



**BRY-AIR (ASIA) PVT. LTD.**

20, Rajpur Road, Delhi 110054

PHONE : 91-11-23906666 FAX: 91-11-23906600

E-MAIL: enquire@pahwa.com, Web site: www.bryair.com

# TECHNICAL DATA SHEET

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## ECO-SCRUB AIR & GAS PURIFICATION SYSTEMS BPU-D SERIES

DEEP  
BED

BRY AIR INTRODUCES BPU-D-SERIES DEEP BED AIR AND GAS PURIFIERS  
WITH FOLLOWING SALIENT FEATURES

### High efficiency and reliability

- Self contained pressurised units upto 3-Stage
- Removes both organic and inorganic contaminants from the air and supplies air free of contaminant gases.
- Robust structural steel frame construction, CNC fabricated, powder coated units
- Insulated unit with double skin walls and panels (Optional)
- Pre filter, 2" deep, 30% efficiency, ASHRAE standard filtration.
- After filter, 2" deep, 30% efficiency, ASHRAE standard filtration (Optional).
- Fine filter, 6" deep, 95% efficiency, ASHRAE standard filtration
- Microprocessor based Digital Control Card (Optional)

### Easy to operate

- Suitable for continuous operation.
- Manual switch for operating the system.

### Easy to install

- Versatile, easy to package and handle.
- Small footprint, low volume/weight per CMH

### Easy to maintain

- Quick and easy to service
- Easy Eco-Scrub media replacement.
- Easy, tool free access to all major components.
- Quick serviceability and maintenance free operation

### Options

- Air / gas flow control through Variable Frequency Drive (VFD)
- Stainless steel construction
- Volume control damper for control air flow (optional).

### Air and Gas Purification Units - BPU-D Series

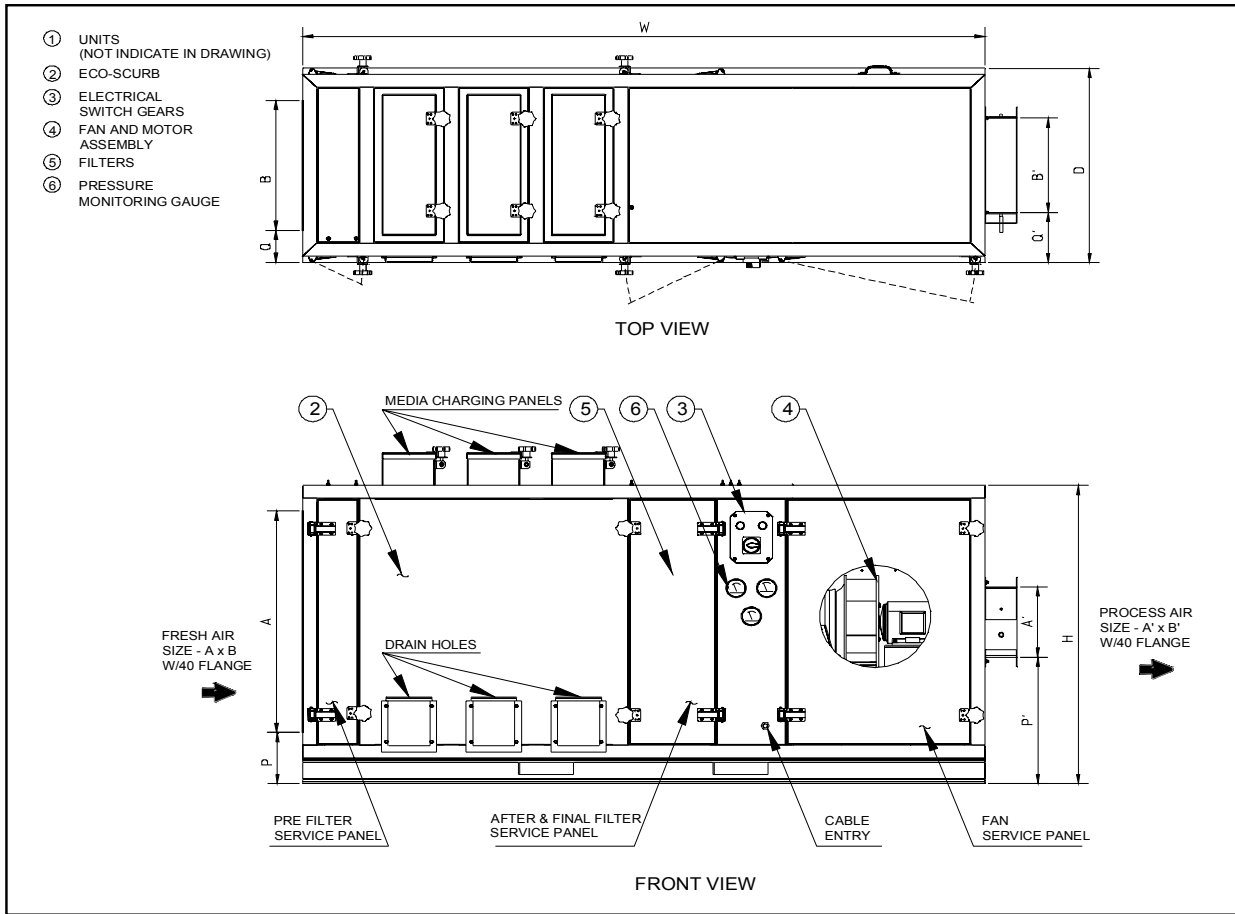
MODEL	Air Flow		ESP (Pa)	MOTOR KW	POWER * REQD. VAC/Φ/Hz	APPROX. WEIGHT (Kg)
	CMH	CFM				
BPU-500-D-1	850	500	250	1.5	415 /3/ 50	425
BPU-500-D-2	850	500	250	2.2	415 /3/ 50	500
BPU-500-D-3	850	500	250	2.2	415 /3/ 50	560
BPU-1000-D-1	1700	1000	250	2.2	415 /3/ 50	665
BPU-1000-D-2	1700	1000	250	2.2	415 /3/ 50	740
BPU-1000-D-3	1700	1000	250	2.2	415 /3/ 50	850
BPU-1500-D-1	2550	1500	250	2.2	415 /3/ 50	850
BPU-1500-D-2	2550	1500	250	3.7	415 /3/ 50	950
BPU-1500-D-3	2550	1500	250	3.7	415 /3/ 50	1080
BPU-2000-D-1	3400	2000	250	3.7	415 /3/ 50	1070
BPU-2000-D-2	3400	2000	250	3.7	415 /3/ 50	1175
BPU-2000-D-3	3400	2000	250	5.6	415 /3/ 50	1330

