



DIVISION 14 45 00

VEHICLE LIFTS(ST 1085 FRA ebright)

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Mobile column lifts.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Concrete: Footings and foundations.
- B. Section 26 05 00 - Common Work Results for Electrical.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage/handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Submit drawings showing full layout of all lifts with dimensions
- D. Operation and Maintenance Manual: Submit Operation and Maintenance manual to include system operation, maintenance and troubleshooting, spare part numbers, drawings and schematics.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The lift company selling the product shall have ISO-9001 certification and the proof of current certification shall accompany the bid.
- B. Installer Qualifications: For warranty validation, installation shall be performed by qualified factory authorized and trained personnel.
- C. Product Requirements:
 - 1. Design Standards and Certification: The lift shall be certified by ETL/Intertek to the ANSI/ALI ALCTV-current edition Standard for Automotive Lifts: Safety Requirements for Construction, Testing and Validation.
 - 2. The drive system shall permit lifting without any pulsation, jerks, or unsteady lifting. Lifting shall be smooth. System shall be comprised of an electrically powered pump, flow control valves, and a fluid reservoir. An electronic/hydraulic synchronization system shall ensure smooth alignment of each lifting assembly based on variances in vehicle weight. A microprocessor shall control all lift movement for ultimate operator safety and convenience. Troubleshooting codes shall facilitate service and repair.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

- A. Manufacturer's Warranty: Lift system shall be warranted for a minimum period of 2 years for parts and 1 year for labor. Hydraulic cylinder shall have a parts only warranty of an additional four years. Guide rollers shall have a lifetime warranty; this extended warranty covers parts only.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable manufacturer: Stertil-Koni USA, Inc., which is located at: 200 Log Canoe Circle; Stevensville, MD 21666; Toll Free Tel: 800-336-6637; Tel: 410-643-9001; Email: [request info \(lifts@stertil-koni.com\)](mailto:request info (lifts@stertil-koni.com)); Web: www.stertil-koni.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 00 26 00.
 - 1. Requests for changes by the contractor on products, materials, equipment and methods of construction required by the contract documents, after the award, shall be considered requests for "substitutions", and shall follow the procedures outlined within the bid documents for substitutions.
 - 2. Any substitution of the specified lift requiring modifications of foundation system detailed will be the responsibility of the contractor.
 - 3. The contractor shall provide for any and all engineering and redesign of foundation system as a result of substitution.
 - 4. Under no circumstances will extra payment be permitted as a result of additional work to accommodate any equipment substitution.

2.2 MOBILE COLUMN LIFTS

- A. Mobile Column Lifts Model ST-1085-FRA(ebright) as manufactured by Stertil-Koni USA, Inc.
 - 1. General Description:
 - a. A lifting system or set (consisting of up to 32 columns) for vehicles shall be composed of interchangeable columns. The size of the set shall be able to be configured by the operator at time of set up without the need to modify the operating system. It shall be possible to operate up to 480 columns within any facility. With a set of up to 32 columns, it shall be possible to operate any single column, a pair of columns, or all columns together, at the same time.
 - b. Each column shall contain its own power supply which consists of two deep cycle (group 31) 12 VDC batteries combined to provide a stable 24 VDC power supply.

