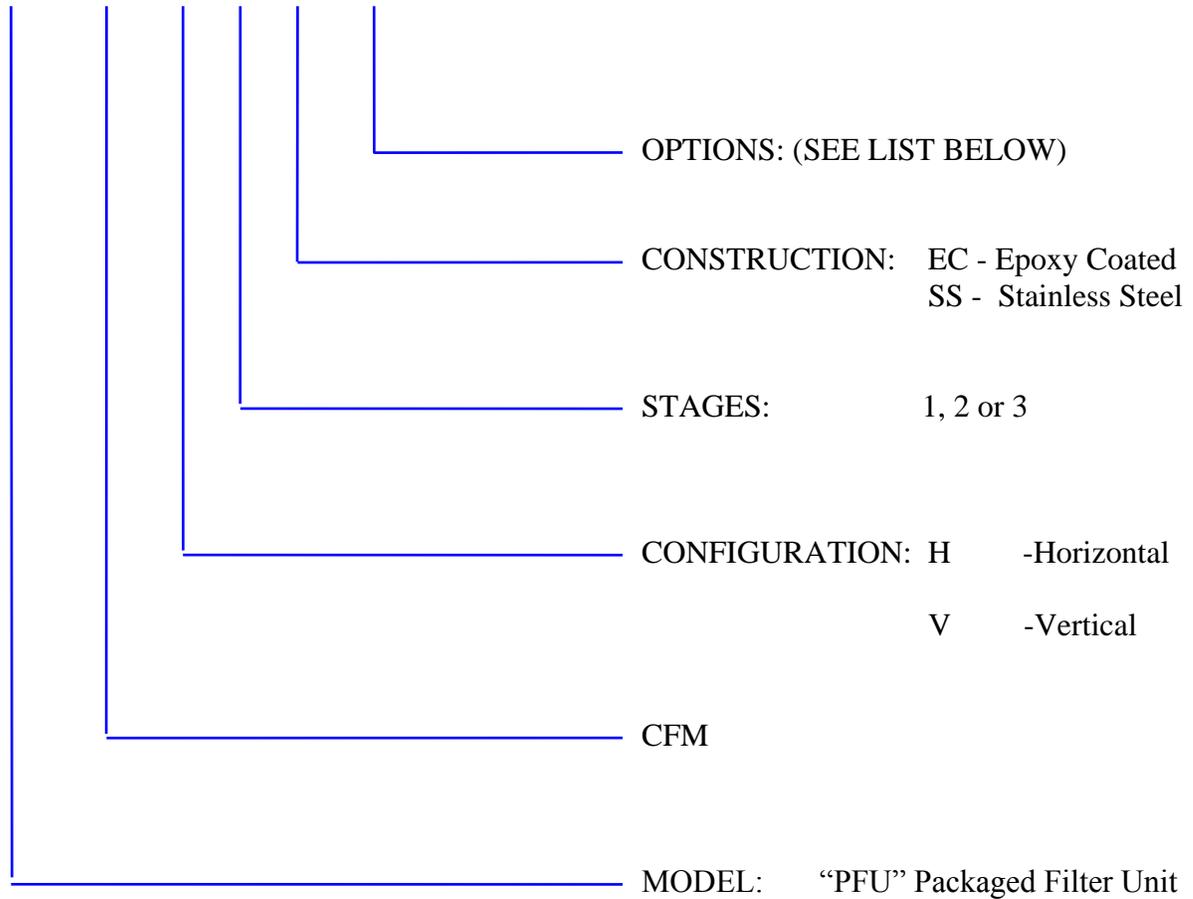




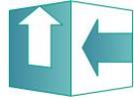
### MODEL NUMBER NOMENCLATURE

PFU 2000 H 2 EC XXX



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

The model described above is a Packaged Filter Unit, 2,000 CFM, horizontal unit, 2 stages, epoxy coated 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.

The standard PFU air purification system includes the following:

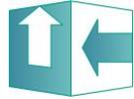
#### **CONSTRUCTION**

Standard casing construction is 14 gauge welded mild steel that is epoxy coated. 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.

#### **PREFILTER SECTION**

This section provides a prefilter to protect the downstream system components. The 2" deep - 35% MERV 8 prefilter 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 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 also 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 cell loading of chemical media. Door access is on the front or side of the unit through quick release, snap acting type, positive pressure latches for quick, easy access.

