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# MAXIMIZING EQUIPMENT PERFORMANCE



## Abrasive Blasting: Choosing the Right Equipment

By Lane Barnholtz,  
Clemco Industries Corp.

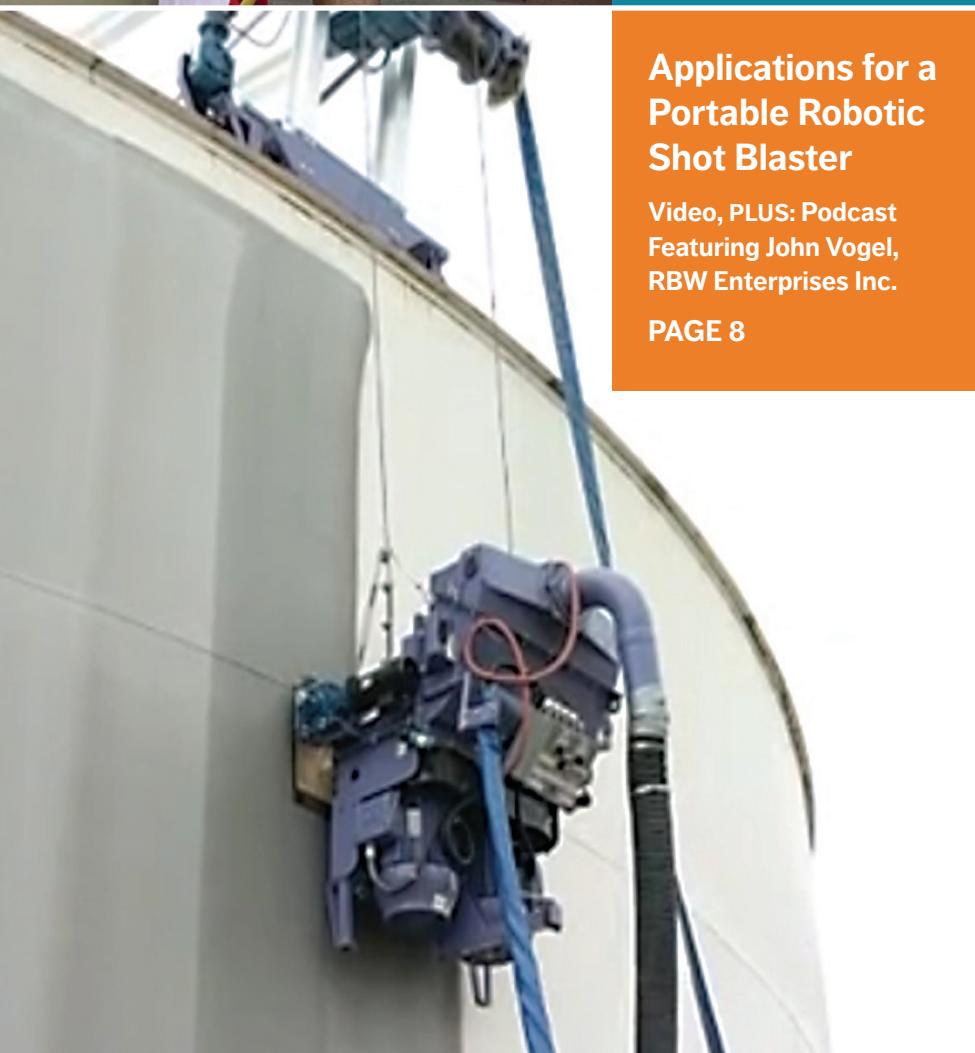
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## INTRODUCTION

# Equipment is one of the biggest investments a painting contractor can make,

and checking all of the boxes to make sure each piece of equipment is performing at its best is paramount to ensuring safe, successful and profitable painting projects.

Whether it comes to selecting equipment for an abrasive blasting project, sizing your portable air dryer for a job, using a robotic shot blasting machine or setting up an abrasive recycling system, contractors should be keenly aware of all of the different factors that affect equipment performance.

Once out in the field, any downtime spent modifying equipment or replacing parts will translate directly into increased project costs. And as with any equipment or gadget, planned, proactive maintenance is always a better and more cost-friendly option than fixing something once it has broken.

