MAXIVIBE™

AQC DUST COLLECTING SYSTEMS

# SHAKER TYPE DUST COLLECTOR WITH ENVELOPE FILTER


- Pocket type filter
- 95 to 99% efficiency at 1-5 microns
- Modular for various air volume capacities
- Automatic or manual cleaning shaker system
- Rugged painted steel cabinet and structure

***Superior technology generating substantial operating savings***

AQC
DUST COLLECTION & SOURCE CAPTURE

# MAXIVIBE™

*High-Productivity Innovative Products*

**Multiple pocket type dust collector with shaker cleaning**

Designed for various air volume applications and solid particle filtration, the MAXIVIBE dust collector is ideal for small to medium size shops and industries, training facilities, or vocational schools. The narrow footprint of the MAXIVIBE unit means that it may be installed inside or outside the facility without losing valuable floor space. The efficient filter allows clean air to be recycled back into the premises for maximum energy savings. Usage may vary from wood transforming industries, ferrous or non-ferrous manufacturing shops, plastics and composites fabrication as well as pharmaceutical plants and food industries. The manual or motorized cleaning systems dislodges particles from the filter and are stored in a variety of bins, drawers or drums. Safety features such as explosion releif vents, back draft dampers or spark detection and extinguishing systems for explosive or combustible dust are available.

## *A Leading-Edge, High-Performance Company*

The AQC Dust manufacturer fabricates a full range of safe, industrial dust collectors, as well as dust and smoke capture equipment and high pressure industrial dampers at the leading edge of air control technologies based on more than 30 years of experience in the field.

**AQC's strength lies in its innovative products designed and developed to generate substantial savings throughout their entire operating life.**

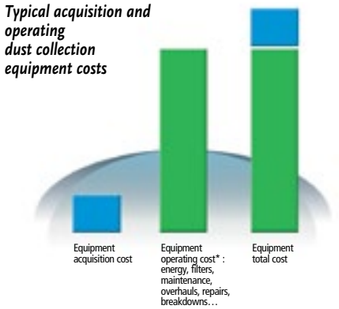
AQC is renowned for its technological innovation, safe and sophisticated equipment design, as well as its robust and precise product manufacturing. AQC stands out with its unique design of the baffles inside dust collectors making filter cleaning easy and a cartridge holder design that provides maximum filter surface, which enhances filter performance. The ultra-smooth concept inside AQC fume arms makes them maintenance-free and the durability of the heavy duty industrial dampers exceed expectations.

In short, AQC equipment is designed and built to generate substantial operating savings in terms of time, money and energy. This translates to major reductions in operating costs – from 10 to 20% – throughout the equipment's operating life. This scale of savings can represent a significant portion of the equipment's total purchase price. Companies looking to maximize their profitability should factor in these savings when purchasing equipment.

**The unique design and manufacturing of AQC equipment generates significant savings for various reasons :**

- Substantial increase in the duration of filters.
- Lower energy consumption during years of use.
- Significantly less maintenance (easy to clean, robust manufacturing, a minimum number of more reliable and durable parts).
- Reduced operating costs (less frequent overhauls, lack of or minimum down time, etc.).
- Lower administrative costs (coordination, follow-ups, supervision) due to much less frequent breakdowns.
- Safe design can prevent serious or even fatal accidents.
- Increased comfort and productivity of personnel.

*Typical acquisition and operating dust collection equipment costs*




The acquisition cost is just one part of the equation. It's the total cost including the operating cost ***throughout the life cycle of the equipment** that must be kept low. This is what AQC delivers. The advanced technology, design, robustness, durability and safety of AQC products generate major savings during the equipment's entire life cycle.





## SHAKER TYPE CLEANING

***Ideal for various air volume and dust applications***

- Powerful 1 HP motor for shaker mechanism
- Low or high profile dust storage system
- Dust inlet with abrasion resistance
- Choice of interior or exterior installation
- Minimal field assembly required

## TYPICAL APPLICATIONS FOR THE MAXIVIBE

- Wood shops, making
- Training centers and vocational schools
- Grinding, sanding or buffing applications
- Plastic and composite shops
- Metal transforming facilities
- Food / pharmaceutical powders

## TYPICAL APPLICATIONS FOR THE MAXIVIBE

Most natural and industrial dusts contain particles having a wide range of sizes. Years ago, AQC personnel found that size distribution followed the laws of probability. This led to the usage, now widespread, of the log-probability graph method shown in Figure 1. The engineering simplicity of the essentially straight line curves is self evident.

