

Confined / Hazardous Space | Industrial Workplace | Fire | Rescue | Marine | Military | Construction



Portable Ventilation Solutions
For A Safe Workplace



Applications



Industrial Workplace

Environment with confined spaces



Hazardous Workplace

Environment with a potentially explosive atmosphere



Fire Rescue- Structural Ventilation

Small and mid-size buildings that need ventilation to remove smoke, heat and fire gases



Fire Rescue- Large Structure Ventilation

Large structures that need ventilation to remove smoke, heat and fire gases.



Marine/Military

Shipboard de-smoking and equipment cooling

Confined Space Ventilators

Confined space rescues require additional considerations to perform a rescue. In addition to general risks there is a danger of asphyxiation (lack of oxygen), poisoning, or fire and explosion. A fan must be used during confined space rescue to combat the additional risks.

Proper ventilation in confined spaces is essential for a safe work environment. Atmospheric hazards cause approximately 90% of worker injuries and fatalities in confined spaces. Ventilation of a confined space should be done to stabilize the environment. This could be to replace the bad air, make the air breathable, get rid of toxic vapors, make the area warmer or cooler, remove dust and so on.

Ventilation can be performed by supplying or exhausting air or both. The weight and characteristics of the atmospheric hazard as well as the environmental conditions of the general area will dictate the type(s) of ventilation applied. Using a blower that can be used in positive or negative pressure ventilation is ideal. The safest option is to use an explosion proof ventilator. It prevents a source of ignition in a flammable environment. Spaces that are deep may require extensive duct work. Multiple fans used in different configurations may be required. The more options you have, the better equipped you will be to address the problem. Thadhani Safety has served customers in the production of equipment used in some of the most dangerous environments on earth. You will find our equipment in potentially explosive atmospheres where flammable gases, vapors, mists, and dusts exist. Given a source of ignition, these substances can detonate and destroy life and property in seconds. Our fans can be found at the doorsteps of buildings on fire. Firefighters, using the latest ventilation techniques, deploy our fans to safely control the flow path and eject smoke from the buildings. You will find our products at confined spaces, which by design have limited openings for entry and exit with unfavorable natural ventilation which could contain or produce dangerous air contaminants.

We take the hazards of these situations seriously and make your safety a priority. We have established processes in manufacturing, quality management, logistics and after sales service to help ensure the safety and satisfaction of firefighters, roughnecks, military, construction workers and all others using our equipment in dangerous environments.

Explosion Proof. Certified

Compliance certifications have always been a critical part of our product development strategy, and we were an early adopter of explosion proof certifications for our purpose-built hazardous location air movers. Today, our commitment to delivering full-unit certified, explosion proof ventilation solutions, remains unmatched, and we continue to build on this foundation by adding new innovative products as well as international certifications to better serve our customers in different regions of the world. Our ventilators currently hold full-unit hazardous location certifications for ATEX, While various standards exist that are in line with IEC 60079 Standard on Explosive Atmospheres, countries use these standards in their regulations in different ways.

Is it better to positively ventilate or to evacuate air?

Any Confined Space must be positively ventilated; you may evacuate when fumes are being generated in a specific location. (E.g. welding, grinding, etc.)

What size ventilation unit is needed for my confined space?

OSHA calls ventilation one of the most important engineering controls available to maintain a safe work environment.

While the actual standards for an acceptable atmosphere haven't changed over the past few years, there is disagreement over the length of time needed to ventilate a space before entry. In OSHA's confined space standard 1910.146, they do not specify how many air exchanges must be circulated per hour. Some manufacturers require a minimum air exchange amount of 6 times volume per hour, but that number is by no means universal.

A common rule of thumb has always been 10 complete air exchanges & we also recommend a minimum of 10 air exchanges just to be on the safer side. We strongly suggest the best way to determine safety for your particular space is by having a professional perform a complete and accurate atmosphere evaluation with proper instrumentation to determine what their recommendation would be.

