DUROPURE™

Recirculating Solution for
Painting/Coating/Surface Preparation
13,500 CFM to 200,000 CFM

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Product Data Sheet – DuroPure™

Applications

Dust Control, Welding, Painting and Coating

Ducting

Ducting is not required with a DuroPure™ System. Air filtered through the six stages of filtration are recirculated back into shop space. Make up air is not required.

Tapered Airflow Design

The Duroair product line is a cross draft design. Shop air enters the enclosure through the front filter doors. Clean air travels in a horizontal direction towards the back of the enclosure using Duroair's patented tapered airflow design. Airflow is drawn through multiple stages of filtration and is discharged upward.

The filter assembly creates a tapered airflow which directs air down the center of the enclosure maximizing control of overspray and keeping the sidewalls clean. During the dry cycle, airflow rates are increased which creates a wicking process that reduces dry times without the need for heaters or blowers. The cross-draft exhaust is attached to an enclosure with air intake filters, housing a work piece.

- "Taper Draft" air flow to maximize velocities around the products being worked on and minimize overspray on enclosure walls
- Cross draft airflow creates a wicking process that decreases dry times without dirt transfer
- Exhaust system creates a negative pressure vacuum seal creating a clean purified environment.

DuroPure™ Overview

Patented Six-Stage Filtration

- 3 stages of particulate collection; captures paint particulate including hexavalent chromium (NESHAP 319) and particulate isocyanates
- 3 stage gas filtration, captures isocyanates in gas stage and destroys VOCs with two stages of carbon adsorbtion and 1 stage of UV PCO (photocatalytic oxidation) technology

The DuroPure™ scrubs the air of particulates including hexavalent chromium and VOCs to allow the cleansed air to be recirculated back into the building. Air leaving the exhaust system surpasses all OSHA requirements. The DuroPure™ system is a plug and play system. It is constructed on wheels and can be deployed anywhere in a working space. Air is recirculated and no ducting or makeup air is required saving significantly on capital and energy costs.

CFM	FAN SIZE	MOTOR SIZE	FLA @ 460/3/60	VFD	FILTER MONITORING GAUGE	NUMBER OF FILTERS EACH STAGE	NESHAP 319	VOC MONITOR	LEL MONITOR (optional)
13,500 CFM	30" Reverse Incline Fan	10 HP	14	✓	✓	6	✓	✓	✓
18,000 CFM	30" Reverse Incline Fan	15 HP	21	✓	✓	9	✓	✓	✓
25,000 CFM	34" Reverse Incline Fan	20 HP	27	✓	✓	12	✓	✓	✓
30,000 CFM	34" Reverse Incline Fan	25 HP	34	✓	✓	15	✓	✓	✓
36,000 CFM	2 x 30" Reverse Incline Fan	2 x 15 HP	42	✓	✓	18	✓	✓	✓
50,000 CFM	2 x 34" Reverse Incline Fan	2 x 20 HP	54	✓	✓	24	✓	✓	✓
60,000 CFM	2 x 34" Reverse Incline Fan	2 x 25 HP	68	✓	✓	30	✓	✓	✓
75,000 CFM	3 x 34" Reverse Incline Fan	3 x 20 HP	81	✓	✓	36	✓	✓	✓
90,000 CFM	3 x 34" Reverse Incline Fan	3 x 25 HP	102	✓	✓	45	✓	✓	✓

Safety Features

- Production air interlocked with fans for safety with fresh breathing air supplied into enclosure
- Exhaust system creates a negative pressure vacuum seal creating a clean purified environment. This is ideal for a retractable clean room and/or containing airborne particulates and chemicals.
- Custom designed Kidde Badger fire suppression system that will open and close with the enclosure
- VOC monitor
- LEL monitor (Optional)

Fans

Fans are designed using a reverse incline fan wheels with inlet cones. Non sparking construction. Fan sizes from 18" to 35" with 5hp to 25hp motors dependent on airflow requirements. Airflow designed at 3.5" static pressure.

Variable Frequency Drive

A VFD is used to give the customer complete control of airflow and doubles as a soft starter to eliminate the need for a motor starter.

Control Panel

The Control Panel is a lockable fused disconnect and is a C/UL and US/UL listed panel, with an on/off, speed dial control. Customer is required to supply building power. The control panel is prewired and contains an air solenoid for production air.

LEL Monitor (Optional)

LEL Monitor can be provided to ensure LEL does not reach set point (10% to 25% LEL). If LEL monitor reaches set point, the air solenoid is shut down to ensure no VOCs are produced.