This *PaintSquare Press* supplement offers practical advice, directly from equipment manufacturers and suppliers, for making sure that you are getting the most out of your protective coatings equipment. It will provide not only guidance for equipment selection, but also for setup and usage, as well as troubleshooting and solutions for unexpected equipment hiccups.



— Charlie Lange, Editor-in-Chief,  
PaintSquare Press

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# ABRASIVE BLASTING

## CHOOSING THE RIGHT EQUIPMENT

LANE BARNHOLTZ, SENIOR EDITOR,  
CLEMCO INDUSTRIES CORP.



**I**t's a cliché, but it's true: To do a job right, you need the right equipment. This is especially true of abrasive blasting. But before choosing equipment for an abrasive blasting job, it is critical to examine the target surface and the work site environment, perform a job hazard analysis and assess the goals of the job. After thoroughly considering these criteria, you will be ready to select the proper equipment for a job. This article outlines the equipment needed for most abrasive blasting jobs and offers tips for making the best choices.

### AIR COMPRESSOR

Use an air compressor that is large enough to produce the air volume and pressure required to adequately and safely pressurize the blast machine, convey abrasive to the blast nozzle, provide breathing air and operate valves and accessories.

To determine the compressor size needed for a job, add the air requirements of all the equipment that the compressor will supply and then add a 50% reserve, which will be needed

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To do an abrasive blasting job correctly, you need the right equipment for the job. COURTESY OF CLEMCO INDUSTRIES

to keep productivity high as the blast nozzle wears—and it will wear. To maintain peak air supply, the smallest internal diameter (ID) of the compressor air outlet should be at least four times the size of the nozzle orifice. (See **Table 1**.)

### BLAST NOZZLE

Replace a blast nozzle after its orifice is worn to 1/16 in (1.5 mm) larger than its original size. A worn nozzle not only wastes air, but also may lower productivity and even cause injury if the liner fails. Carbide nozzles—tungsten, silicon, and boron—are the most popular for the majority of blasting applications because of their longevity.

### AIR LINE

The air line ID should be as large as possible and at least four times the nozzle orifice size. This principle applies to air lines up to 100 feet. With longer hoses, especially longer than 200 feet, check the air pressure at the blast machine while blasting to determine if the air hose ID is sufficient. Air flows best through unrestricted fittings and straight air lines, so lines should be laid out in as short a length and with as few bends as possible to reduce pressure loss. (See **Table 2**.)

### AIR-PREPARED COMPONENTS

Moisture in the compressed-air supply can travel into the blast machine. If this occurs, abrasive may clump, which can cause stoppages in abrasive flow. Air-preparation components help prevent these stoppages. Depending on the humidity level of the air where operators are working, varying levels of air-preparation equipment may be needed. Coalescing filters provide the minimum level of moisture removal. They collect some of the water vapors that have formed into small droplets before the droplets enter the air filter. Aftercoolers cool air to condense even more moisture and then trap the moisture before it is conveyed to the blast machine. Air dryers are the most effective option for removing moisture and also oil from air.

**TABLE 1: Minimum Compressor Air Line Diameter**

NOZZLE NUMBER	NOZZLE ORIFICE SIZE	MINIMUM AIR LINE ID
3	3/16 in (5 mm)	1 in (25 mm)
4	1/4 in (6.5 mm)	1 in (25 mm)
5	5/16 in (8 mm)	1-1/4 in (32 mm)
6	3/8 in (9.5 mm)	1-1/2 in (38 mm)
7	7/16 in (11 mm)	2 in (50 mm)
8	1/2 in (12.5 mm)	2 in (50 mm)
10	5/8 in (16 mm)	2-1/2 in (64 mm)
12	3/4 in (19 mm)	3 in (76 mm)

**TABLE 2: Approximate Pressure Loss Caused by Common Fittings**

*Calculations are based on 100 psi (7 bar) in 1-inch (25-mm) pipe.*

FITTING	PRESSURE LOSS	
45 degrees pipe elbow	1.5 psi	0.1 bar/10 kPa
90 degrees pipe elbow	3 psi	0.2 bar/21 kPa
Pipe tree	5 psi	0.3 bar/34 kPa
Swing check valve	18 psi	1.2 bar/124 kPa

### BLAST MACHINE

A well-engineered blast machine allows smooth air and abrasive flow throughout the system. An industrial-quality blast machine features a concave head for easy filling, and it seals automatically with a pop-up valve. Place a recessed, steel screen over the machine's filling portal to keep out debris, and cover the machine when it's not in use to keep out rain and condensation. Make sure the pressure vessel has National Board approval, an indication that it meets American Society of Mechanical Engineers (ASME) specifications.