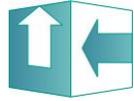
Multiple cell stages are provided when higher efficiency, capacity or more than one type of chemical media is required to facilitate removal of all the different types of contaminants which are present in any particular air space.

#### **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.

Extruded aluminum filter tracks with positive air seals are used to prevent air from bypassing around the filters.

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 also 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**

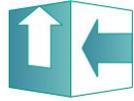
This section contains the blower, motor, and belt drive components to move the appropriate quantity of air through the system. The blower system is designed to overcome the static pressure losses involved with the air purification system and the external system losses. The components are selected to 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.

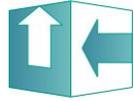


#### STANDARD CONSTRUCTION:

- 14 Gauge Mild Steel (Epoxy Coated)
- 2" - 35% MERV 8 Pre Filter
- Aluminum Extrusion Filter Tracks
- Aluminum Extrusion Cell Tracks
- Epoxy Coated Cells With - 1/4 Turn Twist Locks
- Doors Sealed With - Closed Cell Neoprene Gasketing
- Snap Acting Positive Pressure Latches
- Blower – Plenum Fan Configuration
- TEFC Motor
- Mild Steel Epoxy Coated
- Magnehelic Gauges For Pre Filter & Final Filter Sections

#### OPTIONS:

- \_\_\_ Stainless Steel Construction
- \_\_\_ 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 Motor
- \_\_\_ Spark Proof Blower Construction
- \_\_\_ 6" - 95% MERV 14 Final Filter
- \_\_\_ Redundant Fans
- \_\_\_ Discharge Silencer
- \_\_\_ Structural Steel Base (Epoxy Coated)
- \_\_\_ Other \_\_\_\_\_



### PFU – VERTICAL AIRFLOW CONFIGURATION SELECTION GUIDE

SELECTION COLUMN	PFU MODEL NUMBER	AIR RANGE (CFM)	MOTOR RANGE (HP)	MEDIA VOLUME (FT3) *	SHIPPING EMPTY WEIGHT (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

SELECTION COLUMN	PFU MODEL NUMBER	AIR RANGE (CFM)	MOTOR RANGE (HP)	MEDIA VOLUME (FT3) *	SHIPPING EMPTY WEIGHT (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

Specialists in Air & Gas Purification, Corrosion & Odor Control

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### 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 prefilters, 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 production and analysis of corrosion coupons shall be provided by the equipment manufacturer.
- 2.7 The chemical media shall have the capability of being loaded and unloaded, this shall be accomplished through the removable cells.



### 3.0 **CONSTRUCTION AND FABRICATION**

- 3.1 The base frame shall be structural steel epoxy coated 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 1/4" thick by 0.75" 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.
- 3.8 Any preheating, cooling, or humidification to temper the incoming air stream shall be provided by the equipment manufacturer.

### 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 prefilter section shall include a 2" deep 35% MERV 8 roughing prefilter 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 Extruded aluminum particulate filter tracks with positive air seals shall be used to allow easy changing of the filters, and to ensure air does not bypass the filters.
- 4.5 Access doors to the filters shall be with quick release, snap acting type, positive pressure latches.
- 4.6 The prefilter section shall be monitored by a magnehelic differential pressure gauge or an optional 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**

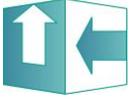
- 6.1 The final filter section shall include a 6" deep 95% MERV 14 high efficiency after filter based on ASHRAE Standard 52.1, and shall carry Class 2 certification in accordance with UL Standard 900.
- 6.2 Filter face velocities and filter resistances shall not exceed the allowances for the project.
- 6.3 Extruded aluminum particulate filter tracks with positive air seals shall be used to allow easy changing of the filters, and to ensure air does not bypass the filters.
- 6.4 Access doors to the filters shall use quick release, snap acting type, positive pressure latches.



- 6.5 The final filter section shall monitor the pressure drop by a magnetic 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.
- 7.6 Optional spark proof blower construction shall be provided for such rated environments.
- 7.7 The motor shall be totally enclosed fan cooled (T.E.F.C.) type rated for the intended duty cycle.
- 7.8 Optional explosion proof motor construction shall be provided for such rated environments.
- 7.9 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.