

RJST Single Frame Vertical Reciprocating Conveyor with Telescopic Frame

1. Scope

Furnishing and complete turnkey installation of Vertical Reciprocating Conveyor including supply of all materials and labor. All workmanship shall be performed in a first class manner.

Lift contractor is required to perform the work of this section as specified herein. The work shall include:

- A. Vertical Reciprocating Conveyor
- B. Safety landing enclosures with Electro-mechanical interlock gates or shaftway walls and fire door if required.
- C. Conveyor controls, safety devices, signage and training
- D. Obtaining installation permits, if required

2. Related work specified elsewhere

The contractor shall be required to coordinate the related work of other sections with the work of this section where applicable to ensure safe responsible workmanship and expeditious performance.

3. Work not included

- A. Foundation and concrete slab.
- B. All site preparation and shallow pit of proper depth, if called for.
- C. Approved hoistway, properly enclosed with fire rated doors appropriately labeled, if required, by building code.
- D. Removal of obstructions as may be necessary for proper installation of the lift
- E. Pre-wired power disconnect suitably sized and located per NEC code requirements.
- F. Electric power for installation, operation, testing and adjusting as coordinated with lift contractor

4. Quality Assurance

Equipment shall be designed, installed and guarded in accordance with ASME/ANSI B20.1 Safety Code for Conveyors and Related Equipment (current edition), National Electric Code, OSHA codes, and State & Local Codes where applicable

5. Submittal Details

- A. Provide manufacturers literature with quotation
- B. Prior to fabrication successful bidder shall provide D-size CAD approval drawings depicting this specific application including plan view, front view and one side view of

the Vertical Reciprocating Conveyor with elevation and dimensional information. Landing enclosures and Electro-mechanical interlocked gates, when ordered, shall be shown on separate drawings.

- C. Manufacturers standard installation instructions, schematic, and as built drawings of the Vertical Reciprocating Conveyor, landing enclosures and separate drawings of each gate shall be sent with the equipment. A separate, but duplicate set shall be sent directly to the lift contractor.
- D. Two copies of manufacturers standard owners manual with complete parts list, recommended spare parts list, maintenance checklists, and trouble shooting information shall be provided.
- E. Provider of sidewalk type door for upper landing must also provide approval drawing prior to fabrication.

6. Manufacturer

Vertical Reciprocating Conveyor shall be Model RJST as manufactured by Giant Lift Equipment Manufacturing Company, Inc, 185 Lafayette Road, North Hampton, NH 03862 (phone 800-52-GIANT, fax 603-964-9263) or approved equal by a manufacturer with not less than forty (40) years successful experience and qualified in the design and fabrication of Vertical Reciprocating Conveyor model quoted. Bidders quoting alternate manufacturers must submit complete manufacturers literature and specifications not less than 10 days prior to bid date. Owner or the architect as an agent of the owner reserves the right to reject any bid using alternate manufacturers.

7. Warranty

The lift contractor in conjunction with the manufacturer shall warrant the equipment against defects and workmanship for a period of one year from the date of successful completion.

The warranty itself is not intended to take the place of normal maintenance service, nor shall it be construed to mean that the lift contractor is required to provide free of charge service for periodic lubrication or adjustment due to normal use. The lift contractor is not required to provide free of charge repair arising in whole or in part due to abuse, misuse, alterations, acts of god, improper power supply or lack of an established proper maintenance program which shall be the responsibility of the owner.

The lift contractor must make available to the owner a comprehensive safety maintenance program at additional cost to facilitate optimal safe performance and proper function of the equipment.

8. Application: Material only - no personnel

- A. Drive: Electric hydraulic
- B. Rated capacity: pounds
- C. Platform size:

- D. Non-access side(s) shall be guarded with a minimum of a 48" high heavy expanded metal ; a minimum of two zinc plated safety chains with snap hooks shall be supplied on access side(s); tread plate deck; bow type openers
- E. Raised height:
- F. Lowered height:
- G. Travel:
- H. Mounted in existing
- I. Lift speed: FPM (10-15 typical)
- J. TEFC motor HP
- K. Number of levels served: 2
- L. Primary power: 208-230/460/3/60 (to be field verified)
- M. Secondary control voltage: 24 VAC

9. Vertical Reciprocating Conveyor design data (A-M)

All final engineering shall be of computer aided engineering design. The Vertical Reciprocating Conveyor framework and carriage platform shall consist of ASTM structural steel only. No formed steel shall be used.

A. Framework

The main framework shall consist of a structural steel back frame and integral mast uprights with a base frame and telescopic frame. Framework shall be engineered proportionate to capacity and resistance to twist and deflection. Lift frame to be braced and supported to shaft walls by installer.

B. Carriage

Carriage deck shall be supported underneath with structural steel support arms sized by the manufacturer to be structurally sound and resist permanent deflection. The platform deck shall be a minimum of 1/4" thick hot rolled plate electrically welded to support arms.

C. Guides

Carriage support arms with computer designed wheel center dimensions utilize machined cold rolled steel axles and four hard alloy flanged guide wheels equipped with press fit sealed roller bearings for precision unified guidance within framework upright channels. Platform also to be equipped with a side thrust roller device for unbalanced loads consisting of four anti-friction bearing load rollers installed behind the carriage backplate perpendicular to the guide wheels to transmit unbalanced forces to the rails and keep the carriage level.

