

## Clemco Abrasive Vacuum System

Models AVS-50E &  
AVS-50D  
50 HP Electric or Diesel



### Powerful, Efficient, Trouble-free Operation.

Clemco's AVS Abrasive Vacuum System functions as a multi-purpose machine to substantially reduce the large cost of any abrasive blasting application. Cleaning up after the blasting is completed has absorbed as much as 30% to 40% of the cost of the job. Loss of reusable abrasive adds to the job's skyrocketing expense, along with additional labor to bring in new abrasive. Include more labor and time to remove residual dust from the blasted surface and the overall cost of a blasting application becomes horrendous. Much of this expense can be eliminated by using an AVS Abrasive Vacuum System.

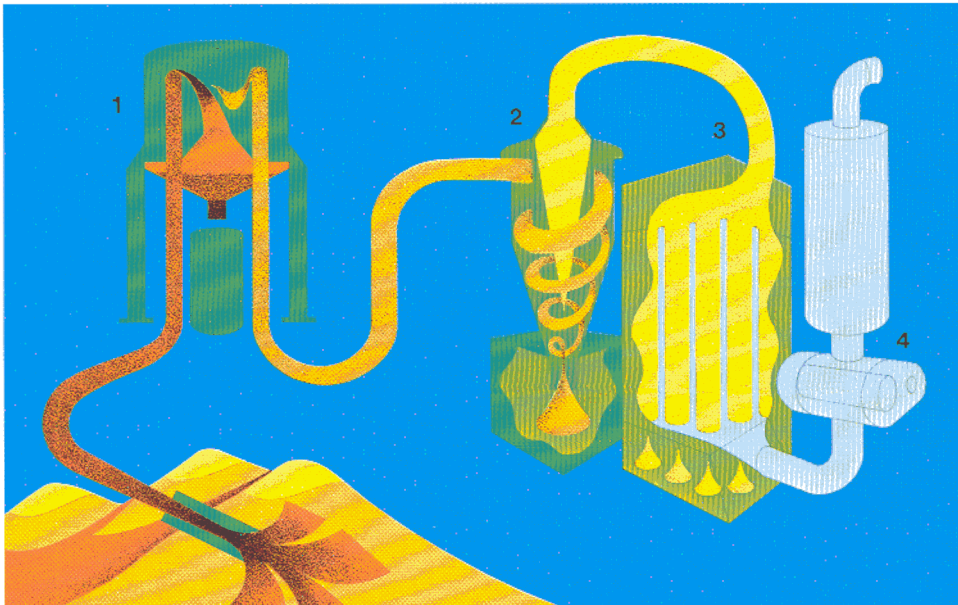
The AVS System is made up of two major components - a power module and a collection hopper. A rotary, positive displacement blower capable of moving 1100 CFM at 13" to 15" Hg is specifically engineered to convey the maximum amount of abrasive on a continuous basis. The blower is powered by a choice of a 50 HP, electric motor or a 58 HP, 4 cylinder, diesel engine. Complementing the power source are the abrasive fines and dust extraction features of a cyclone separator and tubular bag dust collector.

Simplicity is the key in the use of an AVS System. The diesel unit is completely self-powered; electric unit requires 230 or 460 volt electrical service only. No expensive hook-up to an air compressor or troublesome water attachments. The AVS System operates in the widest ranges of temperatures. There is no need for steam heat systems to prevent freezing or special cooling attachments to prevent overheating. There are no water reservoirs, water injectors, sludge removal accessories or a myriad of piping to accommodate the necessity of water. Clemco's logical and simple design of the AVS make it the most trouble-free unit on the market. To obtain production rates offered by the AVS units, competitive equipment must provide 75 HP. Continuous recovery rates are obtainable on sand, slags and similar materials at 12.5 tons per hour and on metal abrasives at 9.5 tons per hour with 50 feet of hose. Recovery of abrasive materials is even possible at distances of 500 ft. at a rate of 3 tons per hour. The rates shown here and in the chart are actual field use figures and are not calculated rates based on assumptions.

