

TO 3500 CFM

MBV 37 C
 MBV 43 C
 MBV 54 C
 MBV 37 F
 MBV 43 F
 MBV 54 F

SERIES

MBV

TECHNICAL SPECIFICATIONS
MIDWEST VACUPAC™ BIN VENT
AND CONVEYOR TRANSFER
POINT DUST CONTROL SYSTEM

TECHNICAL SPECIFICATIONS

VACUPAC™ SERIES

DESIGN CRITERIA: The equipment described in this technical specification is designed to vent a silo, bin, hopper, conveyor discharge chute or conveyor transfer point. If sized properly, the equipment will reduce or eliminate dust in compliance with most EPA regulations. This equipment is considered by most agencies to be the Best Available Current Technology (BACT) in terms of dust control.

DESCRIPTION: The **MIDWEST Vacupac™** Bin Vent is rainproof and designed to accept dust and natural aeration and conveying air as well as air displaced inside a silo during filling. The **Vacupac™** filter section includes a clean air plenum with optional fan or elbow. When used with a fan the system is placed under negative pressure (vacuum) retaining fugitive particulate emissions inside the closed system and allowing no dust to escape to the atmosphere. Dust particulate collected on the filter tubes is removed through a compressed high pressure air pulse cycle and the particulate falls down into the silo, hopper or bin eliminating the need for a collected dust disposal system. No external dust piping or other dust control devices are required when using the **Vacupac™** Bin Vent. The **Vacupac™** Bin Vent can also be used without a fan to allow the silo, bin or hopper to breathe with filtered air exhausted through the clean air plenum opening. Available in Class IA, III, IIIA and IV high temperature materials of construction.

MODEL MBV SERIES 37/43/54 C

FILTER MODULE: The **Vacupac™** Bin Vent is constructed of ASTM A 36 carbon steel 11 GA standard welded and bolted components. Refer to next page for Classes of Construction other than standard. Clean air plenum and fan are removable to gain access to tube sheet. Top **Sealmaster™** access door with **Camloc™** "T" handle allows quick inspection of inside of clean air plenum without use of tools. Filter module construction includes two (2) large **Sealmaster™** hinged doors providing inspection and maintenance access to filters. **Vacupac™** Bin Vent filter modules are used to vent conveyor transfer points or on the discharge chute of a tripper car or can easily be installed on top of a silo, bin or hopper roof riser. Air purging system with filter purging controls and clean air fan or 90 degree elbow included. Air compressor and drier package available as an option. **Vacupac™** Bin Vent Filter Modules available in optional materials of construction, i.e., Class IA, III, IIIA and IV. Consult factory for details or for additional information.

TUBE SHEET: ASTM-36 3/16" carbon steel with filter tube openings for aluminum **Twistloc™** filter adaptors for 5.5" diameter **Polyflex™** wide "V" pleat cartridges. Class III filter and or high temperature construction available.

FILTERS: **Polyflex™** wide "V" pleat filter cartridges are standard in this series **Vacupac™** Bin Vent depending on CFM and air to cloth ratios desired. Refer to drawing for optional filter media. Metal filter parts are galvanized or optional stainless steel is available for corrosive environment i.e., Class III or IIIA, (specify). Consult factory for details. Magnetic blow out doors (non UL approved) are available for explosion proof (XP) hazardous areas. Filters are self grounding due to internal metal parts in contact with metal tubing. Contact factory for prices and additional information.

FILTER ACCESS DOORS: Two large heavy duty **Sealmaster™** white molded pressure filled crosslinked doors 28" wide x 32" high with special 1/2" diameter endless "O" Ring seal compressed onto special door frame cavity eliminates dust leakage as all corners are radiused eliminating square corner leaks. Two cast aluminum **Camlock™** adjustable filter door clamps provided for each door. NOTE: Class IB all cast aluminum **Sealmaster™** doors available for high temperature or food grade applications. **Sealmaster™** doors are hinged and prehung in a heavy integral cast aluminum door frame with hinge bases with stainless steel hinge pins. Cast aluminum door frame includes 1/2" lip which presses into white endless "O" ring seal in **Sealmaster™** door.

CLEAN AIR PLENUM: Clean air plenum is 11 gauge, Class IA construction standard with flanged outlet for clean air fan or elbow with bird screen (specify) and 8" diameter cast aluminum **Sealmaster™** inspection door with (1) **Camlock™** pressure handle. NOTE: refer to fan chart with air to cloth ratios if negative pressure (clean air fan) system is required in place of elbow.