Micron Efficiency curves, similar to Figure 1, are published by AQC for all collector types. They show, for all particle sizes, the specific collection efficiency. By combining these inputs, overall Collection Efficiencv can be calculated. For example, assuming the Sawdust of Fig. 1 and the Cyclone Collector of Fig. 2. the following typical calculations result:

*CHART 1*

| Micron size range | % Less than (Fig. 1) | % in range | Median size | Cyclone eff. (Fig. 2) | Catch % |
|---|---|---|---|---|---|
| 0 -3 | 1.5 | 1.5 | <1 | Say .10 | .15 |
| 3 - 5 | 4 | 2.5 | 4 | .65 | 1.62 |
| 5 - 10 | 11 | 7 | 7.5 | .80 | 5.60 |
| 10 - 30 | 38 | 27 | 20 | .98 | 26.46 |
| 30 - 50 | 53 | 15 | 40 | .99 | 14.85 |
| 50 - 100 | 75 | 22 | 75 | 1.00 | 22.00 |
| >100 | All | 25 | 100 | 1.00 | 25.00 |
| | | TOTAL : 100% | | | TOTAL : 95.68% |

Thus for this example, the overall efficiency would be 95.68%. Similar calculations for Fabric Collectors of Cyclone After Filters confirm efficiencies typicallv exceeding 99.9%. Hence the wide application of AQC Collectors recirculating cleaned air inside industrial plants.

*FIGURE 1*

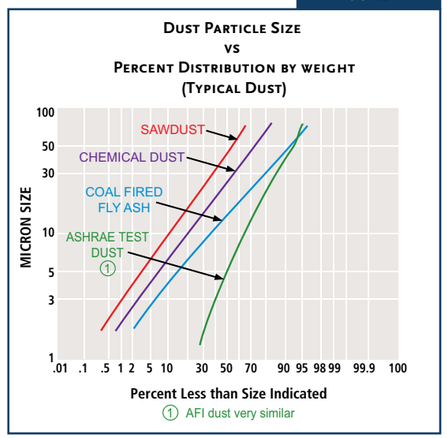
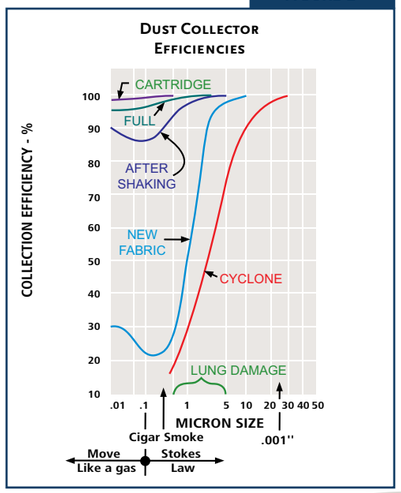
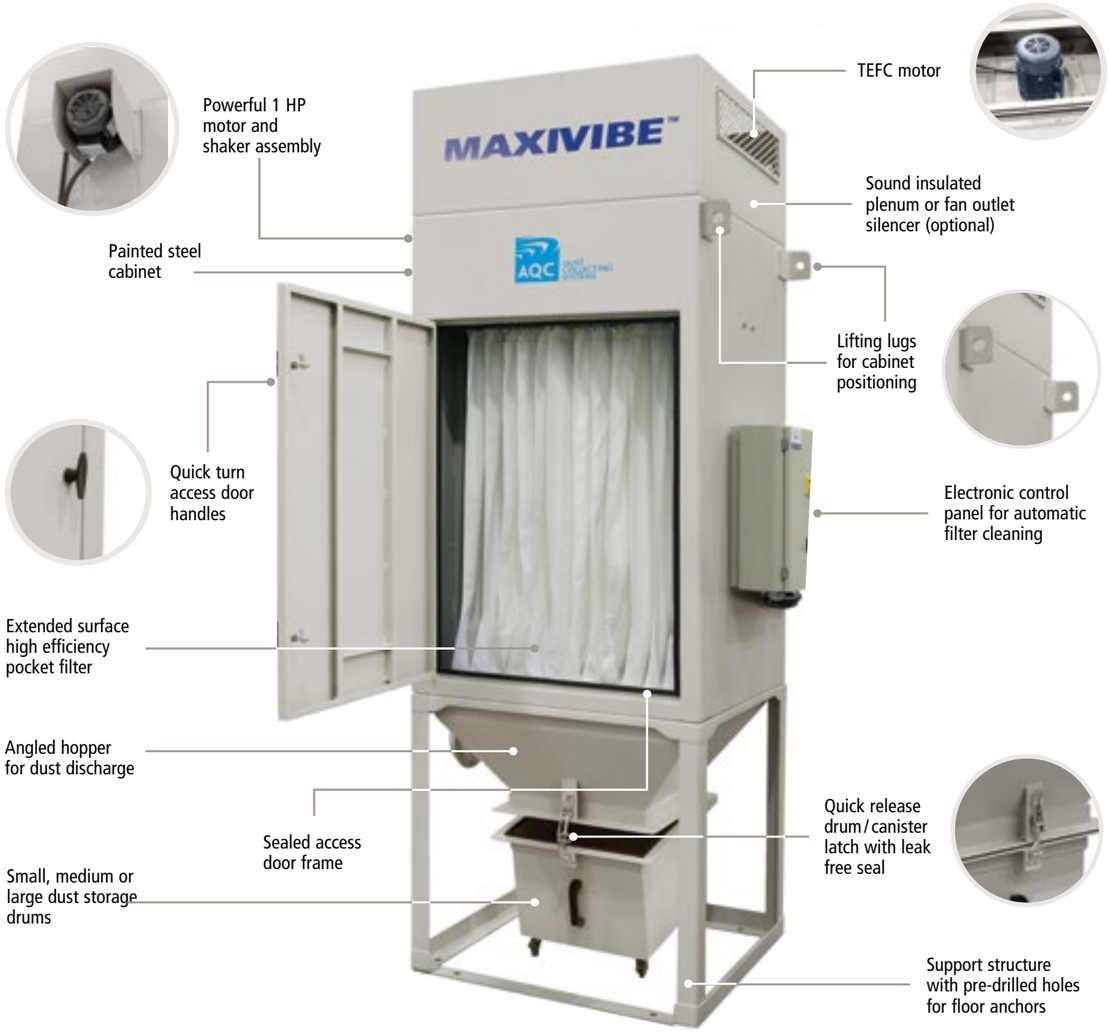