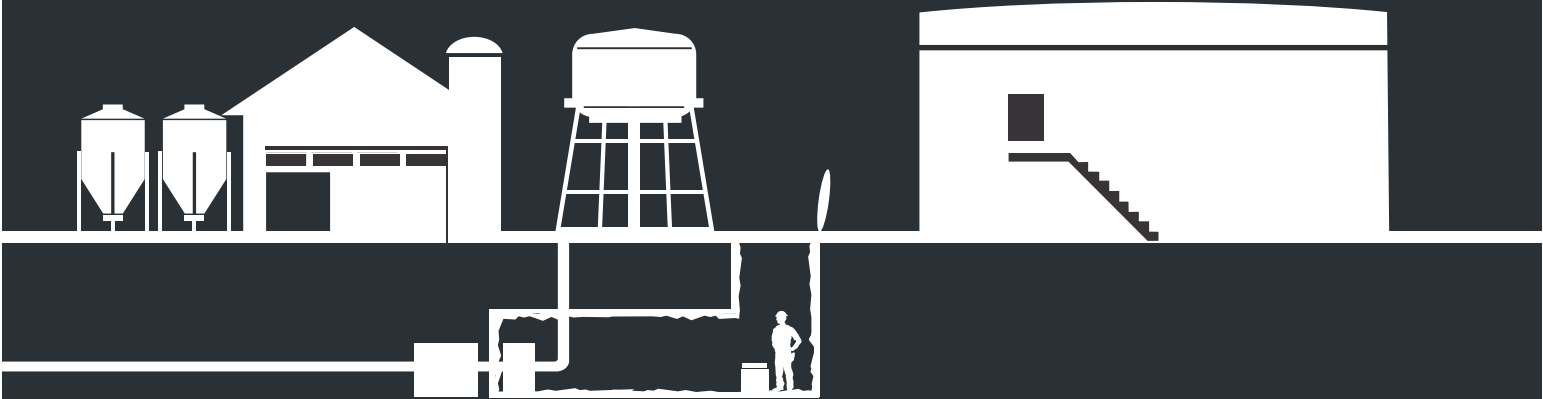
In practice, our customers typically ventilate for as long as possible before entry, and those who plan their days well often set up the equipment and get it fired up far in advance of the scheduled work. Whichever guidelines your company decides to follow, ongoing monitoring of the space using a confined space gas monitor allows entrants to make sure the atmosphere stays safe.

If a blower's capacity is 1000 CFM, simple math says that it delivers 60,000 CFM per hour. If a confined space is 6000 cubic feet in size, then this blower's capacity is sufficient for use in that particular area provided it is running at 100 % efficiency.

FAQ



INDUSTRIAL WORKPLACE



- Manholes
- Tanks
- Vats
- Silos
- Utility Vaults
- Tents/Shelters
- Factories
- Aircraft
- Rail Cars
- Crawl Spaces
- Tunnels
- Other

HAZARDOUS WORKPLACE



- Shipbuilding & Repair
- Offshore Platforms
- Utilities
- Underground Work
- Manholes
- Vessels and Tanks
- Aircraft
- FPSO (Floating Production Storage and Off loading)
- Tunnels
- Crawl Spaces
- Chemical Plants
- Confined Spaces



