

TECHNICAL SPECIFICATIONS
MIDWEST COMPACULOADER™ I
INTERNALLY VENTED TOP FEED
DRY BULK LOADING MODULE

TO **500TPH**

SERIES

I
MCL

TECHNICAL SPECIFICATIONS

MIDWEST COMPACULOADER™ I

Internally Vented Filter Module

DESIGN CRITERIA: Decisions regarding equipment for truck and railcar loading are usually made based on the following factors, degree of dust control required, weight restrictions, clearance available, and budget. The **Compaculoader™** Internally Vented Dry Bulk Loadout System was developed by **MIDWEST** to eliminate high maintenance dust piping for truck and railcar loadout systems and for applications with low headroom available for dust control equipment. When used with an **MV** Series Internally Vented Retractable Bulk Loading Spout and/or **MFPV Flattop™** (4) way spout positioner, **MSPV** or **MRSPV Roundabout™** Internally Vented Horizontal Spout Positioner or **Articuloader™** Loading system this module provides the user with the best technology available for dust free loading of dry bulk commodities and at an economical cost. The **MIDWEST Compaculoader™** places the internally vented spout and/or positioner under a negative pressure or vacuum reducing or eliminating fugitive dust when loading dry dusty bulk cargo into enclosed trucks or railcars.

DESCRIPTION: The **MIDWEST Compaculoader™** I Dust Free Loadout System is designed to meet loading requirements for most fine, granular or lumpy cargo. The **MV16**, **MV22** or **MV30** Series Retractable Loading Spout allows the operator to raise or lower the discharge of the spout as vehicle traffic passes under the silo or loading point. When used with the single direction positioner or popular multiple direction **Roundabout™** positioner, the loading operator no longer is required to walk on the truck or railcar top to position the spout discharge into the vehicle if the vehicle is not centered under the spout. This **Compaculoader™** I system with appropriate spout positioner provides added safety for the loadout operator and increases vehicle traffic through the loading station by up to 50% if used efficiently. There is also no plugged dust piping to clean as the closed system places the vehicle and the **MIDWEST** loading system under a vacuum which is maintained during loading. Fugitive dust is withdrawn up and into the **Compaculoader™** I filter module. Dusty air is filtered through filter cartridges with only clean air being discharged from the **Compaculoader™** I clean air fan. Dust and cargo trapped on the filter media is automatically purged off and is recycled back into the vehicle being loaded. There is no loss of cargo to the environment, plant housekeeping is reduced and vehicles usually require little or no cleaning after loading is completed. The **Compaculoader™** I system is available in top feed modules only for direct withdrawal from a bin, silo, or at the discharge of an **Articuloader™** loading system. For hopper feed applications or both top and hopper (**Airflo™** Air Gravity Conveyor) feed, refer to **Compaculoader™** II and **Vaculoader®** top and hopper feed filter module Technical Specifications and Sales Drawings.

MODEL **MCL** I /TC SERIES TOP FEED ENCLOSED AND OPEN VEHICLE LOADING SYSTEMS

FILTER MODULE: Combination cast aluminum precision machined and heavy molded high density AR polymer construction reduces construction cost. Top access door with **Camloc™** "T" handles allows quick inspection of inside clean air plenum without use of tools. **Compaculoader™** I Filter Module can be installed using support structures attached to the top of the clean air plenum.

Air purging system with filter purging controls and clean air fan included. Air compressor and drier package available as an option. **Compaculoader™** I Filter Modules available in optional materials of construction, e.g.; Class IA, II, III, IIIA, IV and VA. Consult factory for details or for additional information.

FILTERS: Pleated **Polyflex™** "V" pleat filter cartridges are standard in this series **Compaculoader™** I and are furnished with **Spunbond™** filter media as standard, other media available including Gortex type PTFE and Nomex high temperature teflon coated filters. Metal filter parts are galvanized or optional stainless steel as required for corrosion resistance or food grade applications. (specify). Consult factory for other media. Filters are removable for inspection from exterior of clean air plenum.

PRODUCT INLET: The **Compaculoader™** I Filter Module includes flanged top feed product inlet for interfacing with **MIDWEST Airflo™** Air Gravity Conveyor, MRWV 250, 300 or 350 series 90 degree pneumatic silo withdrawal valve or **MIDWEST** sliding knife gate.

PRODUCT VENTURI: **Compaculoader™** I Venturi controls the product as it falls through system to **MIDWEST** spout positioner or direct to **MV** Series Retractable Bulk Loading Spout. Refer to optional materials of construction or consult factory. Venturi sized for each application, loading rate throughput is based on 60 PCF fines with a consistent feed rate and entry free fall velocity of product into the venturi of 12 FPS. Refer to materials of construction available.

