

# Division 14

## Section 14450 – Vehicle Lifts

### 1. SCOPE

1.1 General scope: This specification establishes the minimum performance, design, fabrication, installation and test requirements for a subterranean parking lift.

### 2. SUBMITTALS AND RELATED WORK

2.1 Provisions: The general provisions of the contract, including General Requirements, apply to the work specified in this section.

2.2 Product Data: Submit (3) three copies of manufacturer's specifications and installation instructions at the time of order. Furnish (1) one copy of installation instructions to the installer.

2.3 Maintenance Data: Submit manufacturer's owner's manual, maintenance and service data; including the address of nearest authorized service representative.

2.4 Shop drawings: Submit general arrangement drawings detailing fabrication and installation of parking lift. Includes plans, elevations and large-scale details showing layout and types of equipment required. Show anchor points and accessory items.

#### 2.5 Related Work

2.5.1 Work to be done by others: All electrical work, concrete work, building modifications, excavation, underground piping, angle framing to pit and embedded items.

2.5.2 Work to be done by the mechanical installer: Install the parking lift complete less the above exceptions. This includes off loading lift at site, setting lift in pit, lagging and locating hydraulic power unit. It includes connecting hydraulic lines and operating (proof testing) lift under its own power.

### 3. PRODUCTS

3.1 Subterranean parking lift, as distributed by American Custom lifts ([www.ACLifts.com](http://www.ACLifts.com)) is cited for type, quality, function, operation, capacity, size and construction required. Provide complete with controls, safety devices and accessories as specified.

### 4. MANUFACTURER

4.1 General specification covers a DL7 parking lift (PhantomPark) as designed and manufactured by Southworth Products Corp.

## 5. REQUIREMENTS

5.1 System description: The extent of the parking lift is as shown on the drawings and/or as specified herein.

### 5.2 Characteristics

#### 5.2.1 Performance Characteristics

5.2.1.1 Capacity: The parking lift shall have a minimum lifting capacity of 7,000 pounds.

5.2.1.2 Axle Loads: The parking lift shall have a minimum axle load capacity of 4,000 pounds over the ends of the platform or the canopy. A minimum axle load capacity of 2,000 pounds over the sides of the platform.

5.2.1.3 Vertical Travel: The parking lift shall have a minimum vertical travel of \_\_\_\_ inches.

5.2.1.4 Lowered Height: The parking lift shall have a maximum lowered height of 20 inches.

5.2.1.5 Raised Height: The parking lift shall have a maximum raised height of \_\_\_\_ inches.

5.2.1.6 Up Speed: The parking lift shall have a minimum rising time of \_\_\_\_ seconds.

5.2.1.7 Down Speed: The parking lift shall have a minimum lowering down time of \_\_\_\_ seconds.

#### 5.2.2 Physical Characteristics

5.2.2.1 Lift Platform: The parking lift minimum size platform shall be 96 inches wide x 216 inches long. The platform deck will be constructed of smooth steel plate. The deck plate shall be a minimum thickness of ¼". Any seams in the deck plate will continuously welded to prevent fluids from sipping through. The canopy platform shall have a solid bevel toe guard on the sides and ends. The toe guard must be 8 inches in length and slope inward at approximately 30 degrees per ANSI Standard MH29.1. The lift platform must have a minimum of 4 pipe legs extending to the pit floor to support platform in lowered position.

5.2.2.2 Base-frame: The parking lift shall have an angle iron base-frame predrilled for permanent installation.

5.2.2.3 Scissors Mechanism: The scissors mechanism shall be a single pantograph. Legs shall be made of solid steel plate or bar; tubular legs are not permitted. Leg thickness must be a minimum of 1 1/2". All legs (both inner and outer) must be of adequate strength including a 3:1 strength factor as required by ANSI standard MH29.1. The legs shall not have any type reinforcement bar welded to the side of the leg. All axle points must have lubricated-for-life bushings or bearings. All load bearing pivot shafts or pins shall be constructed of high strength alloy steels, turned, ground and polished. Leg rollers shall be of the hardened cam follower style and shall run on alloy steel wear strips. The inner leg members shall have structural rectangular or round tube crossmembers between the legs to assure proper torsional stability. There shall be a minimum of (7) seven crossmembers.

5.2.2.4. Cylinders: The lift shall be equipped with heavy duty, piston type high-pressure, single acting hydraulic cylinders that have a design bursting pressure that is at least 5 times the maximum design operating pressure. They shall be piston type with internal stops capable of withstanding full system pressure. They shall have chrome plated rods to prevent rusting. The rod wiper shall have a brass scraper. Cylinder shall be fitted with vent lines which are directly plumbed to the power unit reservoir. Cylinders will be protected by excess flow valve(s) in the event of a hydraulic pressure line failure.

5.2.2.5. Power Unit: Power unit shall be electric hydraulic located external from the lift. Power unit will incorporate an overload protection preventing the lift from raising if loaded to more than 115% of rated capacity. A relief valve shall open when the system pressure exceeds 100% of maximum design pressure. All hosing shall be SAE-100R2 double wire braided.

### 5.2.3 Electrical Requirements

5.2.3.1 Controls: Controls shall consist of one wall mount NEMA 1 constant pressure "up/down" pushbutton station. Magnetic motor starter and control transformer shall be mounted in a NEMA 1 enclosure and pre-wired to the power unit. All controls shall be 24 volt. Controls must be UL listed.

5.2.3.2 Power Source: Distribution panels and circuit breakers shall be furnished and installed by the purchaser. The purchaser shall furnish and install all necessary wiring and equipment for power distribution to the system.

## 6. QUALITY ASSURANCE PROVISIONS

6.1. Hydraulic parking lift standard: Comply with the requirements of ANSI Standard MH29.1 – The Safety Requirements for Industrial Scissors Lifts and the National Electric Code (NEC).

6.2 Inspections: The system shall be inspected to verify that it meets all requirements of sections 1, 2, 3, 4, and 5 of this specification. These inspections shall be completed as part of the installation start-up. Testing and inspection will be performed by the manufacturer or approved manufacturer's representative.

6.3 Welding: Surfaces to be welded shall be free from tears, cracks, scale, slag, rust, paint, grease or other foreign matter or defects that would adversely affect the quality and strength of the weld. Welds shall be sound throughout and there shall be no cracks in any weld or pass. Before welding over previous weldment, all slag shall be removed and the weld and adjacent base metal shall be brushed clean. Welds shall be free of visible defects such as, but not limited to, excess metal, slag inclusions, spatter, porosity, incomplete penetration, undercutting and gas pockets. All craters shall be filled to the full cross section of the weld. Metal arc welding shall be accomplished in accordance with the provisions of the applicable portions of the "Code for Welding in Building Construction" (AWS D1.0-63) or MIL-STD-2213 of the American Welding Society. All welders will be AWS certified.

6.4 Welding of cast iron: The welding or brazing of cast iron, malleable or otherwise, to other cast iron of any type, or to other ferrous or nonferrous alloys will not be acceptable.

6.5 Interchangeability: Corresponding units and replaceable assemblies, subassemblies and parts having the same part number shall be physically and functionally interchangeable as complete items with modification thereto or of other articles with which the items are used. Where the dimensions or mating characteristics are not specified, the manufacturer's design limits shall be used to determine compliance with the foregoing.

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