ATEX Zone Classification

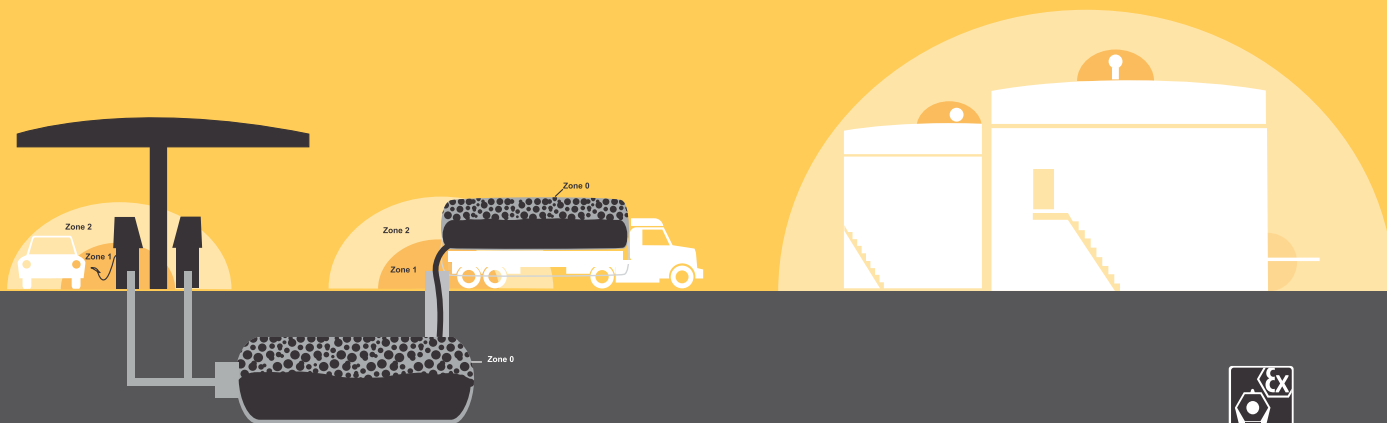
Hazardous areas are classified into zones based on an assessment of the frequency of occurrence and duration of a potentially explosive gas atmosphere. IEC60079-10-1 defines the areas in an explosive atmosphere as:

- « Explosive atmosphere: mixture with air, under atmospheric conditions, flammable substances in the form of gas, vapor, dust, fibers, or flyings which, after ignition, permits self-sustaining propagation
- « Zone 0 : an area in which an explosive gas atmosphere is continuously present, for long periods or frequently.
- « Zone 1 : an area in which an explosive gas atmosphere is likely to occur in normal operation occasionally.
- « Zone 2 : area in which an explosive gas atmosphere is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

 Zone 0

 Zone 1

 Zone 2





Equipment Certifications

ATEX EXPLAINED

The chart explains the ATEX Identification Numbering System. The high lighted areas specifically apply to the ATEX string seen on Airvent is Safety's certified hazardous location fans.

1 EQUIPMENT GROUP & CATEGORY

Equipment Group	Equipment Category	Protection Level	Hazard Gas	Dust	Use
II - Industrial (Non - Mining)	1	Very High Protection	G	-	Zones 0 - 1 - 2
	2	High Protection	-	D	Zones 20 - 21 - 22
			G	-	Zones 1 - 2

2 CLASSIFICATION OF HAZARDOUS AREAS

Area Classification Gases	Dusts	Zone Criteria (based on frequency and duration)
Zone 0	-	Potentially Explosive substance present continuously or for long periods > 1000hrs/yr
-	Zone 20	
Zone 1	-	Potentially Explosive substance likely to be present in normal operation > 10hrs < 1000hrs/yr
-	Zone 21	
Zone 2	-	Potentially Explosive substance unlikely to be present in normal operation, if it does will only be for short periods > 10hrs
-	Zone 22	

3 IGNITION PROTECTION CATEGORIES

Ignition Protection Categories	I.D	Can be used in	Safety Principle
Increased safety	Ex e	Zone 1	No arcs, sparks or hot surfaces
Non - sparking equipment	Ex nA	Zone 2	
Pressurized encapsulation	Ex d	Zone 1	Controls an internal explosion & extinguishes the flame

Motor Junction Box

4 GAS GROUPS

Gas Group	Representative Test Gas
IIA	Propane
IIB	Ethylene

Gas Group IIB includes all gases for Group IIA

5 TEMPERATURE CLASSES

Class	T1	T2	T3	T4	T5	T6
	450°C	300°C	200°C	135°C	100°C	85°C
IIA	Acetone Ammoniac Benzene Acetic Acid Ethane Ethyl Acetate Ethyl Chloride Methane Methanol Naphthalene Phenol Propane	i- Amylacetate n- Butane n- Butyl Alcohol	Gasolines Diesel Fuels Heating Oils n- Hexane	Acetaldehyde		
IIB	Town gas (Lighting gas)	Ethylene Ethylene Oxide	Hydrogen Sulfide	Ethylether		