The AVS System pays for itself in more ways than abrasive recovery alone. Usage of more durable abrasive is becoming more popular. Most of those abrasives can be reused. Due to the AVS System's dust removal feature, the majority of reclaimed abrasive is clean enough to reuse. When this factor is considered along with the labor savings, the AVS investment will show a surprisingly quick payback.

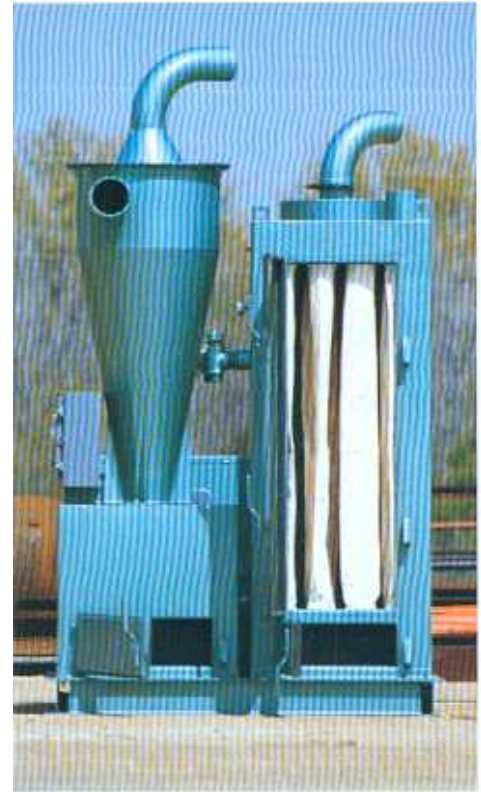






### Air and Abrasive Flow Pattern Through the AVS System

- 1. Storage Hopper** is designed to discharge heavy abrasive particles to the bottom of Hopper, leaving dust and fines to be pulled into Hopper outlet.
- 2. Cyclone Separator** splits majority of fines and dust from air stream by centrifugal force and they drop to the bottom for removal.
- 3. Tubular Bag Dust Collector** traps minute dust particles in tubular cloth filters to be collected in lower section for easy elimination.
- 4. Blower and Silencer** discharge only clean, filtered air into atmosphere.



**Cyclone Separator** extracts abrasive fines and dust from air flow between Storage Hopper and Dust Collector. Wear plate located at the 6" diameter inlet protects the cyclone housing from excessive wear. Centrifugal action throws heavier fines and dust to the cyclone walls where it spins to the bottom, leaving minimal dust to be drawn through the top of the cyclone.

**Tubular Bag Dust Collector** captures 90% of particles 0.5 to 2 microns. 99.9% of those 2 microns or larger are captured by the Collector as air from the cyclone passes through the tubular cloth filters. The unit is self-cleaning by the reverse pulse air principle. When the blower is shut down for unloading, filter bags receive a pulse of air which knocks loose any dust trapped by the filters. Dust drops to lower section of Collector where it can be removed through sealed access doors. Only clean, filtered air is exhausted into the surrounding area through the blower. Dust Collector is protected from excessively high vacuums by a safety relief valve which is factory set and sealed.



### Two Highly Efficient, Economical Power Sources

Both function in all-weather applications without the need of expensive, high maintenance water systems. Electric motor service is 230/460 volt, 3 phase, 60 HZ, TEFC (totally enclosed fan cooled) 50 HP. The Diesel unit features a 58 HP, four cylinder engine equipped with heavy duty dry air cleaner, water separator, cold start aid (glo-plug) and 25 gallon fuel tank. System design allows interchangeability between electric and diesel modules in a short period of time. Diesel may be used in the field and switched to electric for plant use. Power units drive a high performance, rotary, positive displacement blower with "V" belt pulleys. Low maintenance air-cooled design assures maximum utilization of air flow. Silencer engineered to reduce noise to an acceptable level. Control Panel includes a solid state cycle timer initially set to vacuum for 10 minutes and dump Hopper for 1 minute. Over-ride switch allows continuous vacuum if necessary. Steel transport skid provides sturdy, compact base for all necessary components.





