

Capital Equipment



Surface Treatment Solutions

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Introduction

Welcome to "Airblast Capital Equipment".

This guide features the most effective and efficient equipment in improving your blasting and painting process.

Larger in-house projects require larger stationary equipment, our team of engineers custom design Blast and Paint Rooms allowing maximum flexibility of product to be treated as well as adhering to the latest environmental regulations. Stationary wheel blast machines allow for maximum productivity when more regular repeatable substrates are to be treated. When moving off-location our range of dehumidifiers ensure that climatic conditions can be controlled, and vacuum recovery units relocate abrasive ready for recycling or disposal and leave the work site clear of contaminants.

The impetus to invest in Airblast Capital Equipment may be driven by the desire to gain a competitive edge over our competitors, to better control the quality achieved, or by environmental legislation. Using Airblast Capital equipment ensures that each process is undertaken in the most efficient and effective manner.



As this guide features only the main pieces of equipment required there may be items which you wish to purchase which are not mentioned within these pages – please consult with your local Airblast representative to receive details of the full range of products.

For more than 40 years Airblast has been the world leader in providing blasting and painting solutions to the anticorrosion industries. With an unparalleled network of offices around the world Airblast works closely with our customers and distribution partners providing tried and tested equipment as well as developing customized solutions for specific applications.

Airblast is dedicated to maintain a profitable organization on a long term basis through ethically and morally sound business practices. By investing in the long term future of our organization, and those with whom we conduct business, Airblast believes that we can share sustained mutual success.

Our manufacturing facilities in Europe and the Far East produce fit for purpose quality products with region specific certification. All Airblast equipment is manufactured according to the highest relevant safety standards and passes our rigorous quality controls before dispatch.

Mindful of the environmental responsibilities faced by our generation Airblast is committed to a programme of research and development into technologies facilitating zero emission blasting and painting along with an education programme promoting planet friendly operations.

Blast Room



Each Airblast Blast Room is tailor made for the specific requirement of each individual customer – your operational demands are unique, why should you compromise with a standard solution?

Each element of an Airblast Blast Room is engineered to be in balance with the other elements – this ensures that the flow of products, the flow of abrasive, and the flow of dust is smooth and uniform.

After a thorough investigation and analysis of the objectives and goals of the blast room our team of engineers draw upon years of experience and an extensive installed base of blast rooms in operation around the world to ensure that the Airblast Blast Room proposal satisfies all of the criteria as well as allowing opportunities for future development.

As each Airblast Blast Room is designed specifically on a project by project basis the possibilities for customization are endless: multiple blasters operating on one room; product access through one end or both ends of the blast room; abrasive recovery options including: sweeping pit, cross conveyor, U shape, H shape, and complete floor automatic recovery with conveyor system or scrappers; down draft or cross draft dust extraction; automatic grit recycling incorporating magnetic separation.

For additional flexibility Airblast can provide a combined blast and paint room: once the blasting is completed and the abrasive recovered a separate paint extraction system is activated and painting of the product can begin. The reduced product handling provides additional quality control benefits as well as cost savings.

Airblast has an extensive reference list of installed blast rooms around the world working with companies such as Keppel Fells Singapore, Gdansk Shipyard in Poland, Zamil Steel in Saudi Arabia and many others.

Key Elements



Each Airblast Blast Room is engineered to the highest quality standards and is supplied with region specific certification. The key elements and processes in a blast room are detailed below:

Abrasive Management

After impacting the substrate abrasive falls to the floor and through the grating into the recovery system, or remains of the floor to be manually moved into the recovery system in the case of sweeping pit, cross conveyor, U & H shape recovery systems. The abrasive is guided onto the recovery system by a V-hopper section designed to ensure that overload is impossible. Airblast scrapper and conveyor recovery systems both utilise totally enclosed, sealed for life, maintenance free motors. The recovery system transports the abrasive to the bucket elevator (which utilizes Columbus buckets to ensure that overload is impossible) which delivers the abrasive into the cascade cleaning system with double air wash and vibrating screen abrasive classification. From the cascade cleaner the abrasive is deposited in a silo ready for return to the blast pot and reuse.

Dust Management

Dust laden air is extracted from the room through wall mounted ducts and enters the inlet plenum of the collector where heavy particles fall immediately into the hopper. As the air flows through the filter cartridges dust is deposited on the outside of the filtering media. Solenoid valves introduce jets of high-pressure air into each pair of cartridges alternately - the resulting reverse airflow cleans the filter cartridges. Dust removed from the filter surface settles into the hopper. As each pair of filter cartridges is cleaned in succession the operation is uninterrupted. Air inlet grids return 80% - 90% of the air back into the blast room, this is critical especially in climate controlled blast rooms.