Gas Group IIB T6 includes all specifications for Gas Group IIA, Class T1 - T6 and Gas Group IIB, T1 - T6

1 EQUIPMENT GROUP II

1 EQUIPMENT CATEGORY 2

2 Hazard G

4 GAS GROUPS IIB

6 Conditions & Subdivisions GB

II 2 G Ex de IIB T6 Gb



ATEX STRING

3 Ignition Protection Category Ex de

5 Temperature Class T6

6 CONDITIONS & SUBDIVISIONS

Flammable Materials	Temporary Behavior of Explosive Atmosphere	Classification of Hazardous Areas	Group as Defined in Directive 94/9/EC	Equipment Category as Defined in Directive 94/9/EC	Equipment Group as Defined in EN 60079-0	Equipment Protection Level (EPL) as Defined in EN 60079-0
Gases / Vapors	is present continuously or for long periods or frequently	Zone 0	II	1G	II	Ga
	arises in normal operation occasionally	Zone 1	II	2G or 1G	II	Gb or Ga
	is not likely to arise in normal operation, or if does, will persist for a short time only	Zone 2	II	3G or 2G or 1G	II	Gc or Gb or Ga



Certification Explained

What is ATEX ?

ATEX is the name commonly given to the two European Directives for controlling explosive atmospheres:

- 1) Directive 99/92/EC (also known as 'ATEX 137' or the 'ATEX Workplace Directive') on minimum requirements for improving the health and safety protection of workers potentially at risk from explosive atmospheres. The text of the Directive and the supporting EU produced guidelines are available on the EU-website.
- 2) Directive 94/9/EC (also known as 'ATEX 95' or 'the ATEX Equipment Directive') on the approximation of the laws of Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres. The text of the Directive and EU produced supporting guidelines are available on the EU website.

What is an Explosive Atmosphere?

Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR), defines an explosive atmosphere as a mixture of dangerous substances with air, under atmospheric conditions, in the form of gases, vapors, mist or dust in which, after ignition has occurred, combustion spreads to the entire unburned mixture. Atmospheric conditions are commonly referred to as ambient temperatures and pressures. That is to say temperatures of -20°C to 40°C and pressures of 0.8 to 1.1 bar.

Likelihood of Presence - Zone 1

Ignitable concentrations of flammable gases or vapors which are likely to occur under normal operating conditions.

Group IIB

The Zone System defines the type of hazardous gas and the location of the surrounding atmosphere. Group I contains explosive gasses that naturally occurring in mines. Group II contains explosive gasses found in atmospheres other than mines. Group III contains explosive dust atmospheres. Groups II and III are further defined by the level of hazard for each group marked by an A, B or C with each letter corresponding to a more explosive material than the previous letter. Equipment that is safe to use in Group B is also safe to use in group A but not in group C.

Group A - Atmospheres containing propane, acetone, benzene, butane, methane, petrol, hexane, paint solvents or gases and vapors of equivalent hazard.
Group B - Atmospheres containing ethylene, propylene oxide, ethylene oxide, butadiene, cyclopropane, ethyl ether, or gases and vapors of equivalent hazard.

Zone system Group IIB is equivalent to Class/Division system Class I, Group C.

Temperature Code (T Code)

A mixture of hazardous gases and air may be ignited by coming into contact with a hot surface. The conditions under which a hot surface will ignite a gas depends on surface area, temperature, and the concentration of the gas. The maximum possible surface temperature of equipment is shown in the ATEX Explosion Classification as a "T" Value, ranging from T1 to T6 in order of decreasing value (so T6 is "safer"). **T6 ≤ 85 °C/185°F**

Ignition Source - Electrical

There are two general sources of ignition, from an electrical source and from a non-electrical source. Examples of specific electrical sources include arcing between contacts of a switch or breakdown between traces on a printed wiring board. Examples of non-electrical sources include the hot surfaces of a brake or electrostatic charging of a non-metallic fluid handling system.