**Storage Hoppers** are equipped with two manually operated abrasive side outlets which may be used to refill standard blast machines. Main dump-out is located at the bottom of the Hopper. A counter-balanced flapper valve makes the dump-out function automatic. During vacuuming process, flapper valve is pulled shut. When vacuuming ceases, abrasive weight forces valve open and the Hopper is emptied.

**A Heavy Duty Superstructure** is available that permits Hopper to be elevated to a dump-out height of 12 ft. to accommodate collection vehicles such as dump trucks, debris boxes, forklift hoppers, etc. Optional Rotary Air Locks are offered for continuous unloading of recovered abrasive. This application is ideal for automatic loading of abrasive into blast machines.

**Three Standard Size Storage Hoppers are Available:** 56 cu. ft. (2.5 tons\*), 106 cu. ft. (5 tons\*), or 200 cu. ft. (10 tons\*). All are equipped with abrasive inlets with replaceable deflector/wear plate, baffled air outlet and sealed access door.

\*Based on sand at 100 lbs/cu. ft.

**Clemco Has Engineered a Variety of Pick-Up Tools to Provide the Greatest Production and Utilization of the AVS Vacuum System.**

**Standard Suction Nozzles** come in 4", 3" and 2" sizes. Nozzle design permits proper amount of free air intake to prevent clogging while totally immersed in abrasive.

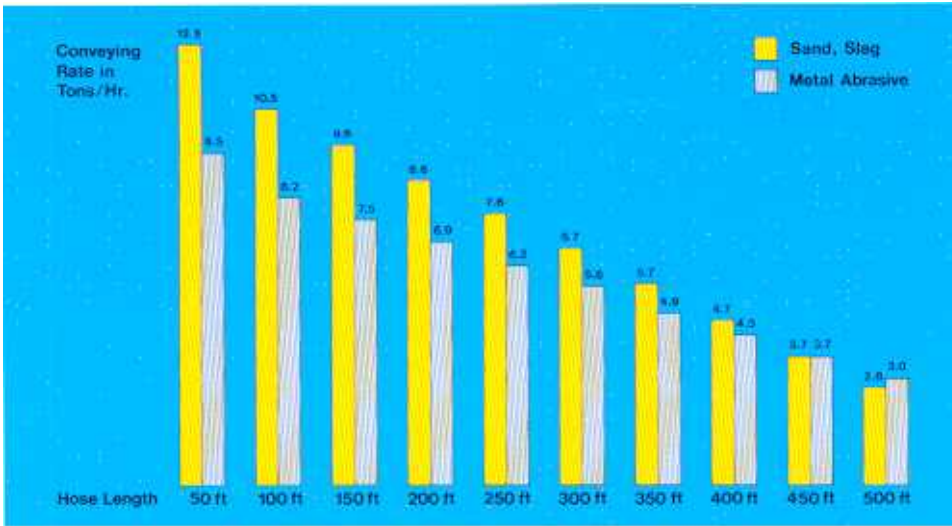
**2 or 3 Operators** may work off the same AVS. Specific hose and manifold components have been designed to assure effective multi-operator usage.

**The Flare Tool** has a flat, wide inlet for cleaning scattered, low level abrasives off floor surfaces.

**Crevice Tools** fit into small or narrow areas of weldments, casting or similar applications.

**Brush Tools** are used to clean-up dust left on walls and floors. They provide assurance that no invisible dust is left that could hamper the coating application.





**Abrasive Conveying Rate Chart** is determined by actual field test - not only engineering calculations. Conveying rates were taken after system was under continuous full load with each 50 ft. hose increment. Tests taken on initial start will indicate an inaccurately higher flow rate. Chart shows average rate of several tests. Maximum effective horizontal conveying distance for sand, slags and metallic abrasives is 500 ft. Maximum effective vertical conveying distance for the same abrasives is 100 ft. Actual performance will differ with humidity, type of abrasive, number of bends in hose, various combinations of horizontal and vertical hose positions and skill of operator.