*FIGURE 2*



## OUTSTANDING MAXIVIBE FEATURES




## DESCRIPTION

Dust and particles are carried from source capture into the main duct connected to the MAXIVIBE unit. Larger particles fall by gravity into the hopper toward the dust storage drum or canister. Finer particles are vacuumed upward into the high efficiency multi pocket filter envelope. The sound insulated fan mounted on top of the unit recycles clean air into the premises if desired or permitted. When the unit is shut down, the electronic control panel activates the cleaning cycle by shaking the filter envelope. This creates upper oscillation instead of the usual bottom filter shaking which would result in lesser efficient cleaning. Filter inspection may be carried by simply opening the access door when unit is shut down.

***DUST COLLECTOR installation:*** To ensure proper installation, refer to local building laws and requirements. Support grounds have to meet requirements for weight of dust collector and adjacent equipment.



MAXIVIBE™

*Shaker type dust collector with envelope filter*

## MAXIVIBE GENERAL DATA

### Specifications

*CHART 2*

| Model | Filter surface ft²/m² | Number of filters | Number of pockets | Capacity CFM/ l/s |
|---|---|---|---|---|
| AMV-170 | 170 / 15.8 | 1 | 8 | 1000 to 1450/ 472 to 684 |
| AMV-270 | 274 / 25.5 | 1 | 12 | 1500 to 2400/ 708 to 1133 |
| AMV-350 | 361 / 33.5 | 1 | 16 | 1500 to 3000 / 708 to 1416 |
| AMV-450 | 449/41.7 | 1 | 16 | 2000 to 4000/ 944 to 1888 |
| AMV-570 | 570/53 | 1 | 16 | 3000 to 4500/ 1416 to 2124 |
| AMV-700 | 722/67 | 2 | 32 | 3500 to 5500/ 1652 to 2596 |
| AMV-900 | 898/83.4 | 2 | 32 | 5000 to 7000/ 2360 to 3304 |
| AMV-1140 | 1140/105.9 | 2 | 32 | 5000 to 9000/ 2360 to 4248 |
| AMV-1350 | 1347/125.1 | 3 | 48 | 6000 to 10000/ 2832 to 4719 |
| AMV-1800 | 1796/166.9 | 4 | 64 | 8000 to 13000/ 3776 to 4719 |
| AMV-2280 | 2280/211.8 | 4 | 64 | 9000 to 13500/ 4248 to 6371 |

***Note:*** Air volume capacities indicated above per MAXIVIBE selection is more or less a 8 to 1 air to cloth ratio. The purpose of this ratio is to extend filter life and lower static pressure. AQC may agree to a 10 to 1 air to cloth ratio in certain applications.

### Recommended duct velocities for particulates

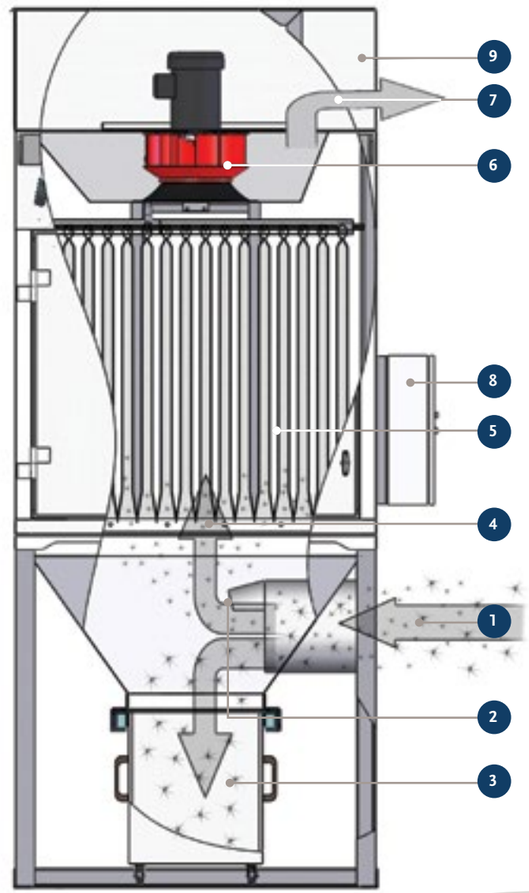
*CHART 3*

| Type of dust | ft/min m/s |
|---|---|
| Metal dust | 4200/21.3 |
| Sawdust (dry) | 3800/19.3 |
| Cement dust | 7000/35.6 |
| Wood chips | 4000/20.3 |

***Note:*** Other particle velocities may be required. Refer to Industrial Ventilation Handbook for more details or contact AQC.
***Filtration note:*** Safety after-filter system can be specified in the unlikely event of main filter envelope failure. Contact AQC or representative for information and details.