Protection Techniques

Protection Techniques refers to the methods used to protect electrical and non-electrical sources from igniting an explosive atmosphere. These methods are defined in national, regional, and international codes and standards.

Flameproof 'd'

Flameproof, 'd' is a type of protection where the enclosure will withstand an internal explosion of a flammable mixture that has penetrated into the interior, without suffering damage and without causing ignition, through any joints or structural openings in the enclosure, of an external gas atmosphere consisting of one or more of the gases or vapors for which it is designed.

Increased Safety 'e'

Increased Safety, 'e' is a type of protection applied to electrical equipment that does not produce arcs or sparks in normal service and under specified abnormal conditions, in which additional measures are applied so as to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and sparks.



Industrial Blowers & Exhausts



Portable Ventilation Solutions
For A Safe Workplace



AIRVENT 1000 Series

Perfect for small confined spaces, such as manholes and sewers, these compact blowers deliver maximum airflow for a safe, comfortable and controlled work environment. The multi-purpose blower and exhauster delivers powerful airflow in a compact and lightweight package.

Features:

- I Heavy Duty Powder Coated Armour sheet Housing construction
- I Equipped with ¾ H.P. Motor.
- I 4 Blade precision balanced Aluminium Alloy Impeller
- I Motor equipped with thermal switch for overheat protection
- I Equipped with four Rubber feet.
- I Dynamically designed fan housing to optimizes airflow efficiency
- I Protective guards meeting OSHA Standards.
- I Ducting may be attached at either flange for intake or exhaust for ventilation.
- I All components are coated for greater wear resistance.
- I Impeller is made of heavy duty aluminium alloy & is designed for high Static pressure providing higher airflow rate
- I Compliance : CE Certified
- I Weight : 12.5 Kg



Model	Dia	Type	Voltage	Frequency	Speed	Capacity	Dimensions (MM)
AIRVENT 1000M	10"	Non Explosion Proof	240 V	50 Hz.	2800 RPM	1600 CFM	370 X 330 X 370 mm.

AIRVENT 1200 Series

These portable blowers have a durable and firm structure with good insulation, high pressure and large air volume. They can get rid of odour and waste gas efficiently and effectively. These are ideal for welding dusts, fumes, construction areas, Oil & Gas installations or any larger hazardous locations. Available in Explosion Proof & regular models.

Features:

- I Heavy Duty Powder Coated Armour sheet Housing construction
- I Equipped with ¾ H.P. Motor.
- I 6 Blade precision balanced Aluminium Alloy Impeller
- I Motor equipped with thermal switch for overheat protection
- I Equipped with four Rubber feet.
- I Dynamically designed fan housing to optimizes airflow efficiency
- I Protective guards meeting OSHA Standards.
- I Ducting may be attached at either flange for intake or exhaust for ventilation.
- I All components are coated for greater wear resistance.
- I Impeller is made of heavy duty aluminium alloy & is designed for high Static pressure providing higher airflow rate
- I Compliance : CE / ATEX Certified EXdIIBT4
- I Weight : 17 Kg



Model	Dia	Type	Voltage	Frequency	Speed	Capacity	Dimensions (MM)
AIRVENT 1200M	12"	Non Explosion Proof	240 V	50 Hz.	2800 RPM	2295 CFM	440 X 285 X 420 mm.
AIRVENT 1200M-EX	12"	Explosion Proof	240 V	50 Hz.	2800 RPM	2295 CFM	440 X 285 X 420 mm.