Choose a blast machine that can hold enough abrasive for 20 to 30 minutes of steady blasting. Consider the effects of compressor and nozzle size on blast machine productivity. (See **Table 3, next page**.)

### PRESSURE REGULATOR AND GAUGE

These components enable operators to monitor and adjust air pressure. (TIP: Use a hypodermic-needle gauge to check pressure at the nozzle.)

### ABRASIVE METERING VALVE

In a well-engineered metering valve, abrasive flows into a stream of compressed air at a

steady, uniform rate via the pull of gravity. A well-designed valve also permits precise flow adjustments. Metering valves that feed abrasive at a 45-degree angle facilitate the natural pull of gravity and promote a smooth abrasive and compressed-air blend, while metering valves that feed abrasive at a 90-degree angle create erratic abrasive flow, abnormal wear on piping, and inaccurate mixing of air and abrasive.

### REMOTE CONTROLS

OSHA requires that blast machines be equipped with remote controls that quickly halt blasting after the control handle is released. Pneumatic remote controls work well at distances up to 100 feet. Electric remote controls are recommended for distances greater than 100 feet and are mandatory for distances of 200 feet or more.

### BLAST HOSE AND COUPLINGS

Always use appropriately sized, good-quality, static-dissipating blast hose, manufactured for abrasive blasting and rated at the appropriate working pressure. The blast hose ID should be at least three times the size of the nozzle orifice.

**TABLE 3: Compressed-Air and Abrasive Consumption***Consumption rates are based on abrasives that weigh 100 pounds per cubic foot.*

Nozzle Orifice	Pressure at the Nozzle (psi)								Air, Abrasive & HP requirements
	50	60	70	80	90	100	125	140	
No. 2 (1/8 in)	11	13	15	17	18.5	20	25	28	Air (cfm)
	.67	.77	.88	1.01	1.12	1.23	1.52	1.70	Abrasive (cuft/hr)
	67	77	88	101	112	123	152	170	Abrasive (lbs/hr)
	2.5	3	3.5	4	4.5	5	5.5	6.2	Compressor HP
No. 3 (3/16 in)	26	30	33	38	41	45	55	62	Air (cfm)
	1.5	1.71	1.96	2.16	2.38	2.64	3.19	3.57	Abrasive (cuft/hr)
	150	171	196	216	238	264	319	357	Abrasive (lbs/hr)
	6	7	8	9	10	10	12	13	Compressor HP
No. 4 (1/4 in)	47	54	61	68	74	81	98	110	Air (cfm)
	2.68	3.12	3.54	4.08	4.48	4.94	6.08	6.81	Abrasive (cuft/hr)
	268	312	354	408	448	494	608	681	Abrasive (lbs/hr)
	11	12	14	16	17	18	22	25	Compressor HP
No. 5 (5/16 in)	77	89	101	113	126	137	168	188	Air (cfm)
	4.68	5.34	6.04	6.72	7.40	8.12	9.82	11.0	Abrasive (cuft/hr)
	468	534	604	672	740	812	982	1100	Abrasive (lbs/hr)
	18	20	23	26	28	31	37	41	Compressor HP
No. 6 (3/8 in)	108	126	143	161	173	196	237	265	Air (cfm)
	6.68	7.64	8.64	9.60	10.52	11.52	13.93	15.6	Abrasive (cuft/hr)
	668	764	864	960	1052	1152	1393	1560	Abrasive (lbs/hr)
	24	28	32	36	39	44	52	58	Compressor HP
No. 7 (7/16 in)	147	170	194	217	240	254	314	352	Air (cfm)
	8.96	10.32	11.76	13.12	14.48	15.84	19.31	21.63	Abrasive (cuft/hr)
	896	1032	1176	1312	1448	1584	1931	2163	Abrasive (lbs/hr)
	33	38	44	49	54	57	69	77	Compressor HP
No. 8 (1/2 in)	195	224	252	280	309	338	409	458	Air (cfm)
	11.60	13.36	15.12	16.80	18.56	20.24	24.59	27.54	Abrasive (cuft/hr)
	1160	1336	1512	1680	1856	2024	2459	2754	Abrasive (lbs/hr)
	44	50	56	63	69	75	90	101	Compressor HP

**OPERATOR SAFETY EQUIPMENT**

Personal protective equipment (PPE) is necessary for blasters and everyone in the work area, especially NIOSH-approved respiratory protection. No dust is safe to breathe! Use an air-fed helmet that not only furnishes breathing air but also protects the operator's head and face from rebounding abrasive, muffles noise and allows an unobstructed field of vision.