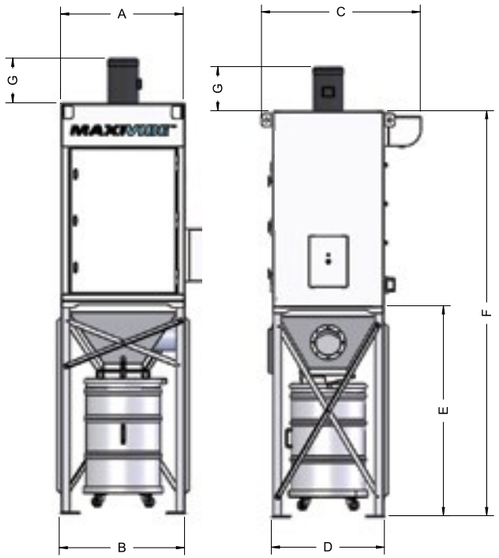
### Principle of operation

During operation, dust-laden air (1) enters the collector from the top of the hopper. The dusty air will first deflect off the baffle plate (2) forcing the larger particles down into the dust bin (3), the air velocity is also reduced in this section. The fine remaining dust is then carried upwards (4) into the envelope filter (5) and forced onto the filter fabric surface.
The now cleaned air is drawn into the backward inclined impeller (6) and is exhausted outside (7) of the collector. The "dust cake" formed on the dirty side of the filter can be dislodged by the automatic filter shaking mechanism (8). The acoustical motor plenum ensures quiet operation (9). Optional fan outlet silencers are also available.

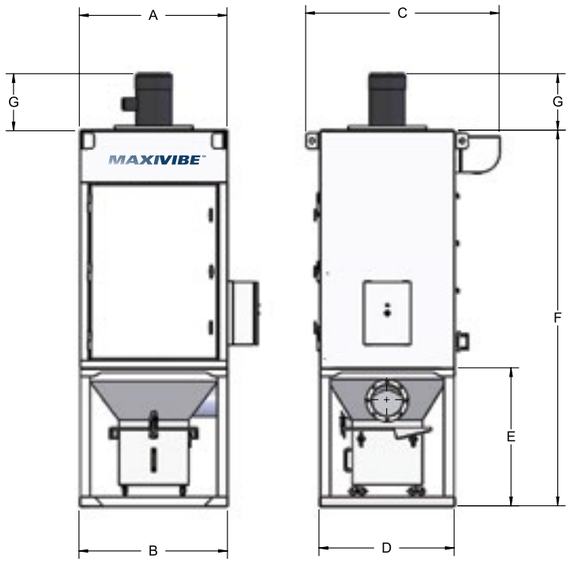


## MAXIVIBE MODEL NUMBERS AND DIMENSIONS

### AMV-170 / 270 / 350 / 450 / 570




### AMV-DB (15 gallon dust bin)




### Sound Levels (dBA)

CHART 4

| Model | 170 | 270 | 350 | 450 | 570 |
|---|---|---|---|---|---|
| With sound insulated fan plenum | 73 | 74 | 76 | 78 | 80 |
| Without sound insulated fan plenum | 86 | 86 | 88 | 90 | 93 |

***Note:*** Because of different motors, sound enclosure and explosion relief vent configurations, dimensions may vary from those indicated below. Factory will supply submittals with proper selection.

### Model number and dimensions

CHART 5

| Model | Dimensions inches / mm | | | | | | | Weight (no motor, no enclosure, no relief vent) |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | lbs / kg |
| 170 | $37^{1/2}$ / 953 | $38^{3/8}$ / 975 | $49^{1/8}$ / 1248 | 35 / 889 | 65 / 1651 | $125^{1/4}$ / 3181 | Height according to fan specifications | 1050 / 477 |
| 270 / 350 | $47^{3/4}$ / 1213 | $48^{1/2}$ / 1232 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | $124^{1/2}$ / 3162 | | 1250 / 567 |
| 450 | $47^{3/4}$ / 1213 | $48^{1/2}$ / 1232 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | $133^{1/4}$ / 3385 | | 1450 / 658 |
| 570 | $47^{3/4}$ / 1213 | $48^{1/2}$ / 1232 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | $145^{1/8}$ / 3686 | | 1700 / 771 |
| 170-DB | $37^{1/2}$ / 953 | $37^{3/4}$ / 959 | $49^{1/8}$ / 1248 | $34^{3/8}$ / 873 | 35 / 889 | $95^{3/8}$ / 2423 | | 925 / 420 |
| 270 / 350-DB | $47^{3/4}$ / 1213 | 48 / 1219 | $62^{3/4}$ / 1594 | 48 / 1219 | $49^{1/8}$ / 1248 | $102^{1/2}$ / 2604 | | 1125 / 510 |
| 450-DB | $47^{3/4}$ / 1213 | 48 / 1219 | $62^{3/4}$ / 1594 | 48 / 1219 | $49^{1/8}$ / 1248 | $111^{1/4}$ / 2826 | | 1140 / 517 |