FILTER PURGING SYSTEM: Automatic sequential filter purging system includes factory adjusted timed compressed air sequential purging system and pressure gauge. NEMA 4X purging controller located on fan side of **Vacupac™** Bin Vent filter module. Heavy duty NEMA 4 purging valves and air accumulator included. Purging system includes (2) pulse board timers, (1) for when to purge and (1) for how long to purge. Air purging system prepiped and prewired as standard. Contact factory for mill and chemical dusty and/or **explosion proof (XP) electrics.**

MOUNTING SYSTEM: Standard flanged mounting for top of silo, hopper opening, conveyor discharge chute or for **MIDWEST** riser used for longer filters. Top hanging plate or lower cast mounting pad system available as optional if required.

CLASSES OF CONSTRUCTION AVAILABLE:

Class I	Abrasive Fines (High-density AR cross-linked polymer) to 176° F and -40° F
Class I (FG)	Abrasive Fines (Same as Class I except White Food Grade)
Class I A	Mildly Abrasive Granules (A36 carbon steel)
Class I B	Contamination Free Fines and Pellets (6061 T6 aluminum)
Class II	Abrasive Granules (250 BHN AR steel)
Class III	Stainless Steel Product Flow Area only (304 furnished as standard, 316 available)
Class III (FG) with	Food Grade Products (Same as class III ground and polished welds)
Class III A	Stainless Steel all Fabricated Metal Components (304 furnished as standard, 316L available)
Class III A (FG)	Corrosive or Non-Contaminate Environment (Same as Class III A with stainless steel fastings)
Class IV A	High Temperature 177° F to 400° F
Class IV B	High Temperature to 1000° F
Class V	Abrasive Lumps High Impact (400 BHN AR steel)

Class V A	Abrasive Lumps High Impact (400 BHN AR steel Venturi, with integral rockbox to reduce wear)
Class V T	Abrasive Lumps High Impact (Triten™ Hard Coat)

PAINT: Mechanical Clean with (3) mils white two part epoxy standard. Consult factory for optional paint systems.

ASSEMBLY: **Vacupac™** Bin Vent modules are factory assembled and tested prior to shipment.

PREWIRING: Purging valves and prewiring of purging controller included as standard.

ESTIMATED MECHANICAL FIELD ERECTION: Eight (8) hours after existing equipment has been removed and new equipment prepared for installation. Power lifting equipment and safety precautions recommended.

ELECTRICAL INSTALLATION: Four (4) hours estimated with power within 7 ft.

FIELD SUPERVISION: Erection and/or start up and commissioning assistance is available from **MIDWEST** at a per diem cost. Consult factory for prices.

INSTRUCTION MANUAL: **MIDWEST** provides two Installation Operating and Maintenance Manuals, one shipped with equipment and one forwarded to the Purchasing Department at time of shipment. Additional copies can be purchased at additional cost.

CAUTION: Many dry bulk products contain explosive dust. **MIDWEST** offers explosion proof (XP) electrics as an option for all electrical components and PLC controls. Intrinsically safe barriers are also available for hazardous areas. Consult factory for additional information and pricing.

OPTIONS AVAILABLE:

NOTE: Accessories items are shipped in kit form to be field installed however, are factory installed if **MIDWEST** prewiring option is purchased.

CLEAN AIR FAN: Centrifugal high efficiency cast aluminum fan with TEFC motor, 230/460 VAC, 3PH, 60 Hz, 1.0 service factor standard. Consult factory for other voltages and availability of mill and chemical duty motors for hostile corrosive environment. Fan inlet interfaced to clean air plenum. Fan outlet includes manual damper with optional bird screen. Refer to Technical Specifications or Sales Drawings for fan capacities available. Fan outlet can be rotated at 90 degree increments.

VENTING ELBOW: Optional vent outlet elbow in place of clean air fan, 90 degree 8" diameter Class IA carbon steel

elbow with bird screen. For static silo venting only, consult factory for additional information.

LOWER MOUNTING PADS: Foot mounted cast aluminum mounting pads located at four corners on bottom of filter module allows for installation of Bin Vent on structural steel beams or other system support steel. To be used only if required.