**CARBON MONOXIDE MONITOR ALARMS**

These devices trigger audible, visual and/or vibratory alarms after they detect unsafe

levels of carbon monoxide (CO) in the breathing-air supply of a supplied-air respirator. CO can be produced by

oil-lubricated compressors or by motor or engine exhaust that enters the intake of a compressor or ambient air pump.

**PROPERLY PREPARED OPERATORS + THE RIGHT EQUIPMENT  
= SUCCESSFUL ABRASIVE BLASTING**

Just like any other task in life, experience, knowledge, and proper training are essential to abrasive blasting. OSHA regulations state that employers are responsible for training operators and for supplying all necessary PPE. Employers must also establish a safety program and ensure their workers follow safe practices on every job. OSHA's regulations reinforce that the best way to guarantee a safe, efficient and productive abrasive blasting operation is to use properly trained, properly protected operators who have the right equipment for the job. ■

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## Abrasive Blasting Machines and Equipment



Clemco Industries is the world's largest manufacturer of air-powered abrasive blasting equipment. Our equipment is durable, dependable, and easy to use and maintain. We manufacture blast machines, accessories, and safety equipment for just about every surface preparation and surface finishing application:

- Blast machines ranging in size from 0.5 to 20 cuft.
- Bulk blast machines (we call them Big Clems) in three sizes: 60, 120, and 160 cuft.
- The Wetblast FLEX™, a portable, all-in-one wetblast system that also can dry blast, wash down, and blow dry.
- The Wetblast Injector, a conversion kit that adds wetblast capability to most dry blast machines.
- Safety equipment and accessories, including the Apollo 600 Supplied-Air Respirator and the compact CMS-4 Carbon Monoxide Monitor-Alarm that attaches inside a respirator helmet.

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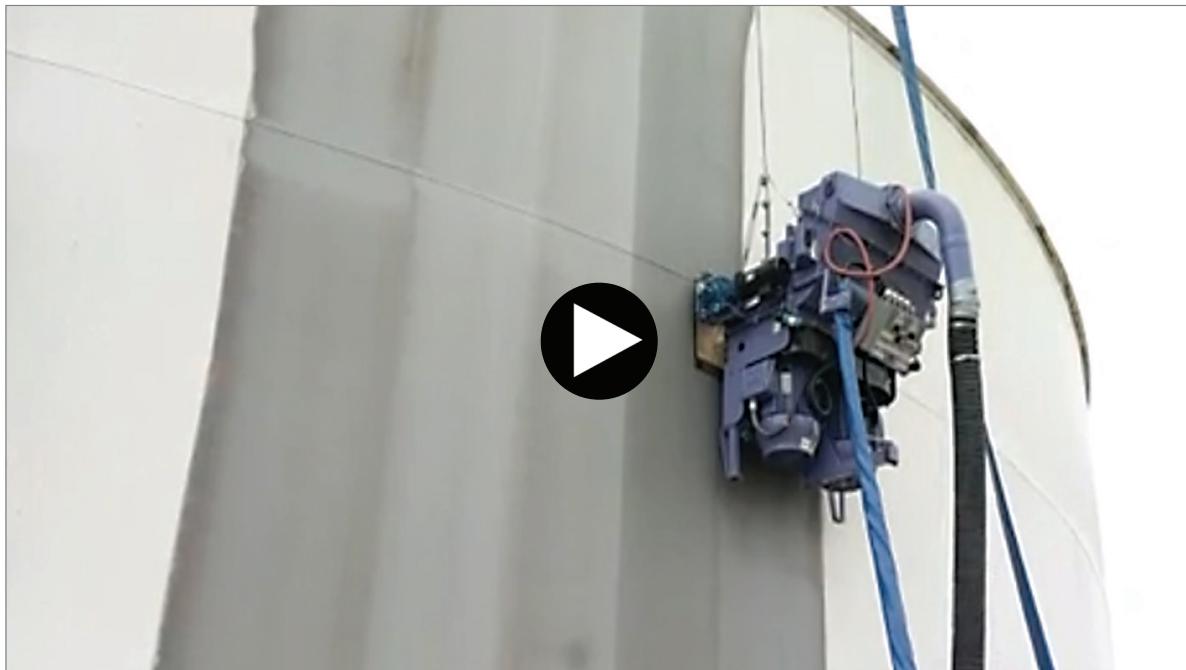
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# APPLICATIONS FOR A PORTABLE ROBOTIC SHOT BLASTER

