

TECHNICAL SPECIFICATIONS
MIDWEST International INTERNALLY
 VENTED **ARTICULOADER™ II**
 RAILCAR LOADING SYSTEM

TO **500 TPH***

ARTICULOADER™ II A
 WITH **VACULOADER®** or
COMPAULOADER™ DUST
 CONTROL SYSTEM

SERIES

MIAL

TECHNICAL SPECIFICATIONS

ARTICULOADER™ II A

Railcar Loading System

DESIGN CRITERIA: The equipment described in this technical specification is designed to load dry dusty aerated products into enclosed railcars and also enclosed trucks at a throughput capacity up to 500 STPH of 60 PCF aerated bulk products and will reduce or eliminate dust in compliance with most federal and local EPA regulations. This equipment is considered by most agencies to be the Best Available Current Technology (BACT) in terms of dust control and will insure 0.02 grains per CFM maximum discharge from the clean air fan.

DESCRIPTION: The MIDWEST Articuloader™ II dry bulk loading system is designed for loading enclosed railcars with open hatches on the center line of the railcar and also side located hatches in most applications without moving the vehicle. The Articuloader™ II loading system consists of two traveling bridge cranes with (1) crane traveling parallel to the railcar and (1) crane traveling across the vehicle to allow loading of most railcar compartments regardless of hatch location without moving the car. Both cranes are powered to allow remote positioning by an operator located on the loading platform. The Articuloader™ II loading system consists of (2) double articulating Airflow™ Air Gravity Conveyors to allow maximum coverage over the top of a vehicle. A Multiflow™ Screw Conveyor feed system is also available for products which will not convey on an Airflo™ Air Gravity Conveyor system. For dust control the Articuloader™ Vehicle Loading System consists of a Vaculoader® or Compaculoader™ integral dust filter module with a Paragon™ Series MV22 or MV30-EV Retractable Bulk Loading Spout. This Articuloader™ II system is available with a side park optional feature which can reduce silo height of up to 10 feet yet still provide railcar clearance for movement of vehicles through the loading station.

MIDWEST ARTICULOADER™ II A

Railcar Loading System

MAIN CRANE ASSEMBLY: Structural steel ASTM: A36 construction includes 1HP TEFC drive with (4) cast machined 8" diameter flanged wheels, (2) powered, (2) following, and electric Softstart™ system to control wheel slippage. Main crane assembly designed to travel on (2) ASCE 40 lb. rails parallel to loading station. Consult factory for horizontal travels available.

SECONDARY CRANE: Structural steel ASTM: A36 construction includes 1 HP TEFC drive with (4) cast machined 8" diameter flanged wheels, (2) powered, (2) following, and electric Softstart™ system to control wheel slippage. Secondary crane assembly travels on top of main crane assembly and travels across the loading station 6'-0" to allow loading of side hatch railcars.

ARTICULATING AIRFLO™ AIR GRAVITY CONVEYOR: Constructed from .25" thick A36 plate includes product chamber 16" wide with 3/8" (.375) thick polyester aeration media over 1x4 bar grating to eliminate sagging of media and perforated steel plate as a wear surface to eliminate ballooning of aeration media. Articulating pivot points include (3) heavy hollow crane bearings to allow smooth articulation along full travel length and cross travel. Airflo™ sections include (2) Sealmaster™ cast aluminum product chamber inspection ports, each Airflo™ section and (1) aeration chamber inspection port.

DUST EVACUATION SYSTEM: MIDWEST Vaculoader® and low profile Compaculoader™ dust evacuation modules available allowing aerated product to flow into the top inlet and through the filter module and Paragon™ Bulk Loading Spout. Refer to individual Vaculoader® and Compaculoader™ Technical Specifications and CAD drawings for details of construction.

PARAGON™ RETRACTABLE BULK LOADING SPOUT: Standard supply with Articuloader™ II railcar loading system includes robust MV30-EV Series or alternate MV22-EV Series with useful vertical travels up to 12 feet. Refer to appropriate Technical Specification and CAD drawing for details of construction.

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: Both main crane and secondary cranes shipped mechanically preassembled and shipped diagonally on open bed vehicle to avoid oversized load. Vaculoader® or Compaculoader™ and Paragon™ Series Bulk Loading Spout Shipped in individual skids or boxes on skids.

ESTIMATED MECHANICAL FIELD ERECTION: Two (2) days estimated using (5) personnel and appropriate lifting equipment.