Electrical Panel

The Electrical Panel is the central point from which each of the elements of the blast room can be controlled and monitored. Pre-loaded start up and shut down sequence programs ensure ease of use and the inclusion of the Star-triangle starter guards against electric overload.

Paint Room



Each Airblast Paint Room is tailor made for the specific requirement of each individual customer – your operational demands are unique, why should you compromise with a standard solution?

Each element of an Airblast Paint Room is engineered to be in balance with the other elements – this ensures that the flow of products, the fresh air flow, and the flow of paint onto the product and into the filters is smooth and uniform.

After a thorough investigation and analysis of the objectives and goals of the paint room our team of engineers draw upon years of experience and an extensive installed base of paint rooms in operation around the world to ensure that the Airblast Paint Room proposal satisfies all of the criteria as well as allowing opportunities for future development.

As each Airblast Paint Room is designed specifically on a project by project basis the possibilities for customization are endless: multiple painters operating on one room, product access through one end or both ends of the paint room, extensive filtration options, and down draft or cross draft dust air flows.

For additional flexibility Airblast can provide a combined blast and paint room: once the blasting is completed and the abrasive recovered a separate paint extraction system is activated and painting of the product can begin. The reduced product handling provides additional quality control benefits as well as cost savings.

Airblast has an extensive reference list of installed Paint Rooms around the world working with companies such as NPCC in Abu Dhabi, Hidada in Saudi Arabia and many others.

Key Elements



Each Airblast Paint Room is engineered to the highest quality standards and is supplied with region specific certification. The key elements and processes in a paint room are detailed below:

Overpressure Fresh Air Pumps

In order to ensure that dust is not sucked into the room each Airblast installation is designed to maintain an overpressure situation by pumping fresh air into the room – this also has the effect of controlling the air flow through the room in a down draft or cross draft manner. Box air inlet filters ensure that the quality of the fresh air introduced into the room is dust free.

Lighting Elements

Due to the hazardous nature of some paints various categories of lighting element are available from basic units to fully explosion proof.

Filters

In order to comply with the environmental legislation concerning the control of overspray paint Airblast utilize multiple filtration devices including:

- Paint Stop Filter: used as a pre-filter to extend the operating life of the main filter
- Main Paint Filter: used to extract the overspray paint from the extraction air flow
- Active Coal Filter: used to eliminate solvents and smell from the air in the paint room

Electrical Panel

The Electrical Panel is the central point from which each of the elements of the paint room can be controlled and monitored. Pre-loaded start up and shut down sequence programs ensure ease of use and the inclusion of the Star-triangle starter guards against electric overload.

Shot Blasting Machines



Shot Blasting Machines utilize multiple spinning blast wheels as opposed to air pressure to propel abrasive onto the substrate. As the spinning blast wheels are fixed in place each machine is designed to blast a certain substrate shape in the optimum way. The production characteristics of each wheel blast machine is determined by the quantity, power, and size of the spinning blast wheels.

Shot Blasting Machines are available in different configurations – each optimized for a specific product type and size, the most popular types of unit are:

- Plate : Standard machines are available for the most popular sizes of steel plate.
- Pipes : From single blast wheel units which spin the pipe to achieve a full blast, up to multiple wheel units which achieve very high production rates, there is a machine in the Airblast programme to handle each size of pipe and production requirement.
- I-beams : In order to achieve a full blast in each of the corners of the I-beam multiple wheel are required with finely tuned abrasive streams.

Each of the Shot Blasting Machines operates using the same basic principles: abrasive is loaded into intake hoppers from where it is fed in a measured flow to the blast wheels. After being propelled onto the substrate the abrasive drops into the collection channels below the blast chamber. From there it is transported through a recycling system to remove contaminants via a vibrating screen to separate larger particles and an air wash system to remove dust. The dust created by the blasting process which remains in the blast chamber is extracted via a separate air stream created by a fan creating a vacuum through a filter system.

Key Elements



Each Airblast Shot Blasting Machine is engineered to the highest quality standards and is supplied with region specific certification. The key elements in a Shot Blasting Machine are detailed below:

Blast Wheel

The blast wheel propels the abrasive stream onto the substrate and is therefore a critical element in achieving a successful blasting operation. Each blast wheel comprises of the following components: the feed spout which feeds abrasive into the wheel, the impellor which controls the flow of abrasive out through the cage opening, the control cage which sets the direction of the blast pattern, the centering plate, and the blade.

Dust Collector

The dust collector creates a vacuum throughout the installation and collects the dust made of used abrasive and contaminants blasted from the substrate.

Liners

The liners protect the body of the wheel blast machine from the abrasive flowing through the system – manufactured from heavy duty materials they are designed to be sacrificial and easily replaceable.