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PODCAST WITH  
JOHN VOGEL, RBW



WATCH A VIDEO  
OF THE EQUIPMENT  
AT WORK



PORTIONS OF  
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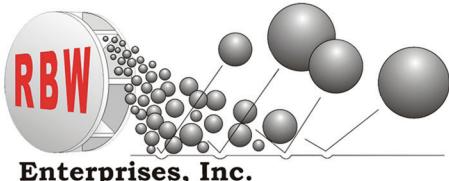
## RBW ENTERPRISES INC.

**T**his portable shot-blast machine from RBW Enterprises cleans all pipe, plate, tank walls, tank roofs, tank floors, dome roofs and wind towers while moving forward or in reverse. The FasterBlaster system incorporates specialized and customized features designed to eliminate emissions, improve cleaning quality, increase production, minimize maintenance and lower labor costs. Production rates can vary from 700 to 1500 square feet per hour depending on the condition and type of coating being removed.

For additional videos, visit [rbwe.com](http://rbwe.com).

## FEATURES AND BENEFITS

1. Uses steel shot, steel grit, or a shot/grit combination.
2. Blasts horizontal surfaces, vertical surfaces and pipe of all sizes.
3. Dramatically reduces cost:
  - Only one or two men are needed to operate.
  - Takes less than half the time of traditional blasting.
  - Media use is approximately \$0.033 per square foot (a 95% savings).
  - There is one 55-gallon drum of waste per 10,000 square feet cleaned.
  - No clean-up is required; all waste is deposited directly into drums (a 96% savings).
  - The system is virtually emission free — no containment required, even for lead jobs.
4. Can be used to clean:
  - All ground storage tanks
  - Pipe (all sizes 0.5 inch and greater)
  - Steel plate
  - Bridge surfaces
  - Ship hulls and ship decks
5. Safety
  - Operated from the ground, eliminating use of a man lift. ■



# Faster Blaster



Thanks to Metel Yuzey Koruma AS for the jobsite Image

## The ONLY Shot Blast Machine Capable of Cleaning

- Vertical Surfaces
- Horizontal Surfaces
- Pipe of All Sizes



Thanks to Chesapeake Mechanical & Coatings, Inc. for the job site image



Thanks to Iron Blasting for the job site image

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# WHAT TO KNOW BEFORE BUYING A PORTABLE AIR DRYER

TOM VIGNOLINI, SALES AND MARKETING MANAGER, VAN AIR SYSTEMS

**W**hen it comes to removing moisture from compressed air for portable applications, there are many systems available. The most common is a portable deliquescent air dryer package. The following guide covers system components, advises on what to look for when buying an air dryer package, and identifies features that are worth a little extra money.

## 1. SIZE MATTERS

The most critical part of any portable air drying package is the size of the deliquescent desiccant vessel. The bigger the vessel, the more desiccant it can hold and the more standard cubic feet per minute (SCFM) can be flowed through the dryer without sacrificing performance. The longer the air remains in contact with the desiccant, the lower the dew point and the better the performance will be at the outlet. Because a larger dryer vessel holds more desiccant, maintenance cycles can be extended accordingly.

As the most critical part of any dryer package, the dryer vessel can also be the most expensive. Oftentimes manufacturers will undersize a dryer vessel or use thinner steel to reduce some of the cost. **The table, below, shows a recommended vessel size based on flow at 100 pounds per square inch gauge (psig), 125 psig, and 150 psig.**

## 2. RECEIVER TANK OR DELIQUESCENT DRYER?

It is important to understand the basic features of a deliquescent compressed air dryer. A deliquescent dryer is a pressure vessel that looks very similar to a receiver tank. The main differences between the two can only be seen on the inside of the tank.