PHOTOHELIC PRESSURE DIFFERENTIAL SYSTEM WITH GUAGE: This system is supplemental to the timed sequential purging system and overrides the timed sequential purging system if the pressure differential between the dirty air side and clean air side of the filter system reaches a preset pressure. In effect the filters will purge automatically if the timed sequential purging system is out of adjustment.

AIR COMPRESSOR DRIER: Complete 80-100 PSI air compressor and desiccant drier system with receiver all mounted on skid for field installation available from factory. This prepped and prewired system is designed to provide peak efficiency for **Vacupac™** Bin Vent. Consult factory for air volume required for specific application. Specify if motor starter and drier control is required.

AIR DRIER ONLY: Desiccant drier located on side of **Vacupac™** Bin Vent opposite fan allows compressed plant air with moisture to be connected to drier. NOTE: Instrument air dry with a-42 degree dewpoint is essential to keep filters clean.

FILTER REGULATOR, GAUGE: Available for installation on side of **Vacupac™** Bin Vent to supply filter purging system with properly regulated compressed air. Includes manual 1.0 NPT maintenance valve. (1.5 NPT used for **MBV 54** series).

FILTER MODULE (XP) BLOWOUT DOOR (OPTIONAL): Designed to quickly release positive pressure caused by an explosion. Magnetically held door is a static design and includes no moving parts. NOTE: Not UL approved.

FILTER MODULE RISER (OPTIONAL): Allows base unit to accept longer filter tubes without tubes extending into silo, bin hopper or conveyor discharge chute. Specify nominal height, 1'-0, or 2'-0 high.

SCREEN (OPTIONAL): 3/16 diameter carbon steel wire size with 2 x2 openings, located under filters to prevent loose filter cartridge from entering silo, bin, hopper or conveyor discharge chute. Specify Class IA or III construction.

CHOKEFEDER® VANE SECTION: PLC operated pneumatic actuated 90° open/closed cast steel vanes slow down product flow, reducing velocity of product to 4 to 6 feet per second resulting in increased **Vacupac™** Bin Vent efficiency. Product is discharged gently on transfer conveyor. This system reduces degradation of cargo and includes gum rubber air separator diaphragm, level sensors and PLC controls. Contact factory for details.

Technical specifications are subject to change without prior notification

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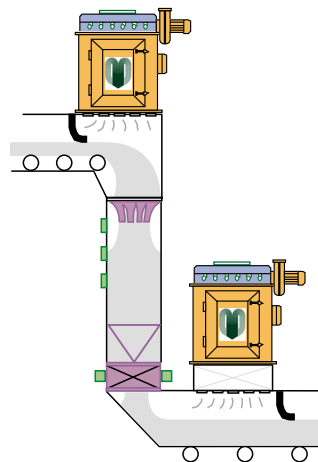
EQUIPMENT INDICATED IN SOLID COLOR IS INCLUDED IN THIS TECHNICAL SPECIFICATION.

EQUIPMENT OUTLINED IS AVAILABLE. CONSULT MIDWEST FOR DETAILS.

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I N T E R

LTD



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TECHNICAL DATA

MBV VACUPAC™ SERIES

BIN VENT

BULK MATERIAL DATA

PRODUCT	TEMP	DENSITY (PCF)
<input type="text"/>	<input type="text"/>	<input type="text"/>

SCREEN ANALYSIS

<input type="text"/> %	<input type="text"/> IN/MM	<input type="text"/> %	<input type="text"/> IN/MM
<input type="text"/> MICRONS	MOISTURE CONTENT	<input type="text"/> %	

MODEL	STANDARD MEDIA		OPTIONS (2.0)	CFM	NET WEIGHT WITHOUT FAN
	AREA	(1.5)			
<input type="checkbox"/> MBV 37	259	388	518	<input type="text"/>	551 LBS. (250) KG.
<input type="checkbox"/> MBV 37	346	519	692	<input type="text"/>	626 LBS. (285) KG.
<input type="checkbox"/> MBV 37	432	648	864	<input type="text"/>	680 LBS. (309) KG.
<input type="checkbox"/> MBV 43	432	648	864	<input type="text"/>	730 LBS. (332) KG.
<input type="checkbox"/> MBV 43	576	864	1125	<input type="text"/>	790 LBS. (358) KG.
<input type="checkbox"/> MBV 43	720	1080	1440	<input type="text"/>	880 LBS. (400) KG.
<input type="checkbox"/> MBV 54	691	1036	1382	<input type="text"/>	990 LBS. (450) KG.
<input type="checkbox"/> MBV 54	922	1383	1844	<input type="text"/>	1079 LBS. (490) KG.
<input type="checkbox"/> MBV 54	1152	1728	2304	<input type="text"/>	1208 LBS. (549) KG.