Elevator

Each elevator is manufactured from 2mm and 3mm steel plate with an inspection hatch, and features a dust free, lubricated for life, sealed motor and gearbox, as well as heavy duty Columbus buckets which due to their design cannot be overfilled.

Dehumidifier



Rust is the enemy of newly blasted steel - high atmospheric humidity coupled with low steel temperatures provide the optimum conditions for the condensation of moisture onto the newly blasted surface. Condensation rust is one of the leading causes of premature coating failure. The Airblast range of dehumidifiers are designed to provide the optimum climatic conditions for blasting by reducing the relative humidity.

Dehumidification is the removal of water from the air. Airblast dehumidifiers process the ambient air before exhausting it into the area to be dehumidified, for example the tank of a ship. The Airblast range of dehumidifiers incorporates units capable of processing different amounts of air per hour, and units utilizing different technology to achieve the same goal.

Each dehumidification challenge is unique: space constraints, access constraints, multiple tanks to dehumidify, and extreme climatic conditions all conspire against the successful coating application. For those reasons Airblast has small mobile dehumidifiers starting with a processing capacity of 500 Cubic Meters per Hour (CMH) which are ideally suited to smaller tanks or applications where space or access is a concern, as well as large dehumidifiers with a processing capacity of 24,000 CMH or more for when maximum performance is the only consideration.

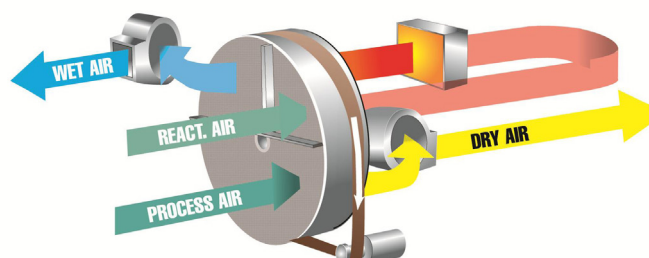
Climatic conditions around the world vary dramatically from cold and humid in Western Europe, warm and humid in the Far East, to hot and humid in the Middle East. Different types of technology can be used in the dehumidification process – certain specific dehumidification technologies deal more effectively with a particular climatic condition than others. Airblast therefore has developed specific dehumidifier ranges optimized for use in the different climatic conditions, a separate range of dehumidifiers for Western Europe, the Far East and the Middle East.

Each Airblast dehumidifier is manufactured to the highest quality standards and is supplied with region specific certification.



AIRBLAST

Key Elements



The Airblast range incorporates different types of technology to optimize the performance in specific climatic conditions.

Desiccant Wheel

The air to be dehumidified is passed over a revolving wheel which contains moisture absorbent chemicals. As the wheel turns moisture is absorbed from the air into the chemical which is then heated resulting in the release of the moisture as water, before being used to absorb moisture from the air again in a continuous cycle. The air which has been dehumidified is released from the dehumidifier into the tank to be dehumidified.

Refrigerant

The temperature of the air to be dehumidified is reduced and then passed over evaporator coils onto which the moisture from the air condenses. The air is then passed over numerous reheat coils to increase the temperature before exiting the dehumidifier at a reduced temperature, dew point, and absolute humidity.

Combined

Airblast has combined these two separate technologies into one range of dehumidifiers in order to optimize performance in certain specific climatic conditions. If the challenge is extreme the Airblast combined unit can handle the job.

Recycling



In order to optimize efficiency in the blasting operation recyclable abrasives offer many advantages: vastly reduced material handling, better control of abrasive size and therefore better control of surface profile, and less dust creation leading to less demanding dust filtration requirements. Airblast offers a range of recycling units which can be configured to work with different kinds of recyclable abrasive – the most common types of recyclable abrasive are garnet and steel shot / grit.

The Airblast range of recycling units all work on the same common principle: used abrasive is manually fed into the intake hopper from where it is collected by the bucket elevator and transported up the funnel. At the top of the funnel the abrasive is poured onto the spreading plate which ensures an even, shallow, and wide flow down into the cascade cleaner. Inside the cascade cleaner the larger particles are separated into a dust bag, and the smaller particles are extracted by a separate cartridge filter which features solenoid controlled automatic pulse cleaning. Depending upon which type of abrasive is being recycled the unit can be adjusted to ensure that the abrasive flow and the particle separation are fine tuned to be as effective as possible. The recycled abrasive is returned into a hopper for reuse.

Depending upon the quality and operational use of the specific abrasive it can be recycled and reused a certain amount of times before becoming too small to provide effective blasting. For example garnet can normally be recycled 2 – 4 times before becoming too small to provide the momentum required to clean and profile the substrate. Steel abrasive however is much more durable and can pass through the recycling system many hundreds of times. Steel abrasive is available in various different grades of hardness as measured by the Rockwell scale (HRC) – the softest material has grade of 40 – 55 HRC, the hardest material has a maximum hardness of 68 HRC – in general the harder the material the faster it cleans but the faster it breaks down.