## SPECIFICATIONS

### COMMON POWER MODULE (ELECTRIC AND DIESEL)

Rotary, positive displacement blower rated 1100 CFM @ 15" Hg  
 Module Weight (including cyclone, dust collector, blower and power unit)  
 Electric: 3700 lbs (1678 Kg)  
 Diesel: 4255 lbs (1930 Kg)

Module Dimensions (assembled on transport skid)

Length: 7'4" (224 cm)  
 Width: 5'6" (168 cm)  
 Height: 9'8" (295 cm)

Hopper to Cyclone Connecting Hose: 6" ID 15'0" long-coupled.

Normal Operating Temperature Range: -10° F to 104° F (-23° C to 40° C)

Module skid equipped with forklift blade access.

Electric Control Panel

### POWER MODULE

#### Electrical Unit

50 HP, 230/460 volt, 3 Ph, 60 HZ, TEFC  
 Maximum amperage at full load 60.6 amps @ 460 VAC.

#### Diesel Unit

58 HP, 4 cylinder diesel engine  
 Fuel Injection System  
 Electric Starter - 12 volt  
 25 gal. diesel fuel tank (fuel consumption approx. 2.3 gal./hr.)  
 12 volt battery.

### STORAGE HOPPERS

56 cu. ft. Capacity (volume) 2.5 tons sand/6.5 tons steel grit capacity  
 106 cu. ft. Capacity (volume) 5.0 tons sand/13.25 tons steel grit capacity  
 200 cu. ft. Capacity (volume) 10.0 tons sand/25.0 tons steel grit capacity

### ORDERING INFORMATION

Listed below are the six combinations of Electric and Diesel AVS Systems with choice of Storage Hopper. Vacuum hose, Pick-up tools and Suction Nozzles must be ordered separately (see Vacuum Hose Packages shown above). Consult Clemco to tailor Vacuum Assemblies to specific application requirements.

### AVS Abrasive Vacuum Systems

#### Model AVS-50E Electric, 50 HP with:

56 cu. ft. Hopper — Stock No. AVS 04228  
 106 cu. ft. Hopper — Stock No. AVS 04227  
 200 cu. ft. Hopper — Stock No. AVS 04229

#### Model AVS-50D Diesel, 58 HP with:

56 cu. ft. Hopper — Stock No. AVS 05570  
 106 cu. ft. Hopper — Stock No. AVS 05571  
 200 cu. ft. Hopper — Stock No. AVS 05572

### VACUUM HOSE PACKAGES

Hose packages have been engineered to give the maximum flow rate and keep friction loss to a minimum. On jobs requiring longer hoses, consult Clemco for advice on extension hoses that may be added to hose packages.

Pkg A Vacuum Hose Assembly - 50 ft. includes 25' of 5" hose, 25' of 4" hose, couplings and 4" suction nozzle.

Pkg B Vacuum Hose Assembly - 75 ft. includes 25' of 5" hose, 25' of 4" hose, 25' of 3" hose, couplings and 3" suction nozzle.

Pkg C Vacuum Hose Assembly - 75 ft. includes 25' of 5" hose, 25' of 4" hose, 2 each 25' of 3" hose, couplings and 2 each 3" suction nozzles.

Pkg D Vacuum Hose Assembly - 100 ft. includes 25' of 5" hose, 25' of 4" hose, 25' of 3" hose, 2 each 25' of 2" hose, couplings and 2 each 2" suction nozzles.

Pkg E Vacuum Hose Assembly - 75 ft. includes 25' of 5" hose, 25' of 4" hose, 3 each 25' of 2" hose, couplings and 3 each 2" suction nozzles.

### ACCESSORIES (Pick-up Tools)

2" Brush Tool	3" Crevice Tool
2" Crevice Tool	3" Flare Tool
2" Flare Tool	3" Suction Nozzle
2" Suction Nozzle	4" Suction Nozzle
	5" Suction Nozzle (special order)



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... the performance system.