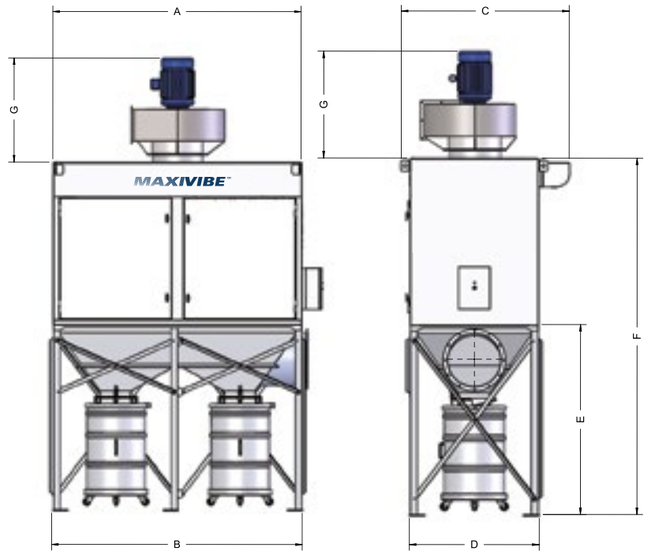


MAXIVIBE™

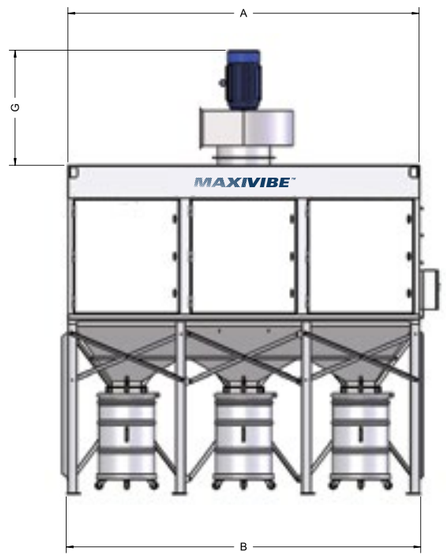
*Shaker type dust collector with envelope filter*

MAXIVIBE MODEL NUMBERS AND DIMENSIONS

### AMV-700 / 900 / 1140




### AMV-1350




***Note:*** Because of different motors, sound enclosure and explosion relief vent configurations, dimensions may vary from those indicated below. Factory will supply submittals with proper selection.

***Note on sound levels:*** Because of different motor selection and sound fan plenum configurations, sound levels will be supplied with selection of collector and fan size.

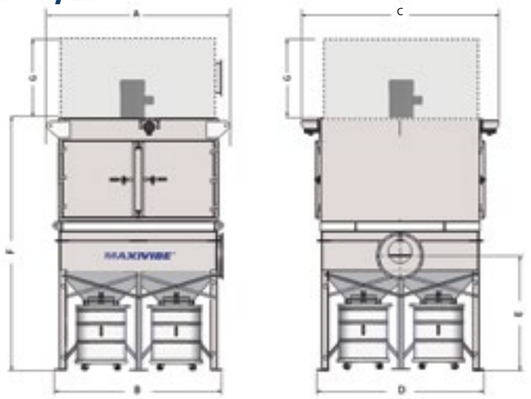
### Model number and dimensions

CHART 6

| Model | Dimensions inches / mm | | | | | | | Weight (no motor, no enclosure, no relief vent) |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | lbs / kg |
| 700 | $95^{1/4}$ / 2419 | 96 / 2438 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | $124^{1/2}$ / 3162 | Height according to fan specifications | 2000 / 907 |
| 900 | $95^{1/4}$ / 2419 | 96 / 2438 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | $133^{1/4}$ / 3385 | | 2100 / 953 |
| 1140 | $95^{1/4}$ / 2419 | 96 / 2438 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | 145 / 3683 | | 2250 / 1020 |
| 1350 | $142^{3/4}$ / 3626 | $144^{1/4}$ / 3664 | $62^{3/4}$ / 1594 | $48^{1/2}$ / 1232 | 71 / 1803 | 133 / 3378 | | 2750 / 1247 |

## MAXIVIBE MODEL NUMBERS AND DIMENSIONS

### AMV-1800 / 2280




***Note:*** Because of different motors, sound enclosure and explosion relief vent configurations, dimensions of such are not indicated below. Factory will supply submittals with proper selection.