Receiver tanks are used for compressed air storage; whereas, a deliquescent dryer vessel has a grid plate which elevates a bed of desiccant above the condensate reservoir. This allows liquid to condense and fall into the bottom of the dryer vessel. Wet air from the compressor will flow from the bottom of the vessel through the desiccant bed and out the top of the vessel. As the wet air passes through the vessel, the desiccant absorbs the moisture in the air.

Then, as the desiccant tablets absorb water, they dissolve and the liquid condensate removed by the desiccant falls to the bottom of the reservoir in the

vessel. This condensate can then be drained from the bottom of the dryer. The only maintenance needed is to top off the dryer with more desiccant when the desiccant level drops below the two sight windows.

## 3. NOT ALL DESICCANT TABLETS ARE CREATED EQUAL

When buying a portable compressed air dryer, the buyer must consider the type of desiccant tablets needed and whether the desiccant will be included as part of the purchase.

Some customers have inquired about using water softener tablets instead of desiccant tablets in a compressed air dryer. Both of these tablets are made of sodium chloride, so it is easy to understand why a customer would think each is an option; however, there are several reasons why using water softener tablets is a bad idea. Remember that sodium chloride comes in many formulas; it is used on roads to melt ice and snow, as an oral dietary supplement, in water softener tablets and to dry compressed air.

A good water softener tablet is typically 99 percent pure sodium chloride, which allows it to dissolve in liquid water. A water softener tablet needs to be submerged in liquid to dissolve. If desiccants are elevated by the grid plate inside the deliquescent dryer, as they are in Van Air systems, they will never dissolve unless the dryer is flooded with liquid condensate.

Deliquescent desiccants have other ingredients that allow tablets to absorb moisture from compressed air. Van Air Systems' Dry-O-Lite desiccant, for example, has a specifically engineered chemical formula. Even if it is left on a desk in an

VAN AIR BLAST PAK MODEL NUMBER	VESSEL DIAMETER	SCFM FLOW RATE @ 100 psig	SCFM FLOW RATE @ 125 psig	SCFM FLOW RATE @ 150 psig
PRO-25	16 in	250	304	359
PRO-40	20 in	400	487	574
PRO-50	24 in	800	974	1149
PRO-75	30 in	1200	1462	1723
PRO-100	36 in	1600	1949	2297



office, it will begin to absorb the moisture in the ambient air and turn into a puddle of water. This is because the chemical formula of Dry-O-Lite is not 99% sodium chloride. After manufacturing desiccants for more than 70 years, the company says it has found no substitute for the performance of its deliquescent desiccant tablet formula.

#### 4. WARRANTY

When investing in a portable air dryer package, it's important to know that

the unit is rugged enough to withstand the abuse of a contractor and provide years of rental revenue. A warranty says a lot about the product and whether the manufacturer will stand behind it. For example, Van Air Systems offers a 15-year prorated warranty on its dryer vessels, with full 100% replacement in the first five years. Some dryer warranties are only good for 90 days to one year. Remember, purchasing a portable air dryer package is an investment, so for your peace of mind,

make sure the warranty covers the system for the long haul.

#### 5. WHAT'S YOUR PRESSURE? WHAT'S YOUR FLOW?

The operating pressure plays an important role in the amount of flow a dryer package can handle without sacrificing performance. As pressure increases, so will the flow rate. Just like a water faucet at home, more gallons of water will flow per minute when pressure is increased by

opening the tap all the way, as opposed to opening it only halfway.

The same logic holds true with compressed air capacities. At higher pressures, more cubic feet per minute (CFM) will be able to flow through the vessel. This is because higher-pressure air cannot hold as much moisture as low-pressure air. Since you will have less moisture in the air lines at higher pressures, you do not need to increase the size of your vessel to handle the increased flow rate.

#### **Note in the table, above right, flow rates at higher pressures.**

The important thing to remember is that, if your pressures are above 100 psig, you may be able to reduce the size of your portable dryer package without sacrificing performance of the desiccant dryer. One example is the PRO-75 Blast Pak, listed above. If the operating pressure is 100 psig, this unit is rated for 1200 SCFM to achieve optimal drying performance. However, if the operating pressure is 150 psig, you can now use this same PRO-75 system to dry 1723 SCFM without sacrificing performance.