Classes of Construction Available:

- Class I **Abrasive or Corrosive Fines:** (High-density AR Cross-Linked Polymer) Temperature Rating: to +176 F, -40 F. Product Flow Area.
- Class IFG **Abrasive Fines:** Same as Class I except White Food Grade Polymer.
- Class IA **Non-Abrasive Fines:** A36 Carbon Steel Product Flow Area.
- Class IB **Contamination Free Fines and Pellets:** Aluminum Construction 6061-T6 Castings, Extrusions and/or Machined (spun).
- Class II **Abrasive Granules:** 250 BHN AR Steel, Product Flow Area.
- Class III **Corrosive Fines, Granules, Soft Lumps:** Stainless Steel Product Flow Area, 304 SS, 316 SS, 316 L (2B or 4B) available (specify).
- Class III FG **Food Grade Products:** Same Construction as Class III with Ground and Polished Welds.
- Class IIIA **Corrosive or Non-Contaminate Environment:** Stainless Steel Fabricated Components 304 SS, 316 SS, 316 L 2B and 4B available (specify) Non-Product Flow Area.
- Class IIIA/FG **Corrosive or Non-Contaminate Environment:** Same as Class IIIA with Stainless Steel Fastenings. Non-Product Flow Area.
- Class IVA **Hot Materials:** Temperature of Product being loaded, 177 F to 400 F, High Temp *Rhinoflex™* Flexible Outer Spout "Orange" Color.
- Class IVB **Hot Materials:** To 1000 F, *Rhinoflex™* Fiberglass, "White" Color.
- Class V **Abrasive Granules and Lumps with Sharp Edges:** High Impact 400 BHN AR Steel.
- Class VA **Abrasive Granules and Lumps with Sharp Edges:** High Impact 400 BHN AR Steel with Rock Box. Applicable to Loading Spout Venturies or (NSP) Inlet Transitions Only.
- Class VT **Abrasive Lumps and High Impact:** Triten™ Hard Coat.

CAUTION: Many dry bulk products contain explosive dust. Midwest offers explosion proof (XP) electrics as an option for all electrical components and PLC controls. Intrinsically safe barriers are also available for hazardous areas. Consult factory for additional information and pricing.

Important

Loading capacities are based on product bulk density of 60 PCF fines and 12 FT/SEC vertical entry velocity. Variations in density and lump size will affect loading capacity. Variations in entry velocity and trajectories other than vertical product entry could cause premature wear in product flow areas. Midwest recommendations for classes of construction are based on product samples supplied.

Accessories

- Pneumatic Maintenance Valve with Lock Out Feature, Filter Regulator. (Purge) 1.0 IN. NPT
- Air Vibrator Kit: Vibrators (2 or 4)
- Pneumatic Regulator, Lubricator (Vibrators) .5 NPT
- Special Paint:

Options

- Prepipe "A" Purging System, Filter Regulator
- Prewire, Prepipe "B" (2) Vibrators
- Prewire, Prepipe "C" (4) Vibrators
- Motor Prewiring (Fan Only) to JB, NEMA Fan Side of MBV Vacupac™ Bin Vent
- Motor Controls (MCC) NEMA
- Riser 12" 24"
- Floor Support System IN
- Fan, Clean Air: HP, Volts , 3 Phase RPM CFM
- Elbow with Bird Screen, Size Dia.
- Intrinsically Safe Barrier (For NEMA 7/9 XP 120V or 220V ! Phase Applications) Barriers
- Explosion Proof (XP) Electrics (Fan Motors)
- Explosion Proof (XP) Electrics (Pruge Controller)
- Fan Motor, Mill and Chemical Duty
- Special Paint:

Air Withdrawal Guide

REFER TO APPROPRIATE MBV VACUPAC™ BIN VENT DRAWING OR SPOUT DRAWINGS FOR AIR WITHDRAWAL RECOMMENDATIONS AND GUIDE. CONSULT FACTORY FOR VERIFICATION

*Based on 60 PCF fines. Add air gravity conveyor aeration and 50% of silo aeration air if applicable.