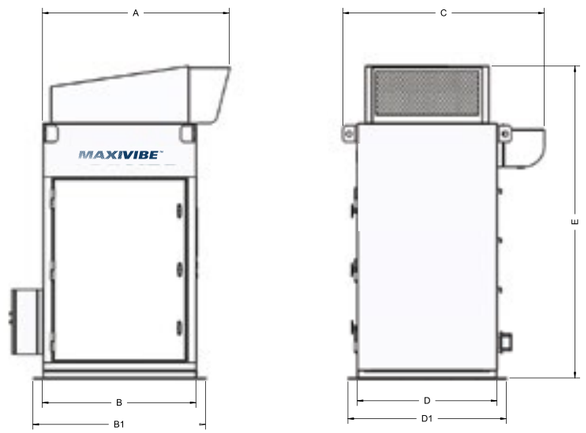
***Note on sound levels:*** Because of different motor selection and sound fan plenum configurations, sound levels will be supplied with selection of collector and fan size.

### Model number and dimensions

*CHART 7*

| Model | Dimensions in / mm | | | | | | | Weight (no motor, no enclosure, no relief vent) |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | lbs / kg |
| 1800 | 110 3/4 / 2813 | 96 / 2438 | 119 / 3022 | 96 / 2438 | 89 1/2 / 2273 | 152 / 3860 | Height according to fan specifications | 5700 / 2585 |
| 2280 | 110 3/4 / 2813 | 96 / 2438 | 119 / 3022 | 96 / 2438 | 90 / 2286 | 165 / 4191 | | 6100 / 2767 |

### AMV-BV 170 / 270 / 350 / 450 (Bin vent configuration only)




***Note:*** Because of different explosion relief vent configurations, dimensions of such are not indicated below. Factory will supply submittals with proper selection.

### Model number and dimensions

*CHART 8*

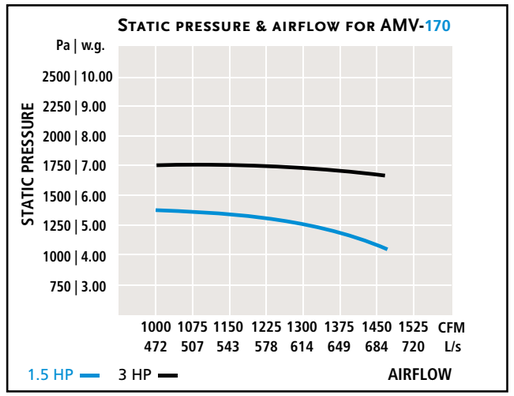
| Model | Dimensions in / mm | | | | | | | Weight (no relief vent) |
|---|---|---|---|---|---|---|---|---|
| | A | B | B1 | C | D | D1 | E | lbs / kg |
| 170 | 45 3/4 / 1162 | 37 1/2 / 953 | 48 1/4 / 1226 | 49 / 1245 | 34 / 864 | 38 3/4 / 984 | 76 1/4 / 1937 | 575 / 261 |
| 270 / 350 | 55 3/4 / 1416 | 47 3/4 / 1213 | 52 3/8 / 1330 | 62 3/4 / 1594 | 47 3/4 / 1213 | 52 3/8 / 1330 | 68 1/4 / 1734 | 680 / 309 |
| 450 | 55 3/4 / 1416 | 47 3/4 / 1213 | 52 3/8 / 1330 | 62 3/4 / 1594 | 47 3/4 / 1213 | 52 3/8 / 1330 | 78 / 1981 | 725 / 329 |

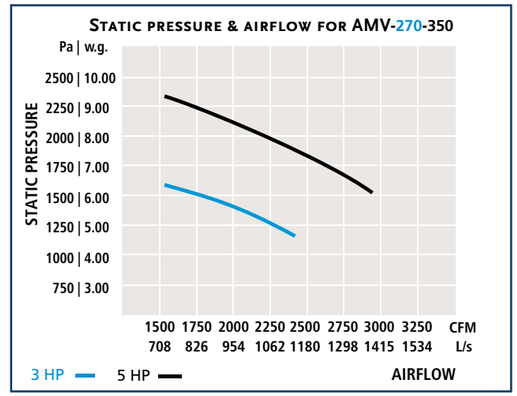


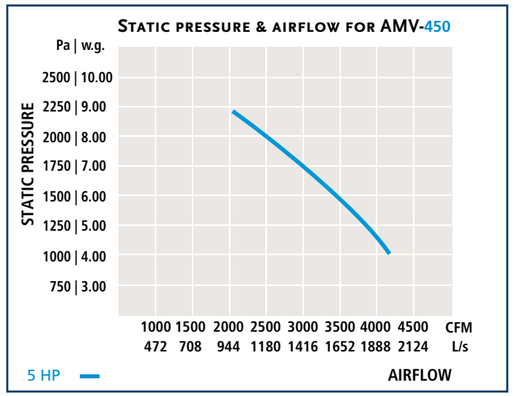
MAXIVIBE™

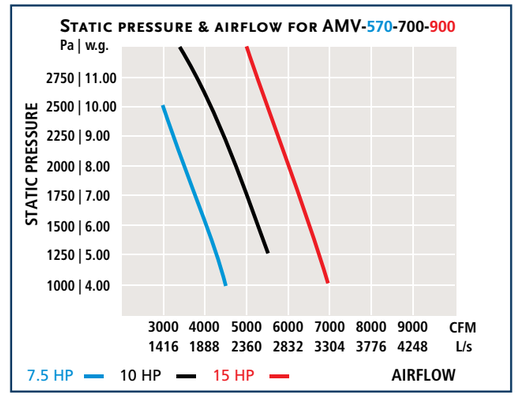
*Shaker type dust collector with envelope filter*