#### **6. AFTERFILTERS**

An afterfilter is a critical component. It is your last line of defense on a portable air drying system and will capture particulates before going downstream to the blast pots. Particulates enter the compressed air system from the intake of the compressor. Any dust or debris floating in the ambient air surrounding the compressor will enter the compressed air stream. As the dryer system ages, this filter will also protect against pipe scale or internal corrosion that may occur throughout the years. For proper protection, make sure that the dryer package has at least a 10 micron afterfilter on the system.

#### **7. MORE BANG FOR YOUR BUCK**

When comparing systems, it's always a good idea to look at what other features are included. While the dryer itself is the main component, options such as lifting lugs, tie-downs and a forklift skid will help with portability and transportation. Other options, such as air motor exhaust mufflers

VAN AIR BLAST PAK MODEL NUMBER	VESSEL DIAMETER	SCFM FLOW RATE @ 100 psig	SCFM FLOW RATE @ 125 psig	SCFM FLOW RATE @ 150 psig
<b>PRO-25</b>	<b>16 in</b>	<b>250</b>	<b>304</b>	<b>359</b>
<b>PRO-40</b>	<b>20 in</b>	<b>400</b>	<b>487</b>	<b>574</b>
<b>PRO-50</b>	<b>24 in</b>	<b>800</b>	<b>974</b>	<b>1149</b>
<b>PRO-75</b>	<b>30 in</b>	<b>1200</b>	<b>1462</b>	<b>1723</b>
<b>PRO-100</b>	<b>36 in</b>	<b>1600</b>	<b>1949</b>	<b>2297</b>

and filters, may help to reduce oil residue and provide quieter operation. Without a separate filter housing to capture these oils from the air motor, they will drip down the dryer vessel. That may not affect performance of the dryer, but it isn't very friendly to the environment.

Some portable drying systems also have a removable aftercooler assembly. Being able to remove the complete aftercooler assembly makes servicing the air motor an easy task. When it comes to desiccant replacement, check to see if there are sight windows for viewing the desiccant levels and easy access to refill the vessel. As noted earlier, it's also valuable to know if the manufacturer includes desiccant with the initial purchase. Taking a close look at added options like these will help make servicing the air dryer package easier in the future.

#### **8. REPUTATION**

Reliability is essential when it comes to purchasing a compressed air dryer. Make sure you look at the manufacturer, not just the product. How long has the company been in business? How long has it been manufacturing air dryers?

Will you feel more comfortable with a unit that is built by experts in the industry, or can you live with a less-expensive product made with lower-grade materials or by a company with less experience? Van Air Systems has been manufacturing compressed air dryers and deliquescent desiccants for nearly 75 years.

#### **9. CUSTOMER SERVICE YOU CAN DEPEND ON**

As with any big purchase, you want to know who you'll call and who will help you if you have a problem or question. When researching products, take note of the service you receive and how long it takes to get a question answered. Do you have to press a bunch of buttons before getting to speak to someone, or are you connected with a qualified person quickly? Not all companies provide access to industry-trained professionals to answer questions, troubleshoot problems or discuss customers' product improvement ideas. Before you decide to purchase your portable air dryer package, make sure the customer service has already surpassed your expectations. Once the sale is complete, the service should continue. ■



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# ABRASIVES TO RECYCLE OR NOT TO RECYCLE?

RUSSELL RODEN, FOUNDER AND OWNER, ATLANTIC DESIGN INC.

**W**hen are recycled abrasives better than single-use disposable abrasives for a given surface preparation job? It seems a simple choice; however, like most other aspects of a coatings project, there are a number of critical factors to consider. Selecting the appropriate abrasive system can make a big difference to the success of a coatings project. Typically, non-metal abrasives are not recyclable and are purchased for a single use and then disposed of with the old coating and other waste. Alternatively, metal abrasives can be used then separated from the blasted coating debris to be reused multiple times without further contributing to the waste stream of a project. A particular project's parameters might make recycling of non-magnetic—instead of metallic—abrasive a more environmental and economical solution. Understanding the fundamentals of abrasive recycling, what abrasives can be recycled and the associated equipment it requires can help identify the best abrasive blasting and recovery system for a particular project's needs.

