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|                                                                                   | <b>Guide Specification For<br/>MECHANICAL / 4-POST</b> |

**GUIDE SPECIFICATIONS FOR  
VERTICAL RECIPROCATING CONVEYORS (VRC)  
(MECHANICAL, 4-POST)**

**PART 1 - GENERAL**

**1.1 RELATED WORK**

- A. The following sections contain preparatory requirements (by others), to receive the VRC specified in this section.
1. Division 3: "Concrete Reinforcement", provide smooth and level slab/pit to support loads indicated by VRC manufacturer.
  2. Division 16: "Electrical", provide permanent power to operate the VRC through a lockable fused disconnect box located within ten feet of the VRC unit.

**1.2 SYSTEM DESCRIPTION**

- A. Furnish and install a Vertical Reciprocating Conveyor.
1. Type of Vertical Conveyor, Mechanical 4-Post V.R.C. Travel up to 100' (actual must be specified). Capacity 6,000 - 20,000 lbs. (actual must be specified). Multiple level operation (number of levels must be specified if more than one). Carriage size to 16' x 16' (actual must be specified).

**1.3 REFERENCES**

- A. ANSI/ASME B20.1 - (Current Addition) safety standard for conveyor and related equipment.
- B. NEC - (Current Addition) National Electric Code.
- C. ASTM A36 - Structural Steel.
- D. ASTM A325 - High strength bolts for structural steel joints.
- E. AWS D1.1 - Structural Welding Code.

**1.4 QUALITY ASSURANCE**

- A. **Equipment** should be designed, installed and guarded in accordance with References 1.3.
- B. **Code Compliance:** Manufacturer guarantees that should this equipment not be able to be used due to applicable Federal, State or Local Codes, the equipment will be removed and all money paid refunded, including freight and installation.
- C. **Installer:** Company specializing in performing the work of this section and approved by the VRC equipment manufacturer.

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**D. Warranty:**

1. The supplier shall warrant the VRC materials to be free from manufacturing defects beginning after completion of installation.
  - a. Structural Components - Five years parts and labor.
  - b. Non-Structural Components - One year parts and 90 days labor.
2. Warranty does not cover damage caused by conditions beyond the control of the supplier or installer; such as abuse, negligence or failure to operate or maintain properly.

**1.5 SUBMITTALS**

- A. Submit (3) brochures of manufacturer's product data.
- B. Approval Drawings: Provide approval drawings detailing specific application including plan and elevation views with dimensional information, equipment specification and guarding requirements.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to the following:
  1. **Wildeck, Inc.** (P.O. Box 89, Waukesha, WI 53187).

**2.2 APPLICATION DATA**

- A. **LIFTING CAPACITY** \_\_\_\_\_ pounds.
- B. **CARRIAGE SIZE** \_\_\_\_\_" wide x \_\_\_\_\_" long. The carriage will have a steel deck plate with rails on non-operating ends and safety chains on operating ends. The carriage shall be guided between four structural steel members, each a minimum of 6" in width and suitably designed.
- C. **LIFTING SPEED** 19 FPM (nominal).
- D. **VERTICAL RISE** \_\_\_\_\_ ft., \_\_\_\_\_ in..  
**RAISING AND LOWERING** of the carriage shall be provided by lift chains and sprockets on a common shaft powered by a helical gear reducer assembly.  
**UPWARD/DOWNWARD TRAVEL** of the carriage will begin by depressing a control button which activates the motor reducer in

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the proper direction and releases the brake. As the shaft and sprockets rotate, the lift chains travel up or down moving the carriage until it trips the limit switch at the desired floor level. At this point the motor shuts-off and the brake engages.

- E. **UNCONTROLLED DESCENT** will be prevented by four carriage safety cams attached to the lift chains. In the event a chain breaks or goes slack, the safety cams will lock the carriage in place.
- F. **ELECTRICAL CONTROL** push-buttons and emergency stop switches will be provided at each operating level. These controls, as well as all limit switches on the lift and gates operate on 110/24 volts to increase user safety. The step-down transformer, reversing motor started and field wiring terminal block is included in the main control panel. The control system will provide; NEC/UL Motor Overload Protection, Adjustable Maximum Capacity Sensing, Inrush Bypass Timing, and Maintenance Control. The control system will include a graphic operator interface and will provide continuous system diagnostics with an event history. The control panel must be manufactured to and labeled UL-508a.
- G. **OVERLOAD/JAM PROTECTION** will be of a force-limiting style so as to provide maximum safety to operators, maximum cargo protection, and minimize wear-and-tear of the equipment. Protection to be provided by a solid-state device that will detect the power level required to lift the empty, partial or fully loaded carriage, and limit the lifting mechanisms power output to that level. Sensors that only detect when full cargo capacity has been exceeded are not adequate or acceptable for this application.
- H. **CHAIN SENSING** switches monitor the tension of the chain and will shut down the unit in the event of a chain failure.
- I. **FAIL-SAFE BRAKING** is provided by the spring set disc brake which releases only when the motor is powered-up. In the event of a power failure, the brake will automatically engage.
- J. **GUARDING** on all sides of the VRC, which do not coincide with solid walls, shall be by safety enclosures a minimum of 8' high, consisting of material which will reject a ball 3/4" in diameter. Access for loading and unloading shall be by gates which are electrically and mechanically interlocked with carriage movement. The interlock shall positively prevent a gate from being opened unless the carriage is at the level and shall also prevent carriage movement if any gate is not fully closed and locked.
- K. **RIDING** the conveyor is forbidden and signs shall be furnished with the unit so stating. These signs shall be posted at each point of access and each point of operation.
- L. **FINISH** on the lift, gates and enclosures shall be coated with one coat of manufacturer's standard paint: **Two – Part Polyurethane.**  
Color: Wildeck Gray with Red carriage

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### **2.3 FABRICATION**

- A. Fabrication of materials will comply with dimensions, profiles and gauges (thickness) shown on the approval drawings and, if not shown, will consist of the VRC manufacturer's standard products.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine the construction and service requirements of related work by others for compliance with specifications in this and other sections. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Coordination: (General Contractor/Owner) to verify approval drawings prior to fabrication. Any obstructions not indicated on the construction drawings that may affect the design of the VRC shall be reported to the manufacturer.

### **3.3 INSTALLATION**

- A. Erection of the VRC and accessories shall be in accordance with the specifications; instructions contained in the erection manual and approved drawings.
- B. Installer to provide manufacturer's "Installation Operation and Maintenance Manual" to the end user upon completion of his scope of work.

### **3.4 CLEANING**

- A. Clean up all unused materials and debris caused by the work of this section, keeping the premises clean and neat at all times.

Vertical Lift Products  
Manufactured by  
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