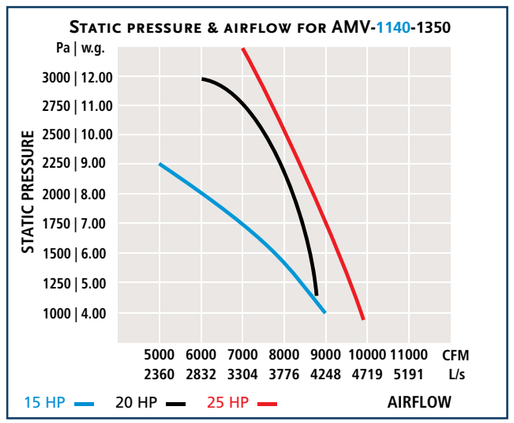
## MAXIVIBE FANS PERFORMANCE (for reference only)

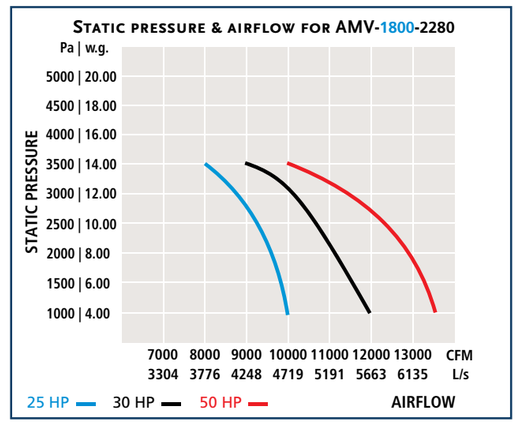



***Fan drives:*** Fan curves indicated above are direct drive type, 3500 RPM.
***Fan notes:*** Fans suggested above as per MAXIVIBE model selected are for references only. AQC can and will supply specific fans for specific air volume or static pressure required. Impeller width will be as per fan selection.
AQC uses standard non-sparking impellers on MAXIVIBE dust collectors when applications, call for wood dusts or reactive alloys and metals.

## CONSTRUCTION

The filter cabinet and hopper assembly are made with 11 to 14 gauge mild steel folded or welded sheets and channels. Protection of surface is ensured by an epoxy primer coat with two (2) coats of air dried polyurethane final paint. Cross braces on the rugged support structure and filter cabinet are assembled to resist damages in seismic zone 4.

The highly efficient envelope filter (95% to 99% @ 1-10 microns) prevents “dust caking”, which would normally increase static pressure resulting in lower air volume through weeks and months of regular usage. The top mounted direct drive fan assembly usually consists of a non-sparking backward inclined impeller located on the clean side of the dust collector.

All access doors, joints and folds are sealed with gaskets to prevent air leakage.

## SAFETY RULES AND REQUIREMENTS

The MAXIVIBE is an enclosed type dust collector. MAXIVIBE dust collectors can be used with different dusts such as wood, metal, composites, chemicals, agricultural or food grade.

### Wood dust applications

In wood dust applications and for air volumes of 1500 CFM and more, the collector must be specified in accordance with NFPA 664 standards and regulations. The MAXIVIBE dust collector must not be used in mixed applications of wood dusts and reactive metal grinding, sanding or buffing dusts. The MAXIVIBE dust collector should not be connected to sanders or abrasive planers with mechanical material feeds, unless it is equipped with a spark detection or a extinguishing safety device.

### Reactive metals application

The National Fire Protection Agency (NFPA) standard 484 defines aluminum, magnesium, tantalum, titanium and zirconium as reactive metals so it is imperative that NFPA 484 standard be observed at all times and that the collector be installed outside of the facility or premises with all required safety devices. Grinding operations shall not be served by the same MAXIVIBE collector as buffing or polishing operations.

***Note on explosion venting panels:*** A minimum clearance of 25’ (7.6 m) free of obstacles, pedestrian walkway, building walls, trees or bushes is required to allow dispersion of possible blast. Contact factory for details.

The MAXIVIBE dust collector should include a sign indicating CAUTION when used with explosive dusts.

The MAXIVIBE dust collector should include a sign indicating WARNING when used with aluminum dusts advising danger of mixing with other dusts.

## SHIPPING

In order to facilitate shipping and installation, AQC usually ships the MAXIVIBE dust collector in separate sections. Hopper and support structure are shipped fully assembled ready for cabinet mount. Larger MAXIVIBE models may require more extensive field assembly.