Key Elements



Each Airblast Recycling Unit is engineered to the highest quality standards and is supplied with region specific certification. The key elements are detailed below:

Elevator

Each elevator is manufactured from 2mm and 3mm steel plate with an inspection hatch, and features a dust free, lubricated for life, sealed motor and gearbox, as well as heavy duty Columbus buckets which due to their design cannot be overfilled.

Cascade Cleaner

Each cascade cleaner is manufactured from 3mm and 5mm steel plate and is mounted between the elevator and the stock silo.

Dust Filter

Each system features a cartridge filter with automatic continuous solenoids which activate pulse cleaning. Filter installations and manufactured from 3mm steel plate with sleeve profiles and reinforcements. Each filter installation consists of the following components:

- Undercarriage with pre-separator and dust silo with rubber plug valve.
- Filter cabinet with integrated compressed air filter cartridge and cleaning system.
- Heavy duty fan.

Abrasive Hopper

Each hopper is manufactured from 3mm steel plate, reinforced with steel profile and equipped with a grit valve and closing lid.

Vacuum Recovery



One of the many challenges in blasting operations is the management of the abrasives used in blast cleaning. New abrasive needs to be loaded into silos ready for depositing into blast machines, and spent abrasive needs to be removed from the blasting location for disposal. Airblast equipment offers the right solution for the management of your abrasives. Each vacuum recovery system is designed to be fit for purpose and is supplied with region specific certification.

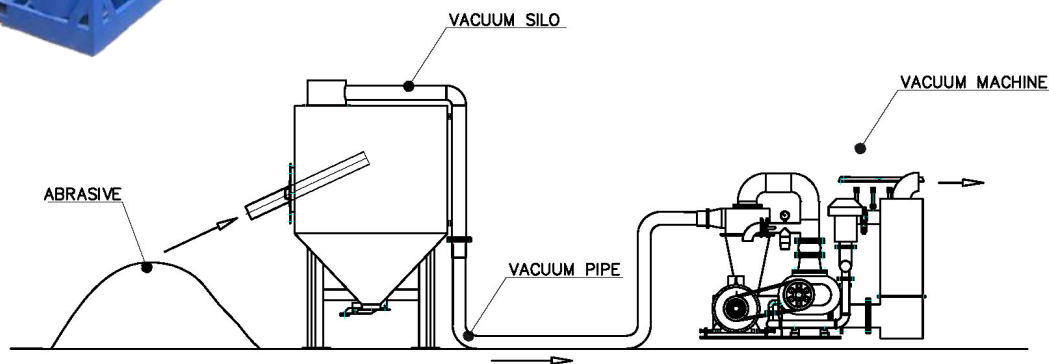
Airblast vacuum recovery systems are designed to move dry new or recyclable abrasive from a stock pile or blasting area into a silo for use in the blasting operation. After blasting the same equipment can be used to move the spent wet or dry abrasives from the blasting area into a silo for recycling and return to the blast cleaning equipment or, in the case of expendable abrasives, for disposal into a waste hopper.

After depositing the abrasive into the silo, the vacuum flow containing air and dust continues on to the suction unit, where the dust particles are removed by high performance filter cartridges prior to exhausting air to atmosphere.

Airblast Vacuum Recovery equipment is of strong construction with sturdy maintenance access doors which contain the filter section fitted with safety relief valve and automatically sequenced reverse pulse-jet filter cleaning system, motor compartment housing an electric drive motor and a vacuum pump complete with exhaust silencer. The units are also fitted with an electric control panel.

The Airblast vacuum recovery systems are designed to meet present and proposed environmental legislation of dust emission max. 5 mg pr. m³ air. A feature of Airblast ABVR series vacuum recovery system is the capability to vacuum clean any residual dust and abrasive particles from the blast cleaned surfaces to meet the high specifications laid down in National and International Standards of surface preparation.

Key Elements



The Airblast range of Vacuum Recovery Equipment incorporates various units to cater for all applications, the most powerful unit is 120 KW, but units down to 7.5 KW are available.

Each Vacuum Recovery System comprises of the following key components:

Suction Tool

The suction tool introduces air to fluidise the abrasive to be recovered facilitating the smooth flow of abrasive into the suction hose.

Suction Hose

Specially designed and reinforced 4" or 6" suction hose is designed to be both flexible yet strong for optimum performance.

Silo

The standard silos are 5 tons and 8 tons each supplied with a valve to control the flow of abrasive out into the blast vessels or disposal skip.

Blower

Airblast uses only the highest quality blowers to generate the vacuum within our recovery units.

Motor

Airblast uses only the highest quality motors to convert the power within our recovery units.

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