D. Drive

Raising and lowering of the carriage shall be provided by one solid 4" heavy duty single acting positive displacement type turned ground and polished steel ram. Ram shall be

manufactured by the Vertical Reciprocating Conveyor manufacturer, not a third party sub and shall include both stabilizing and stop rings. The ram casing shall be cold drawn seamless type of uniform thickness with an externally fitted bronze gland nut. Packing type to be inverted V-type stacked in a stuffing box to accommodate pressure surges. The stuffing box shall be so designed to allow gland nut to be adjusted and the packing to be replaced externally without removing the ram from the cylinder. Flow valve coupled to piston to provide positive limited controlled flow under lowering or failure in the hydraulic system.

Lifting force shall be through two single strand, hardened alloy, ANSI roller chains. Chains attached at one end at outer edges of lifting platform to provide extra loading stability and are mounted over sealed ball bearing chain load rollers carried in an equalizing ram cross head. Chains are attached at the other end to the piston utilizing adjustable chain anchor bolts through solid steel anchor blocks.

E. Power unit

The power unit shall be remote on a separate stand and consist of panelized motor, pump, and reservoir tank.

- Electric motor shall be unidirectional totally enclosed fan cooled squirrel cage induction type which operates only to lift the loads.
- Pump shall be specially designed gear or vane type powered by the electric motor transmitted by heavy duty transmission belt and keyed pulleys
- Hydraulic reservoir shall be all seam welded sized to a capacity allowing heat dissipation and baffled to prevent splashing. Tank cap to include mushroom type breather filter.
- Normally closed solenoid prevents platform from falling in the event of power failure.
- Power unit must also include Y-strainer, overload pressure relief valve, check valve, and manual lowering valve which in the event of power failure can be opened to lower the platform.

F. Falling Platform Safety Device

Carriage platform to be equipped with a Falling Platform Safety Device mounted on lifting platform, self-generating type cams with machined, hardened serrated teeth which rapidly engage the frame uprights holding the platform carriage should the lifting chains become slack for any reason. Each lifting chain shall have a falling platform safety cam independent from each other. Vertical Reciprocating Conveyor manufacturers quoting models without a Falling Platform Safety Device will be rejected.

G. Controls

Control panel to be designed, assembled and bench tested by an employee of the Vertical Reciprocating Conveyor manufacturer - no third party subcontract. Control panel to be

internally pre-wired to a terminal strip which corresponds with the diagram provided. Control panel to be shipped loose and to be field installed near customers disconnect per NEC code and shall be enclosed in a continuous hinged NEMA 12 UL labeled cabinet. Panel to include motor starter with auxiliary contact and adjustable thermal overload relay. Overload to have test, automatic reset and manual reset settings. Control panel to include step down transformer for secondary control circuit.

Controls shall be constant pressure and include one upper push-button station with full call and send capability. Push-button station shall be shipped loose (surface mounted type) to be field installed at the upper landing enclosure guarding in a location so they can not be actuated by a person on the platform. Push-button station shall include key (on/off) and red emergency stop mushroom cap operators that must be manually reset at the location where the stop was initiated in order to resume operation.

Audible in motion alarm with strobe light feature shipped loose to be mounted and wired at job-site by installer.

H. Lower Landing Enclosure Guarding

If no lower shaftway supplied, all landings shall be guarded to at least 7' high on all contiguous sides with material capable of rejecting a 2" diameter sphere. Access points to be guarded with Electro-mechanical interlocked gates. The electrical function of the interlock shall render all controls inoperable when any gate is open. The mechanical function of the interlock shall prevent the gate from being opened unless the platform is present at that level. Upper level to be guarded by weather proof bi-parting hinged sidewalk door.

I. Finish

All equipment supplied shall be furnished with one coat of oxide primer and one coat of manufacturers standard finish enamel as selected by the architect.

J. Safety Signage

Vinyl self-adhesive signs shall be provided which read "Riding the conveyor is dangerous & strictly forbidden to all personnel". The signs shall be safety yellow background and be printed in red ink for high visibility. A minimum of one sign on the carriage platform and at lower landing point of access shall be provided. It shall be the owners responsibility to maintain proper signage throughout the life of the equipment.

K. Installation

Installation shall be professionally performed by an installer approved by the manufacturer having not less than 5 years of experience installing Vertical Reciprocating Conveyor's and similar equipment. Installer shall have visited the job site prior to commencing work to

check job conditions. Installer shall follow the manufacturers instructions for proper installation of the equipment and safety enclosures and shall verify that the equipment is properly installed and guarded per ANSI/ASME B20.1 code to ensure safe efficient operation. Installer shall functionally test the operation of Vertical Reciprocating Conveyor and gate interlocks upon completion.

L. Training

Only trained personnel shall be permitted to operate the conveyor. Installer shall provide one brief, but comprehensive training session for the owner and/or the owners representatives. It is the responsibility of the owner to provide similar training to any potential operators of the equipment.

M. Maintenance

It is the responsibility of the owner to put in place an established maintenance program to ensure safe operation of the equipment and the protection of personnel. All maintenance must be performed by qualified personnel. Maintenance safety check list is to be supplied by a qualified installer at the time of completed installation.