Industrial Blowers & Exhausts



Portable Ventilation Solutions
For A Safe Workplace



AIRVENT 1600 Series

A high capacity model blower for higher volume of air movement. For higher velocities, increased volumes and reduced purge or cooling times. Built with a strong all-metal structure and silver metal-coated grill for long-lasting use. The fully enclosed motor provides years of reliable service by preventing the build-up of dust and debris in vital areas. The 1.5 HP direct drive motor runs on less power and requires less maintenance compared to other motors. Available in Explosion Proof & Regular models

Features:

- I Heavy Duty Powder Coated Armour sheet Housing construction
- I Equipped with 1.5 H.P. Motor.
- I 8 Blade precision balanced Aluminium Alloy Impeller
- I Motor equipped with thermal switch for overheat protection
- I Equipped with four Rubber feet.
- I Dynamically designed fan housing to optimizes airflow efficiency
- I Protective guards meeting OSHA Standards.
- I Ducting may be attached at either flange for intake or exhaust for ventilation.
- I All components are coated for greater wear resistance.
- I Impeller is made of heavy duty aluminium alloy & is designed for high Static pressure providing higher airflow rate
- I Compliance: CE / ATEX Certified EXdIIBT4
- I Weight : 25 Kg



Model	Dia	Type	Voltage	Frequency	Speed	Capacity	Dimensions (MM)
AIRVENT 1600M	16"	Non Explosion Proof	240 V	50 Hz.	2800 RPM	3700 CFM	540 X 490 X 470 mm.
AIRVENT 1600M-EX	16"	Explosion Proof	240 V	50 Hz.	2800 RPM	3700 CFM	540 X 490 X 470 mm.

AIRVENT 2400 Series

This model has been designed to meet all fire & Emergency service needs. The units are available in regular & Explosion Proof configurations to satisfy almost any application. The AIRVENT 2400 models produce high volumes of air in compact and efficient designs. All these ejectors are finished in a tough powder coat finish with cadmium plated safety guards. All motors are ball bearing and require no maintenance. All units are equipped with 6 feet of cord without a specific plug. These are meant for extremely large displacement of Air

Features:

- I Heavy Duty Powder Coated Armour sheet Housing construction
- I Equipped with 3.0 H.P. Motor.
- I 8 Blade precision balanced Aluminium Alloy Impeller
- I Motor equipped with thermal switch for overheat protection
- I Engineered to move high volumes of air
- I This model is equipped with heavy duty locking caster wheels and adjustable angle for easy mobility and setup.
- I Dynamically designed fan housing to optimizes airflow efficiency
- I Protective guards meeting OSHA Standards.
- I Ducting may be attached at either flange for intake or exhaust for ventilation.
- I All components are coated for greater wear resistance.
- I Impeller is made of heavy duty aluminium alloy & is designed for high Static pressure providing higher airflow rate
- I Compliance: CE / ATEX Certified EXdIIBT4.
- I Weight: 62 Kg.



Model	Dia	Type	Voltage	Frequency	Speed	Capacity	Dimensions (MM)
AIRVENT 2400M	24"	Non Explosion Proof	240 V	50 Hz.	1400 RPM	8475 CFM	890 X 780 X 620 mm.
AIRVENT 2400M-EX	24"	Explosion Proof	240 V	50 Hz.	1400 RPM	8475 CFM	890 X 780 X 620 mm.



Industrial Blowers & Exhausts



Portable Ventilation Solutions
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AIRVENT 3200 Series

The Largest confined space Blower Unit available in the market. This model has been designed to meet all fire & Emergency service needs. The units are only available in non-Explosion Proof configurations to satisfy almost any application. This model produces the highest volume of air. All these ejectors are finished in a tough powder coat finish with cadmium plated safety guards. All motors are ball bearing and require no maintenance. All units are equipped with 6 feet of cord without a specific plug. These are meant for extremely large displacement of Air.

