

# Vialift Motorized Rigging Specification

## 1.01 SELF-CLIMBING HOIST

### A. General

1. The self-climbing hoist shall be the Vialift as manufactured by I. Weiss. The Vialift is specifically designed for lifting loads in theatres, studios, churches and other places of public assembly. Its required components shall be integrated into its structure. It shall be available in variable lengths and traveling heights. All components shall be designed to properly support their intended loads at an 8:1 safety factor.
2. The hoist shall incorporate a sturdy frame with all moving parts enclosed and preinstalled with suspension points, battens, horizontal lighting strips, dimmers, etc... The lift shall have (4) 1/8" diameter 7x19 galvanized cables to attach to building structure suitable for 500 lbs point loads, on both ends of the hoist.
3. Characteristics: The hoist shall have the following:
  - a. Speed: 20 feet per minute
  - b. Travel: 10'-50' (varies with length of hoist)
  - c. Lift Lines: (4) @ 1/8" diameter 7X19 galvanized utility cable
  - d. Units shall be wired for 208 VAC, 60 Hz power, without the need for transformers.
4. The winch shall utilize a power transmission system to a 5 ton machine self locking screw jack with a traveling nut. Attached to the traveling nut shall be wire rope sheaves that act as the moving block. Secured to the non motor end of unit, additional sheaves create a 4:1 lifting ratio as the traveling block moves along the screw shaft separating the cables. Electrical components including motor, shall not move relative to the fixed frame of the winch, in order to prevent failure of wiring, connections and other components.
5. Winches shall not be used to lift humans, or loads in excess of 500 lbs.

### B. Mechanical

1. The gearbox, screw jack and traveling nut shall be an integrated unit from a single manufacturer with a 5-ton load rating including a redundant 5-Ton safety nut.
2. The gear reducer shall employ helical gearing. The gear case shall be cast iron for protection against shock damage and to provide noise reduction.
3. Screw Jacks shall have lifetime lubrication.
4. Motors shall be totally enclosed, fan cooled (TEFC) per NEMA MG1. Motors shall have a minimum service factor of 1.0.
5. All load bearing sheaves shall have a minimum 26:1 D:d ratio to meet the wire rope manufacturer's recommendations. Sheave grooves shall be deeper than the cable diameter for cable protection. The sheave shall be equipped with a minimum 1/2" diameter steel shaft, needle bearings.
6. Hoists shall have positively actuated limit switches for normal end of travel indication. These switches shall open the control circuit in the drive or starter to stop any further movement in the direction of travel.
7. An override mechanism to allow resetting of the over travel limits shall be included.
8. All pipe battens shall be 1-1/2" nominal diameter, schedule 40 steel pipe. All joints shall be spliced with 18" long sleeves with 9" extending into each pipe and held by two 3/8" hex bolts and lock nuts on each side of the joint.

### C. Electrical

1. The electric devices supplied with the hoist shall be ETL Listed and include grid iron junction box (mounting above to building structure), Flat festoon cable sized for all hoist power/control and all lighting circuitry. This festoon system shall be supplied with properly sized screw pin connectors for ease of installation. Attached to the far end of the festoon cable is a hoist-mounted distribution cabinet for breakout of hoist circuits and

- lighting circuitry. The motor starter cabinet shall contain a power disconnect switch for maintenance, a 4-cam limit switch used for primary position control with secondary safety positions, line contactor, reversing contactors, and a thermal overload switch. All of the above devices shall be ETL Listed or better.
2. Raceways: standard lighting raceways shall include extrusion housing with flush mount receptacles. Raceways shall be ETL Listed or Better
  3. Dimmer sticks, and custom configurations shall be provided per the specified direction.

## 1.02 CONTROL

### A. General

1. The control system shall be specifically designed for the Vialift hoists. It shall provide a level of reliability, accuracy, and integrity appropriate for overhead lifting in places of public assembly, and shall be ETL Listed or better.
2. The controller shall be available in wall mounted or free standing configurations. The free standing unit shall be adjustable to meet ADA accessibility requirements as well as allowing operation with an operator standing upright.

### B. Hoist Control

1. The hoist control section of the operator's panel shall include "Up", "Down", and "E-Stop" pushbuttons in a pre-manufactured handheld pendent similar to Springer Controls.
2. For operator convenience, (3) types of operation shall be available:
  - a. – Single Hoist Control Panel (SHCP): Keyed on/off power switch with power indication light. 25' cord hand-held pendent with Up/Down "deadman" push buttons and red mushroom head E-Stop button. Sole operation of hoist up/down movement by remote plug-in hand-held pendent. Control station to have a back screened Lexan label with black field and white text.
  - b. – A Multi-Hoist Control Panel (MHCP): Keyed on/off power switch with power indication light. 25' cord hand-held pendent with Up/Down "deadman" push buttons and red mushroom head E-Stop button. Selection of hoists using toggle switches that illuminated when activates unit. Sole operation of hoist up/down movement by remote plug-in hand-held pendent. Control station to have a back screened Lexan label with black field and white text.
  - c. – Custom Controls as specified (i.e. load sensing and positioning feedback)

### C. Operation

1. The control panel shall include lockout key for safety of operation.
2. Actual pushbuttons shall be provided for commencement and control of motion. For safety, movement shall only be permitted by "Deadman" operation so that the operator must be at the hand-held pendent and pressing a button for motion to continue.
3. A mushroom head "EMERGENCY STOP" button, utilizing a failsafe circuit conforming to NPFA 79 requirements, shall be hard wired to drives, and the resetting of the emergency stop circuit shall not initiate motion.
4. An "ON/OFF" key -operated switch shall be provided to control power to the console, and to act as electrical disconnect for the motors. The system shall not leave the motors energized when turned off. The system shall retain all positions and limits when power is turned off.
5. In custom control systems with a load sensing option, and positioning feedback, stage control panel will have indicator light to display which unit is overloaded. Load information shall be obtained from solid state load cells on the Vialift.

D. Power & Control Wiring:

1. Primary power and control cables shall be provided with each Vialift hoist from the grid iron cabinet. Cables shall be a series of 14x12 festoon cables, with one end factory wired to the winch assembly and other connecting to a grid iron box via screw pin connectors.
2. Control cable shall be provided from the control station to each hoists' grid iron cabinet
3. Each hoist shall receive 208V, 10amp,60Hz service
4. All lighting circuitry shall be terminated to the grid iron box per the requirements of the lighting system

E. Control / Vialift motorized rigging systems are exclusively distributed by:

I.Weiss & Sons Inc	Phone: 888-325-7192
2-07 Borden Ave	Fax: 718-482-9410
Long Island City, New York 11101	<a href="http://www.iweiss.com">www.iweiss.com</a>