**When considering recyclable abrasives, first determine if recycling is even practical for the intended project.** Damp abrasive that has gotten lightly wet but is not standing in water can be recycled; however, wet grit cannot be recycled directly from water. In some instances, the submerged grit can be reclaimed, drained, and recycled as a damp abrasive.

**The type of coating being removed in recoat projects is another factor.** Coatings that are sticky or oily can adhere to the abrasive particles and cannot be removed by the reclamation process, thereby contaminating the next substrate being blasted. This type of application is not right for recyclable abrasives. They are also not appropriate for coatings that are not friable or that have to be removed by slowly eating away the existing coating.

**Logistics and accessibility are two more important considerations for determining the best abrasive system for a particular project.** For a job that requires long-distance shipping of the abrasive, a one-time shipment of recyclable abrasive may be much more

**Above:** A one-time shipment of recyclable abrasive is much more cost effective than multiple shipments of nonrecyclable.

ALL PHOTOS: © ATLANTIC DESIGN INC.

cost-effective than multiple shipments of non-recyclable — depending on the job's duration. Savings are multiplied if the waste also has to be transported back for disposal. The better the recycling, the smaller amount of abrasive required and waste produced.

For projects that allow for steel grit, the answer to whether recyclable abrasives should be used is often straight forward. Barring circumstances that restrict or put limitations on steel grit, as explained above, recyclable abrasives will usually yield the lowest cost per square foot of substrate to be blasted. This is not a hard-and-fast rule for every circumstance, but it certainly holds true for most applications.

Quality steel abrasives can be recycled hundreds of cycles and will deliver a uniform anchor pattern and consistent surface preparation, which can reduce blast time and coatings costs. For projects better suited to certain non-steel abrasives,

such as recyclable garnet, aluminum oxide and Starblast, recycling can also be environmentally and economically attractive. Typically, these abrasives can only be blasted two or three times, but this can be enough to make recyclable preferable to single-use abrasive. Not only can the total project abrasive consumption be reduced by up to 50 percent (sometimes more), but the associated delivery and disposal costs are greatly reduced.

Also to consider: the handling cost to load the abrasive into the equipment for each blast. Certain procedures must be followed, such as introducing new blast media with each use to keep the particle size consistent throughout the project.

Abrasive recycling equipment is another factor in the cost-effectiveness of the abrasive being used. Choosing the right equipment for the job is as crucial as choosing the right abrasive for the equipment. The equipment comes in different sizes and styles and uses different methods for recycling. These can range from large systems supporting many blasters to smaller units that work individually with single blasters. The type of reclamation systems vary — from mechanical screw conveyors, belt conveyors and other

mechanical devices to pneumatic vacuum systems to other methods.

Vacuum recovery is the most popular for portable equipment because of its versatility. It can be configured to work with most any job — from bridges to marine yards to water tanks. Along with the air blasting system, a typical recycler will include a vacuum recovery system and a grit reconditioning system. These will be mounted in a compact and convenient skid or trailer system for easier moving and setup.

Some recyclers recycle steel grit only, but others can recycle steel grit as well as other non-magnetic abrasives with minimal setup time. These different types of recyclers are discussed at PaintSquare.com: [“10 Questions to Ask Before Choosing an Abrasive Recycling Unit”](#) (sponsored). Reading the article before purchasing or renting any abrasive recycling system is highly recommended.

While other functions of a coating project are simply expenditures, recyclable abrasive use offers potential savings — on shipping, handling, disposal and other associated costs — and a unique return on investment. If the recycling system automatically reloads the abrasive into the blast hopper, that further reduces labor costs — not to mention



Quality steel abrasives can be recycled hundreds of cycles and will deliver a consistent surface preparation.

the dramatic reduction in environmental impact with less blast waste. Recyclable abrasive is a significant initial investment, but the overall costs associated with blasting will be lower compared with the regular use of non-recyclable abrasive.

With proper preparation, abrasive recycling can offer significant advantages over single-use abrasive blasting, including enhanced safety, more uniform blasting, cost savings and reduced environmental impact. If careful attention is paid when working with recyclable abrasive, then safe, successful and economical blast projects are assured. ■

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Choosing the right equipment for the job is as crucial as choosing the right abrasive for the equipment.

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