- c. The main power shall be fused between the primary power switch and the motor/control circuits to protect against overload.
- d. When fully charged, the on board battery power system shall be capable of 25 lifting/lowering cycles at 100% of lifting capacity and 38 lifting/lowering cycles at 50% of lifting capacity ..
- e. The 24 VDC on board power supply shall incorporate a built in recharging systems with a pictograph on the display so the operator can visually verify charging status.
 - 1) The primary recharging system shall utilize a secondary circuit in the VAC electric motor of the power unit that utilizes the gravitational energy available during the lowering cycle to allow generation of electrical energy and recharging of the batteries.
 - 2) The secondary recharging system shall be a built in 110 VAC battery charger with indicator lamps. The battery charger shall be enclosed within a steel cabinet for protection from damage. The charger indicator lamp shall be easily visible through a sight glass mounted externally in the control cabinet. The indicator lamp shall be illuminated steady red when the system is recharging, green when batteries are fully recharged, and flashing green when the charger is providing a maintenance charge.
- f. The base frame of the lifting column shall be of a rectangular design. The contact pattern to the foundation under the column shall be triangular in design to ensure uniform contact with the lifting foundation.
- 2. Lifting Capacity:
 - a. Each individual column shall have a nominal rated capacity of 18,500 lbs. (8,500 kg).
- 3. Dimensions:
 - a. The achieved lifting height of the column shall be no less than 73 inches (1,854 mm) when measured from the foundation on which the column rests to the top of the lifting fork.
 - b. Column height shall not be greater than 97 inches (2,464 mm) when fully lowered and 143.5 inches (3,645 mm) when the carriage has achieved maximum height.
 - c. Column lifting fork shall be 14 inches in length.
- 4. Tire Size:
 - a. Wheel contact forks shall be adjustable by hand and freely accept tires with rim diameters between R10 and R22.5. The adjustable forks shall incorporate a mechanical locking device to ensure the fork cannot relocate/adjust during use.
- 5. Pallet Jack Mechanism:
 - a. The pallet jack mechanism shall have a gas shock incorporated into its design which shall serve two purposes. The primary purpose of the pallet jack gas shock shall be to serve as a safety mechanism to ensure that the mobile column is not lifting, while the pallet jack is extended. If the operator fails to lower the pallet jack after column positioning, as soon as the column experiences load during a lifting cycle, the gas shock will retract to lower the column to its foundation for stable lifting. The second purpose of the pallet jack gas shock shall be to dampen the impact of floor imperfections experienced while the column is relocated.
- 6. Wheels:
 - a. The column shall be fitted with fixed front roller wheels fabricated from oil impregnated nylon so as to be non-destructive to the foundation on which the column rests.
 - b. Floor pressure at the front roller wheel location shall be no greater than 7,200 lbs.

7. Drive Mechanism:
 - a. The drive system shall be hydraulic and shall permit lifting without any pulsation, jerks, or unsteady lifting. Lifting shall be smooth. The hydraulic power unit shall be an electrically-powered pump, flow control valves, and a fluid reservoir.
 - b. Lifting carriage shall ride on durable, oil filled nylon guide rollers. Guide rollers shall require no lubrication and no maintenance.
 - c. Each hydraulic cylinder shall be equipped with a hose burst check valve to prevent decent in the event of a major fluid leak.
8. Controls:
 - a. The various functions of the mobile lifting system shall be initiated from the control panels on the columns.
 - b. Each control box shall include:
 - 1) "UP" button.
 - 2) "Down" button.
 - 3) "Lock release" button.
 - 4) "Confirm" button
 - 5) Mushroom style emergency stop button
 - 6) A high definition 7 inch LCD screen touch. The touch screen shall be specifically designed for a harsh workshop environment. The touch screen shall be capable of providing the following functions:
 - i. Column selection indicator: This area of the touch screen display shall inform the operator of which columns in the set have been selected for operation.
 - ii. Battery charge indicator: This area of the touch screen display shall inform the operator of the charge condition of the battery power supply.
 - iii. Column weight indicator: This area of the touch screen display shall inform the operator of the weight supported by the individual column. The display shall have the ability to easily toggle between individual imperial or metric units of weight measurement (lbs. or kg.).
 - iv. Column height indicator: This area of the touch screen display shall inform the operator of the height of the individual column. The operator shall have the ability to easily toggle between individual imperial or metric units of height measurement (inches or mm.). The column height indicator shall also provide on the touch screen a clear indicator if the column has been set to stop at a restricted lifting height. This indicator shall be displayed as a thick horizontal line in the height display region of the touch screen. As the column rises, the screen will mimic the column and display the lifting fork rising up towards the horizontal restricted height indicator bar. Once the lifting fork shown on the display arrives at the restricted height indicator bar, the column shall stop rising.
 - v. Column speed indicator: This area of the touch screen shall inform the operator of the speed of the lifting system. The speed indicator shall have the ability to adjust the lowering to 30% of full lowering speed.
 - vi. Column fault code indicator: When a fault code has been registered by the control system, the touch screen shall inform the operator of any fault codes affecting the lifting set. The control system shall have the ability to display 42 individual fault codes.
 - vii. One-touch access to the **Guide screen**: This area

of the touch screen provides to the operator access to the **Guide screen**. The **Guide screen** shall provide to all system users:

- i. Calculator
- viii. One-touch access to the **Information screen**: This area of the touch screen provides to the operator access to:
 - i. Owner information
 - ii. Service provider information
 - iii. Manufacturer information
- ix. One-touch access to the **Settings screen** which displays 5 options which allows management of :
 - i. Settings screen option (1): On this screen, operators shall have the ability to change the language displayed on the screen as well as the units of measure for height and weight (imperial or metric units).
 - ii. Settings screen option (2): On this screen, operators shall have the ability to retract the mechanical locks during raising for reduced noise, as well as to set a restricted maximum lifting height.
 - iii. Area to allow for future expansion
 - iv. Portal to the **Shop screen**: access to this screen requires a PIN with details of the Shop Screen provide below.
 - v. Portal to **Information screen** option: access to this screen requires a PIN with details of the Information Screen provide below.
- x. One-touch access to the **Shop screen** options (access to the **Shop screen** shall be generally provided to only maintainers and system administrators). The shop configuration screen shall allow manipulation of:
 - i. Edit of owner's details: on this screen shall be the ability to edit the information displayed on the Owner's field.
- xi. Access to the **Information Screen**, which displays 9 options (access to the **Information screen** shall be generally provided to only maintainers and system administrators). The maintenance configuration screen shall allow manipulation of:
 - Screen 1
 - i. Initiation of foot protection which guards against a crushing hazard during lowering. This safety system, when enabled, will stop lowering as the column reaches 18 inches above finished floor. At that time, the operator is provided a chance to inspect and ensure that there are no obstructions in the area of the vehicle and lifts. After confirmation that the vehicle and lift area is clear of obstructions, the operator simply needs to retract the mechanical safety locks again and complete the lowering cycle to bring the lift completely to the floor.
 - ii. Ability to disable height difference monitoring to aid in trouble shooting. Once initiated, this control system option allows the maintainer to operate the lifting system outside normal safety limits. This system is only for use by the lift

- system maintainer during repair procedures. This system option will automatically be disabled and the control system returned to default operating parameters after 10 minutes.
 - iii. Ability to apply a set value to height monitoring system to aid in troubleshooting. Once initiated, this control system option substitutes a fixed value for the height monitoring device in a particular column. This system is only for use by the lift system maintainer during repair procedures. This system option will automatically be disabled and the control system returned to default operating parameters after 2 minutes.
 - Screen 2
 - i. Ability to select wireless operating channel to minimize interference
 - ii. Ability to view total lift system run time to properly plan for lift system maintenance.
 - iii. Ability to view individual column motor run time to properly plan for lift system maintenance.
 - Screen 3 Area to allow for future expansion
 - Screen 4 (Safety Messages)-area to allow for future expansion
 - Screen 5 (Maintenance Messages)-area to allow for future expansion
 - Screen 6 (Back up and Restore)
 - I. Ability to restore control system to default settings
 - Screen 7 (Software Version)
 - I. Ability to review system operating information
 - Screen 8
 - I. Ability to establish column type
 - II. Ability to establish motor type, VDC or VAC
 - III. Ability to establish control system communication protocol
 - IV. Ability to enable or disable weight measuring
 - Screen 9 (Battery Settings)
 - i. Ability to establish at what voltage the system will display that the battery system is WEAK
 - ii. Ability to establish at what voltage the system will display that the battery system is EMPTY
- c. All control panels shall have automatic synchronization through the full stroke of the hydraulic cylinder with a maximum tolerance of 2 inches (50 mm). Control system will actively control hydraulic correction to maintain level synchronization, unless a column deviates more than 2.4 inches (60 mm) inches from any other column, at which point all motion halts.
- d. Each column shall be fitted with an individual analog height measuring device. This height measuring device shall ensure that the height of each column in the set remains synchronized at the height initiated by the operator. The height measuring device shall also allow, through single operation, that the operator can raise or lower any column to alternate heights within the tolerances set by the ALI (Automotive Lift Institute) in its manual entitled "*Lifting It Right*".
- e. The wireless communication system shall utilize mesh-style wireless

- technology and be properly shielded from external interference in the workshop.
- f. The mobile column lift battery charger shall operate at the following voltages: 110VAC.
 - g. Control panel shall be rated IP 65.
9. Safety Devices:
- a. An independent and fail-safe mechanical locking system shall be present on each column. This safety device shall be totally independent from the lifting drive system.
 - b. Increments on lifting carriage locking profile shall not be greater than 1.375 inches (35 mm) and the first locking position shall engage after no more than 5.0 inches (120 mm) of lifting.
 - c. A locking "pawl and ratchet" system shall be used to ensure proper and automatic locking at any height and at all times. The locking notches shall be integrated into the lifting carriage. The locking pawl shall be mounted to the inside of the column and function as a wedge between the column and the lifting carriage. The locking pawl design shall utilize gravity, with a spring assist, to ensure the locking pawl is always engaged into the locking ladder. The mechanical safety lock shall be automatically engaged at all times when the lift is not operating.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions. Test for proper operation, and re-test if necessary until satisfactory results are obtained.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before substantial completion.

END OF SECTION