Optional equipment such as dampers or silencers are shipped separate and require field assembly. Explosion venting doors are factory installed on the dust collector cabinet.

***Shaker cleaning note:*** MAXIVIBE collector does not have capability of cleaning while in operation. Cleaning cycles are performed upon every unit shutdown. AQC or representative should be made aware of dust load and type of dust before selection.



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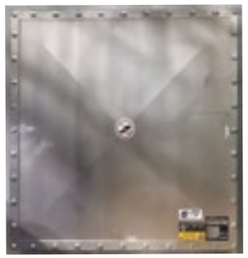
## OPTIONAL ACCESSORIES AND DESCRIPTION

### Explosion venting doors



Requirement by NFPA for reactive material such as wood dusts and chips, aluminum or magnesium collection.

### Fan outlet silencers

Sound attenuators for high velocity discharge of air.

### Micro switches

Current sensors connected to shop equipment for automatic fan starter.

### Rotary airlock

Rotary airlock for constant dust discharge.

### Slide / blast gates

Used for shutting off air vacuum on specific equipment.

### Blowback dampers

Safety device preventing flames or explosion in dust collector from coming back into the building.

### Spark detection / extinguishing systems

Recommended safety device for highly abrasive metal or wood transforming applications.

### Sprinklers

Safety device to extinguish possible fires in dust collectors.

### Abort dampers

Safety device preventing a possible explosion in a dust collector from coming back into the building and exhausting pressure in the atmosphere.

***Safety device and equipment notes:*** Design built and / or engineered dust collecting equipment may require different safety devices as described above. Refer to NFPA rules and regulations for appropriate devices. AQC or it’s representatives may also guide you in proper selection of equipment as per the application. It is highly recommended to refer to local building laws and safety requirements prior to selecting or installing any type of dust collecting equipment.

***Installation note:*** it is recommended to allow 36’’ (0.9 m) work and access space around the collector for installation and possible maintenance.

*Shaker type dust collector with envelope filter*

# MAXIVIBE™

## YOUR MAXIVIBE SPECIFICATION

**1. Unit:**

11 and 14 gauge mild steel epoxy primer coat (4000 hours salt spray test) with two (2) coats of air dried polyurethane final paint; cabinet and support structure with pre-drilled holes for floor anchoring; high efficiency multi-pocket filter envelope; sealed frame access door to filter envelope; electronic control panel with timer for shaker cleaning in NEMA 4 enclosure; direct drive TEFC motor with non-sparking backward inclined impeller for wood dusts or reactive metals; sound insulated fan plenum; dirty air inlet with dust deflector in hopper section, clean air outlet on top of collector; lift lugs for filter cabinet positioning; 1 HP shaker motor with oscillating pattern for better cleaning efficiency, joints and folds sealed with gaskets to prevent air leakage.

**2. Model:**

- ☐ AMV-170 ☐ AMV-270 ☐ AMV-350
- ☐ AMV-450 ☐ AMV-570 ☐ AMV-700
- ☐ AMV-900 ☐ AMV-1140 ☐ AMV-1350
- ☐ AMV-1800 ☐ AMV-2280 ☐ AMV-1710

**3. Fan:**

- ☐ 3 HP ☐ 5 HP ☐ 10 HP
- ☐ 15 HP ☐ 20 HP ☐ 30 HP
- ☐ 40 HP ☐ 50 HP ☐ Other _____

**4. Fan performance:**

_____CFM@_____" SP (Ex: 5000 CFM@ 6" SP)

_____L/s@_____ pa SP (Ex: 2360 L/s @ 1500 pa SP)

**5. Voltage:**

- ☐ 230/1/60 ☐ 208/3/60
- ☐ 460/3/60 ☐ 575/3/60

**6. Dust storage capacity should be with:**

- a) 20 gallon bin (25 gallon U.S.) ☐
- b) 45 gallon drum (55 gallon U.S.) ☐
- c) Drum dolly with swivel casters ☐
- d) No dust storage, bin vent configuration ☐

**7. Unit to be equipped with:**

- a) NFPA explosion relief vent ☐
- b) Sprinkler head ☐
- c) Abort damper ☐
- d) Blowback damper ☐
- e) Spark detection / extinguishing system ☐
- f) Micro switches for automatic fan operation ☐
- g) Rotary airlock ☐
- h) Slide / blast gates ☐
- i) Pressure differential indicator ☐
- j) Anti-static filter fabric ☐
- k) Fan outlet silencer in lieu of sound insulated plenum ☐
- l) After-filter ☐
- m) Tamper proof cabinet access door ☐
- n) Support structure and hopper enclosure with access door ☐
- o) Accoustical fan plenum ☐

**8. Unit designed for:**

- a) Interior installation ☐
- b) Exterior installation ☐

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***Note:*** Specifications listed above may be modified to suit applications. Contact AQC or representative for information.

***Your AQC representative is:***

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Continuous product improvement is a policy of AQC Inc. Product features and specifications may be modified without prior notice.