ESTIMATED ELECTRICAL FIELD WIRING: Two (2) days estimated with power available within 7 feet for (2) electrical personnel. Note: Estimate could change depending upon electrical options and accessories selected.

FIELD SUPERVISION: Erection and/or start up assistance by **MIDWEST** is available 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

VACULOADER®: Refer to individual Technical Specification.

COMPACULOADER™: Refer to individual Technical Specification.

UTILITY FESTOONING: Main and secondary crane assembly includes power and control cable and pneumatic hose complete with track, trolleys, and NEMA 4X junction boxes.

MOTOR CONTROLS (MCC): NEMA 4, 4X or NEMA 7/9 (XP) available. Specify electric motors required other than those provided by **MIDWEST**

OPERATOR CONTROLS: Control panel or pendant available. Specify panel wall or floor mount and/or operator pendant. Electrical functions available other than those required for **MIDWEST** equipment.

SIDE PARK FEATURE: Allows secondary crane with **COMPACULOADER™** to be shuttled to side and out of railcar right of way resulting in up to 10 feet less of silo height.

AERATION BLOWER: For **Airflow™** conveyor aeration. Available with 5 PSI pressure, inlet and outlet sensors, pressure relief valve, pressure gauge, high pressure signal, low pressure signal, mounted on skid for isolated installation

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.

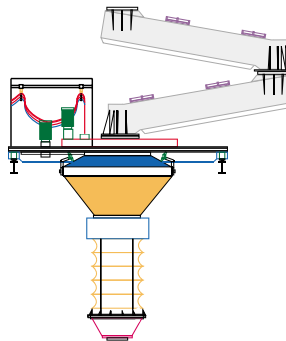
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TECHNICAL DATA

MAL PARAGON™ SERIES ARTICULOADER™ II “A” and “B” RAILCAR LOADING SYSTEM

Loading Capacities

PRODUCT	TEMP	DENSITY (PCF)	LOAD RATE STPH	MTPH

SCREEN ANALYSIS

% Microns Blaine

HORIZONTAL TRAVEL

FT. x FT. / mm x mm

WEIGHTS IN POUNDS

MODEL	Travel	Empty	Operating	Plugged
<input type="checkbox"/> MAL 1800-7600V	6ft - 25ft	7147	9046	13571
<input type="checkbox"/> MAL 1800-7600C	6ft - 25ft	6797	8696	13221
<input type="checkbox"/> MAL 1800-9500V	6ft - 31ft	7547	9446	13971
<input type="checkbox"/> MAL 1800-9500C	6ft - 31ft	7195	9096	13619

Standard shipping container shipped completely assembled and inverted, strapped to wood skid.

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 IFG **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/IFG **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.

NOTE: All standard fastenings are zinc plated to resist surface rust. Stainless steel and grade 8 high strength fastenings are available. Standard loading spout lift rings are cast 6061T6 machined aluminum alloy and are unpainted. Cast malleable steel (painted) and cast stainless steel available. Contact factory for (NSP) cost.

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.

Type of Product Feed, Type “A” Articuloader™ II A System

- Airflow™ conveyor IN. Wide mm IN. High mm Media Square Feet
- Aeration Blower ACFM PSIG Volt PH Hz

Type of Product Feed, Type “B” Articuloader™ II B System

- Multiflo™ Screw Conveyor IN Dia. mm

Primary Crane (lower)

IN. (mm) Wheel Centers

Secondary Crane (upper)

IN. (mm) Wheel Centers

- Side Park Feature Gallon Hydraulic System PSIG HP Volt PH Hz

Integral Dust Control Systems Available

- Vaculoader® Dust Control System and Equipment Drawing Model MVL CFM Ratio
- Compaculoader™ Dust Control System and Equipment Drawing Model MCL CFM Ratio
- Paragon™ Series Retractable Loading Spout Model , Class Usefull Vertical Travel HP, PH, Hz NEMA Electronics
- Utility Festooning: Upper Crane Power Control Pneumatic
- Utility Festooning: Lower Crane Power Control Pneumatic
- Motor Control Cabinet (MCC) NEMA Size Reversing Starter Non Reversing Starter Size
- (MCC) Shipped Loose
- (MCC) Installed on Secondary Crane
- Other

Air Withdrawal Guide

Consult Midwest for verification MAL Paragon™ Series Articuloader™ II Railcar Loading Station

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