\* Note:-

\*1. Also suitable for 200/220/240/380/440/460 VAC, 3Ph, 50/60 Hz power supply.



## DIMENSIONAL DATA & DUCT CONNECTION



MODEL	UNIT DIMENSIONS			DUCT CONNECTIONS							
				FRESH AIR				SUPPLY AIR			
	H	D	W	A	B	P	Q	A'	B'	P'	Q'
BPU-500-D-1	1165	760	1850	865	510	200	125	275	370	495	195
BPU-500-D-2	1165	760	2105	865	510	200	125	275	370	495	195
BPU-500-D-3	1165	760	2455	865	510	200	125	275	370	495	195
BPU-1000-D-1	1165	1470	1850	865	1020	200	125	275	370	495	550
BPU-1000-D-2	1165	1470	2105	865	1020	200	125	275	370	495	550
BPU-1000-D-3	1165	1470	2455	865	1020	200	125	275	370	495	550
BPU-1500-D-1	1570	1470	2100	1370	1020	200	125	275	370	725	550
BPU-1500-D-2	1570	1470	2400	1370	1020	200	125	275	370	725	550
BPU-1500-D-3	1570	1470	2700	1370	1020	200	125	275	370	725	550
BPU-2000-D-1	2110	1470	2100	1810	1020	200	125	275	370	965	550
BPU-2000-D-2	2110	1470	2400	1810	1020	200	125	275	370	965	550
BPU-2000-D-3	2110	1470	2700	1810	1020	200	125	275	370	960	550

ALL DIMENSIONS ARE IN MILLIMETER



# GUIDELINES TO SELECT BRY-AIR ECO-SCRUB UNITS

## ECO-SCRUB MEDIA LIFE ESTIMATION

In order to estimate EcoScrub media life, use the formulae :

$$N = 10.72 \times \frac{ACFM \times PPM \times MW}{NCFM \times F_1 \times F_2}$$