CLEAN AIR FAN: Available in air withdrawal capacity of 500, 800, 1000, 1250, and 1500 CFM. Cast aluminum alloy fan housing standard, includes direct drive motor with static and dynamically balanced cast aluminum machined impeller.

FILTER PURGING SYSTEM: Automatic sequential filter purging system includes factory adjusted timed compressed air sequential purging of filters and pressure differential gauge. NEMA 4X controller is located on side of the filter housing. Heavy duty 1" NPT pilot operated purging valves and air accumulator included. Air purging system prepiped and prewired as standard. Contact factory for mill and chemical duty and/or **explosion proof (XP) electrics.**

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)	Food Grade Products (Same as class III with 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: Compaculoader™ I modules are factory assembled and tested prior to shipment. Consult factory for module stack up drawings and drawings for other MV internally vented system modules, i.e.; MV Series loading spouts, positioners and other internally vented components.

ESTIMATED MECHANICAL FIELD ERECTION: One (1) work day (16 man hours) after existing equipment has been removed and new equipment prepared for installation. Power lifting equipment and safety precautions recommended.

ELECTRICAL INSTALLATION: (4) hours estimated with power within 10 ft.

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

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

OPTIONS AVAILABLE:

PREWIRING: Purging controller prewiring is included as standard. Optional prewiring of positioner (if applicable), and retractable

bulk loading spout including all accessories is available. Refer to individual, MIDWEST Technical Specifications for details or contact factory. Prewiring of electric motors to common junction box also available.

AIR COMPRESSOR DREYER: Complete 80 to 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 Compaculoader™ I and air vibrator system. Consult factory for air volume required for specific application. Specify if motor starter and drier control or vented enclosure is required.

FILTER REGULATOR, GAUGE: Available for installation on side of Compaculoader™ I to supply filter purging system with properly regulated compressed air.

ACCESSORIES AVAILABLE:

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

AIR VIBRATOR KIT: Two (2) piston type air vibrators located on sides of the Compaculoader™ I hopper to vibrate loose product from the inside surfaces of the hopper during or after loading. Normal operation is for operator to raise spout discharge 1" above hatch (enclosed vehicle loading) and engage vibrator system with Compaculoader™ I fan running. Vibrators are controlled by a 120 VAC NEMA 4 solenoid valve located on the top of the unit near the compressed air accumulator for accessibility. One solenoid valve is capable of servicing the Compaculoader™ I, positioner (if applicable) and the MV Series Bulk Loading Spout. Air filter/regulator recommended as air vibrators operate at peak efficiency regulated to 6 CFM @ 45 to 80 PSI. Vibrators (two standard, four available), tubing and fittings available as a kit or factory installed if prewiring option is purchased.

REGULATOR - LUBRICATOR: Pneumatic, for vibrator system, .5" (1/2") NPT or .75(3/4) NPT as determined by MIDWEST.

Technical specifications are subject to change without prior notification

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

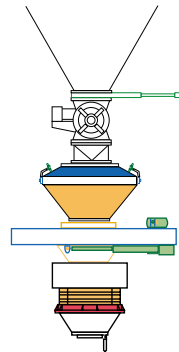
EQUIPMENT OUTLINED IS AVAILABLE. CONSULT MIDWEST FOR DETAILS.

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LTD



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TECHNICAL DATA

COMPACULOADER™ I MCL SERIES

INTERNALLY VENTED LOADING SYSTEM MODULE

BULK MATERIAL DATA

PRODUCT	TEMP	DENSITY (PCF)

SCREEN ANALYSIS

[] %	[] IN/MM	[] %	[] IN/MM
[] MICRONS	MOISTURE CONTENT		[] %

MODEL	CFM and Air to Cloth Ratio					NET WEIGHT WITHOUT FAN
	500	800	1000	1250	1500	
<input type="checkbox"/> MCL 168 (1.0)c	2.9					667 LBS. (248) KG.
<input type="checkbox"/> MCL 256 (1.5)c	1.9					667 LBS. (248) KG.
<input type="checkbox"/> MCL 344 (2.0)c	1.4	2.3	2.9	2.8		667 LBS. (248) KG.
<input type="checkbox"/> MCL 432 (2.5)c	1.5	1.9	2.4	2.8		667 LBS. (248) 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" NPT
- Air Vibrator Kit: [] Vibrators (2 or 4)
- Solenoid Valve NEMA [] Volts [], .5" NPT
- Pneumatic Regulator, Lubricator (Vibrators) .5" NPT

Options

- Prepipe "A" Purging System, Filter Regulator
- Prewire, Prepipe "B" (2) Vibrators
- Prewire, Prepipe "C" (4) Vibrators
- Motor Prewiring: NEMA [] for [] Motors, Fan Side
- Motor Controls (MCC) NEMA []
- Photohelic Pressure Differential System, NEMA []
- 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 COMPACULOADER™ 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.*