

# COMPACT STORAGE SYSTEMS

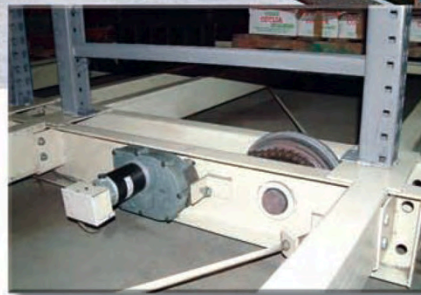
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## CPA Series 28



- Each carriage is provided with a central safety and movement control unit located at the end of the carriages and contains the following:
  - Lighted start movement indicator
  - Lighted reset indicator
  - Safety stop pushbutton
  - Amber warning light
  - Solid-state safety and control modules
- Controlled start and stop sequence.
- Welded structural steel carriages with a maximum capacity of 28,000 lbs per single or double rack assembly.
- Each wheel assembly will be equipped with two wheels, minimum of 9.50" in diameter.
- Each wheel is equipped with two permanently shielded radial ball bearings
- Guide-rail to have a center groove to align with high tolerance tapered center flange wheels to ensure proper alignment.
- Rail design to allow building slab to be completely flush with top and sides of all rails.
- Photoelectric safety sweep scanning the full length of both sides of each carriage. The sweep will prevent or immediately stop movement if an obstruction is encountered or the beam is broken.
- Emergency stop pushbutton.
- A warning horn shall be provided that upon activation of an aisle movement pushbutton will sound a 3 second delay before any movement of the system begins.
- Entire system to be U.L. listed.

**GENERAL DESCRIPTION:** Powered carriages are moved by means of 1/4 HP; 90 volt DC gear motors. Motor controllers provide for soft-start/soft-stop. This allows users to move ten's of thousand of pounds by activating the central safety and movement control unit. Multiple carriages can be moved on a single activation. This mobility allows for compaction of the units while remaining accessible on demand. The compaction allows for substantial savings in floor space.

**QUALIFICATIONS:** The CPA series system shall be furnished and installed only by those firms engaging in the manufacture of mobile storage products. The entire system shall be warranted by the manufacturer against defective parts and/or workmanship for a period of five (5) years from final acceptance.

**SUBMITTALS:** Furnish shop, drawings, manufacturer's written installation and operating instructions.

#### PRODUCTS:

##### RAIL:

- Rail shall be welded structural steel with a minimum dimension of 2.16" high with a base flange minimum width of 4.92".
- Guide rails to have a center groove to align with high tolerance tapered center flange wheels to ensure proper alignment. Rails to be set, leveled, and welded to plates anchored to floor or footings with threaded rod or J-bolts.
- Rail design to allow building slab to be completely flush with top and sides of all rails
- Footing design and construction required is by others.
- Levelness of rails to be 3/32" of variation from true level within the module and 3/32" maximum variation between adjacent rails.

##### Carriages:

- Assembled structural steel carriages will have a maximum capacity of 28,000lbs per single or double rack assembly.
- Those assemblies are of formed "C" sections, minimum 8" high, 1/4" thick, hot rolled steel, prefabricated and welded at factory.
- Each wheel assembly will be equipped with two wheels, minimum 9.50" in diameter.
- Each wheel is equipped with two permanently shielded radial ball bearings.
- Wheels will have solid steel axles a minimum of 1.5" in diameter. All rotating members to ride on ball bearings.
- All sections between wheel assemblies will have integral cross bracings to maintain accepted tolerances for function of systems.
- Integral beams are to be provided to maintain wheel assembly alignment and squareness. These beams are to be drilled, bolted, and assembled on the job site as integral carriage members.

#### MOTOR AND POWER TRAIN:

- Each carriage shall be equipped with one or more 1/4 HP; 90 volt DC gear motors, depending on load rating.
- Each independent drive shall be synchronous and current limiting, in lieu of drive shafts, to maintain proper alignment within system regardless of length or weight load and eliminate racking and binding inherent in tubular or solid steel drive shaft systems.
- Motor and motor controllers to provide for soft-start/soft-stop, current limiting, and be equipped with an automatic time-out device.
- Carriage movement to be sequential to minimize power demands on start-up. This controlled movement is mandatory due to sensitivity of materials being stored.
- Motors and power train to provide for carriage travel speed of 13' per minute. All power transfer to wheels will be done by chain gear drive.

#### POWER:

- Power to mobile units to be provided by an overhead read mounted festoon cable system from one power supply provided by others.

#### CONTROLS:

- Each carriage to be provided with a central safety and movement control unit located at the end of the carriages. This unit is to be located in an industrial type enclosure at the front end of the rack system. The control unit is to be mounted in the center of each carriage and contain the following:
  - a. A lighted start movement indicator.
  - b. A lighted reset indicator
  - c. A safety stop pushbutton.
  - d. An amber warning light.
  - e. Solid-state safety and control modules.

When the aisle operate pushbutton is pressed, that aisle shall open automatically regardless of the position of the carriages. Control systems shall reset automatically after each normal operation. Overall status of the system shall be displayed on the status light and aisle control unit. Limit switch is to be photoelectric proximity type. As a moving carriage approaches the limiting position, travel speed will automatically slow as the carriage nests into the required position. This limiting feature will be backed up by a mechanical limit switch to verify final position and positive carriage stop. All limit switch locations and reflectors, receivers, bumpers, and stops to be mounted at rigid locations and protected from transient damage by forklifts, carts, personnel, and equipment.

Control logic to allow carriages to be divided into two individual movable units, as required, and move synchronously to clear building obstructions such as columns during their length of travel. This will eliminate the need for stationary units at all column lines and allow for maximum utilization of the available storage space. One control at the main front aisle(s) shall control all synchronized carriages.

One key must be provided per module that can make the entire module or any individual carriage within the module non-operational. All safeties to remain active when carriages are in the stationary position and movement of other units is attempted.

**Option:** One rechargeable battery pack must be supplied per system to allow for single carriage operation in event of a total power failure to the system.

#### SAFETY FEATURES:

**The following safety features will be provided:**

- a. Photoelectric safety sweep scanning the full length of both sides of each carriage. The sweep will prevent or immediately stop movement if an obstruction is encountered or the beam is broken. Status of the sweep to be displayed on the control unit.
- b. Emergency stop pushbutton as described earlier to be provided at each aisle control unit.
- c. A warning horn shall be provided that upon activation of an aisle movement pushbutton will sound a 3 second delay before any movement of the system begins. During the delay, the safety sweeps will remain active.
- d. A flashing yellow warning light to be provided on the carriage ends that will flash active operation.
- e. Entire system to be U.L. listed.

#### WARRANTY:

- The carriage assemble will be warranted by the manufacturer against defective parts and /or workmanship for a period of three (3) years from final acceptance.
- Track assemble is warranted for five (5) years from final acceptance.

#### EXECUTION:

- Units to be installed in accordance with manufacturer's written instructions, and conducted by a factory trained certified technician.