- N = Number of stages of EcoScrub
- ACFM = Actual air flow, the EcoScrub is proposed to be adjusted to, for optimum utilization of media (in CFM).
- NCFM = Nominal air flow of the EcoScrub model selected (in CFM)
- PPM = Concentration of the contaminant in air (in PPM)
- MW = Molecular Weight of the contaminant.
- F<sub>1</sub> = Useful capacity factor of adsorbent (media) – Table 1
- F<sub>2</sub> = Bulk density factor of adsorbent (media) – Table 1
- 10.72 = Constant

**Table 1 : Useful Adsorbent Capacity and Bulk Density Factors of Contaminants**

Contaminant	Factors	Adsorbent (BRYSORB Media)					
		502	508	515	520	525	502 B
Sulphur dioxide	F <sub>1</sub>	4	6	6			
	F <sub>2</sub>	50	50	45			
Hydrogen sulphide	F <sub>1</sub>	8	14	14			
	F <sub>2</sub>	50	50	45			
Chlorine	F <sub>1</sub>			8	10		
	F <sub>2</sub>			45	30		
Ammonia	F <sub>1</sub>					7	
	F <sub>2</sub>					40	
Nitric acid	F <sub>1</sub>	3	4				
	F <sub>2</sub>	50	50				
Nitrogen dioxide	F <sub>1</sub>				7		
	F <sub>2</sub>				30		
Formaldehyde	F <sub>1</sub>	1.5	2.5				
	F <sub>2</sub>	50	50				
Carbon disulphide	F <sub>1</sub>				7.5		
	F <sub>2</sub>				30		
Methyl mercaptan	F <sub>1</sub>						11
	F <sub>2</sub>						40
Toluene	F <sub>1</sub>				20		
	F <sub>2</sub>				30		
Isopropyl alcohol	F <sub>1</sub>				11		21
	F <sub>2</sub>				30		40
Trichloroethane	F <sub>1</sub>				20		
	F <sub>2</sub>				30		
Ethylene	F <sub>1</sub>	1	1.5				
	F <sub>2</sub>	50	50				
Acetone	F <sub>1</sub>						12
	F <sub>2</sub>						40

## STEPS TO SELECT “DEEP BED” ECO-SCRUB

1. Refer 'Table 1' to first determine the best media to counter the contaminant (s).
2. If the value of N works out to be 1 or less than 1, then a 1-Stage unit can be safely offered for media life of approx. 12 months. In case, the value of N is 1.5 and still a 1-Stage unit is offered, then the media life is reduced to 8 months – 12 / 1.5 = 8 months
3. If EcoScrub media selected for the second / next contaminant is different from one selected for the first contaminant, a 2-Stage unit will be selected with media life calculated out separately for each media as expanded above.
4. If EcoScrub media selected for two or more contaminants is same, the number of beds, worked out for individual contaminants, can be summed up for combined selection of media.
5. Number of Stages of ECO-SCRUB unit should not exceed 3 (three). If, however, the number of stages works out to be more than 3, non-standard unit option. (with up to 4 (four) Stages) is available. Check with Engg. Department of BRY-AIR (ASIA) PVT LTD for guidance, if so happens.

## STEPS TO SELECT “THIN BED” ECO-SCRUB

### Single adsorbent based applications

- a. If the number of stages, on the basis of above selection procedure works out to be less than 0.25, select the corresponding Thin Bed 1-Stage model of Eco-Scrub.
- b. If the number of stages, on the basis of above selection procedure works out to be more than 0.25 but less than 0.5, select the corresponding Thin Bed 2-Stage model of Eco-Scrub.
- c. If the number of stages, on the basis of above selection procedure works out to be more than 0.5 but less than 0.75, select the corresponding Thin Bed 3-Stage model of Eco-Scrub.

### Two / multiple adsorbent based applications

- a. If the number of stages for each of the adsorbent, selected on the basis of above selection procedure, works out to less than 0.25, select the corresponding Thin Bed 2-Stage or 3-Stage model of Eco-Scrub, depending on the number of adsorbents selected.
- b. If the number of stages for each of the adsorbent, selected on the basis of above selection procedure, works out to less than 0.25 for one adsorbent and, more than 0.25 but less than 0.5 for second adsorbent, select a Thin Bed 3-Stage model of Eco-Scrub with one bed of the unit charged with former and the remaining two beds charged with the later adsorbent.