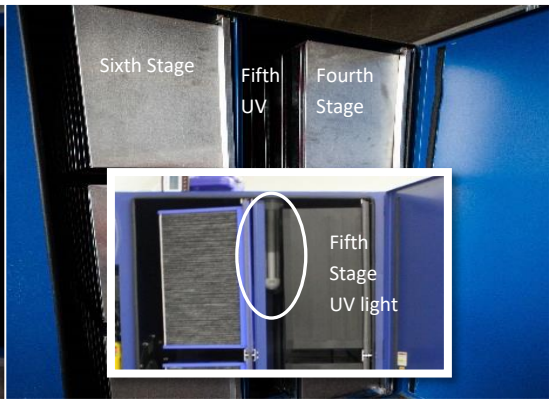
VOC Monitor

Duroair uses the VOC C-21 model. It is a solid-state gas monitor capable of sensing a variety of gases and vapors and the most common application of the C-21 is for solvent vapors.

RESPONSE RANGES FOR SOME COMMON VOCs			
	First Detects PPM	Alarm (first red bar) PPM	TLV* PPM
Acetone	4-5	20-25	750
Benzene	5-10	25-50	10
Diacetone alcohol	5-10	25-50	50
Formaldehyde	1-5	15-25	0.1
Methylene chloride	8-10	40-50	50
Methyl ethyl ketone	3-5	15-20	200
Perchloroethylene	5	50	50
Toluene	3-5	15-25	50
Trichloroethylene	10-20	50-100	50
*Threshold Limit Value. Average estimate of government industrial hygienists for repeated worker exposure			

Filters

Filtration	Filter	Notes	Filter Change Schedule
Stage 1	24" x 24" Panel 15/40 3 ply	Magnehelic Gauge provided for filter change	Manometer reading is between 1.5" and 2" WC
Stage2	24" x 24" Viledon R1 Panel	Magnehelic Gauge provided for filter change	After every 3rd Stage 1 filter change
Stage 3	24" x 24" x 12" Ultra XV MERV 15	Magnehelic Gauge provided for filter change	After every 3rd Stage 2 filter change
Optional Stage 3 NESHAP 319 FILTER	24" x 24" x 6" Ultra 6 319	Magnehelic Gauge provided for filter change	After every 3rd Stage 2 filter change
Stages 4	24" x 24" x 12" Tri-SORB V Single Header (Carbon)	VOC monitor provided for filter change	
Stage 5	UV Bulbs	The application of ultraviolet light or photocatalytic oxidation removes Volatile Organic Compounds by breaking apart the molecules and allows it to be recirculated back into the shop space	15,000 hrs
Stages 6	24" x 24" x 12" Tri-SORB V Single Header (Carbon)	VOC monitor provided for filter change	
Intake Filters on Doors	20" x 46"		Inside surface of filter shows dirt



Fire Suppression

The fire suppression system used on Duroair equipment is designed by Kidde Badger and protects both exhaust systems and the enclosure. The system is designed using their Pre-Engineer Extinguishing Manual and therefore meets the requirements of NFPA 17 "Standard for Dry Chemical Extinguishing Systems" and is UL listed under filing number EX 4864. The system also uses the recommendations by FEMA in their paper "Protection of Curtain Walled Workstations", which is found in NFPA33. The essence of the FEMA report is to double the amount of suppression within the enclosure to ensure a fire is completely extinguished, not just suppressed. Customers are responsible for permitting with local Authority Having Jurisdiction (AHJ). Duroair will provide compliance documentation if required.

To limit the possibility of a fire occurring in the enclosure during the coatings process, the following steps must be implemented:

- No electrical devices are utilized in the enclosure, unless properly rated.
- Air flows at paint stage has been designed to surpass the minimum 100 FPM at the intake filters. This keeps the conditions well below the 25% lower explosion limit.
- No heaters or baking devices are permitted inside the work area. Additional airflow is used to advance the drying process.
- Air interlocks are in place, meaning that no spray air is available unless the exhaust fan is operational.

Duroair provides fire suppression quotes that include the enclosure and exhaust unit and where applicable assumes a straight duct run no greater than 28'. All other configurations are extra.

Duroair works with locally licensed providers to install systems globally.

A dry chemical fire suppression system must be wired to shut off the exhaust fan and send a signal to the base building fire alarm system upon discharge. For a building without a fire alarm a local bell must wired to ring when the system is activated. The cost of electrical work is not included in this price and is the customer's responsibility.

At least 12" of clearance must be available above enclosure to install a fire suppression system.