Features:

- I Heavy Duty Powder Coated Armour sheet Housing construction
- I Equipped with 4.0 H.P. Motor.
- I 8 Blade precision balanced Aluminium Alloy Impeller
- I Motor equipped with thermal switch for overheat protection
- I Engineered to move high volumes of air
- I This model is equipped with heavy duty locking caster wheels and adjustable angle for easy mobility and setup.
- I Dynamically designed fan housing to optimizes airflow efficiency
- I Protective guards meeting OSHA Standards.
- I Ducting may be attached at either flange for intake or exhaust for ventilation.
- I All components are coated for greater wear resistance.
- I Impeller is made of heavy duty aluminium alloy & is designed for high Static pressure providing higher airflow rate
- I Compliance: CE / ATEX Certified EXdIIBT4.
- I Weight: 90 Kg.



Model	Dia	Type	Voltage	Frequency	Speed	Capacity	Dimensions (MM)
AIRVENT 3200M	32"	Non Explosion Proof	240 V	50 Hz.	960 RPM	15000 CFM	1035 X 995 X 615 mm.
AIRVENT 3200M-EX	32"	Explosion Proof	240 V	50 Hz.	960 RPM	15000 CFM	1035 X 995 X 615 mm.

AIRVENT PetroMax 1210 Petrol Engine Blower

This gas-powered confined space ventilation blower is the perfect choice for remote job sites or where generators or electricity aren't available. It features a Gasoline engine that produces huge cfm flow rates for a 12" blower. It has a handle to assist in transport. It has spring-loaded feet to help keep blower in place as it runs. Designed with a sturdy metal base, it minimizes blower rocking and offers great stability. This system also has a 2-3 hour running time. Designed for positive and negative ventilation. Metal construction with a built-in handle and 10" flange on intake and 12" flange on exhaust ports.

Features:

- I Fuel: Petrol (Gasoline)
- I Heavy Duty Powder Coated Armour sheet Housing construction
- I Equipped with 5.0 H.P. Motor.
- I Aluminium Alloy Impeller
- I Motor equipped with thermal switch for overheat protection
- I Engineered to move high volumes of air
- I This model is equipped with heavy duty locking caster wheels and adjustable angle for easy mobility and setup.
- I Dynamically designed fan housing to optimizes airflow efficiency
- I Protective guards meeting OSHA Standards.
- I Ducting may be attached at either flange for intake or exhaust for ventilation.
- I All components are coated for greater wear resistance.
- I Impeller is made of heavy duty aluminium alloy & is designed for high Static pressure providing higher airflow rate
- I Compliance: CE Certified.
- I Weight: 60 Kg.



Model	Dia	Type	Engine Power	Tank Capacity	Speed	Capacity	Dimensions (MM)
AIRVENT PetroMax 1210	12" 10"	Non Explosion Proof	5 HP	3.6 Ltr	1800 RPM	2700 CFM	400 X 350 X 385



Industrial Blowers & Exhausts



Portable Ventilation Solutions
For A Safe Workplace



AIR DUCTS

General Description

This product is lightweight, retractable and designed for maximum air handling capabilities. They are resistant to UV, mild acids hydrocarbons, alcohols, and have fire retardant properties. Dual direction flow with minimum friction loss.

Construction:

Vinyl and polyester materials | Single-Ply | PVC Coated
| Temperature Range: -30°C to 90°C
Retractable, Non-collapsible design | Class 1 hard drawn spring steel wire helix | Yellow color with black weather-strip
Fastening cuffs at both ends | Heat Sealed Seams for smoother surface for better air flow.

Available Sizes (diameter): 10", 12", 16", 24", 32"

Available Length (meter): 5, 10 & 15.



CONDUCTIVE AIR DUCTS

General Description

This product is lightweight, retractable and designed for maximum air handling capabilities. Dual direction flow with low friction loss while providing a safe positive means of discharging static build-up.

Construction:

Vinyl and polyester materials | Single-Ply | Neoprene coated
| -55°C to 125°C temperature range
Retractable, Non-collapsible design | Class 1 hard drawn spring steel wire helix | Rated to 100,000 OHMS or less per square inch
Integrated with extended solid grounding wire at each end
| Heat Sealed Seams for smoother surface for better air flow.

Available Sizes (diameter): 12", 16", 24", 32"

Available Length (meter): 15.



Authorized Channel Partners



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