



Architectural Specification

Nordock SMART-HOOK® Series – Model AR-20K Automatic Vehicle Restraint

SECTION 11161
VEHICLE RESTRAINTS

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Factory assembled vehicle restraint
- B. Control panel and communication system.
- C. Installation and Owner's Manual.

1.02 RELATED WORK

- A. Section 11160 – Dock Levelers
- B. Section 11164 - Seals and Shelters.
- D. Section 11165 - Dock Bumpers.

1.03 SYSTEM DESCRIPTION

- A. Vehicle restraint shall be manufactured the by the same manufacturer as the dock leveler and provided with the following features:
 - 1. Restraint shall engage and restrain variable height rear impact guards.
 - 2. Unit to restrain all trailers with legal rear impact guards and lower to 9" above ground.
 - 3. An auxiliary lock system to provide additional protection due to rear impact guard obstructions **without creating a pinch effect.**
 - 4. Communication system shall have red and green LED lights and instruction signs inside and outside.
 - 5. Restraint shall maintain upward bias engagement during loading with large rotating hook and auxiliary lock system. .
 - 6. Activation shall be with push button controls with engage and disengage functions.
 - 7. The hook position to be continuously monitored by an angular waterproof position sensor. **Mechanical limit switches are not acceptable.**
 - 8. Restraint shall be stored off ground for automatic positioning by trailer.
 - 9. Restraint shall monitor an abnormal condition and sound an alarm if the rear impact guard is not detected. A restraint bypass button shall silence alarm

leaving a red light outside and alternating red/green inside to indicate caution until the release button is selected to reset the system.

1.05 SUBMITTALS

- A. Submit Manufacturer's installation instructions.
- B. Submit shop drawings showing layout, conduit positions and wiring schematics.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Impact Series - Model AR-20K as manufactured by Nordock Inc.

2.02 EQUIPMENT

- A. Cast in Plate (Optional): 3/8" steel plate with concrete anchors poured into dock face for welded installation of restraint.
- B. Vehicle Restraint:
 - 1. Vertical Frame: Mounting plate and vertical track of 5/16" steel suitable for welding to cast in plate or bolted to dock face with concrete anchors.
 - 2. Carriage: Low profile above ground mounted structural welded assembly with pivoting slope extension. Unit to adjust to be positioned without electrical power required and adjust automatically to variable trailer rear impact guards. Front face impact zone to have additional high tensile reinforcement. **Unreinforced side impact plates are not acceptable.**
 - 3. Barrier: Large rotating hook constructed with 1-1/4" thick steel and attached to the carriage housing with a 1-1/4" diameter superior shaft. Position of hook monitored with advanced position sensor with no mechanical components. **Mechanical limit switches and cam style actuators are not acceptable.**
 - 4. Auxiliary Lock: Dual upward bias auxiliary lock plates constructed from 3/8" zinc plated steel engaged and disengaged by the rotating hook without creating a pinch effect under normal disengagement.
 - 5. Actuator Drive: Restraining hook positioning drive shall be with a direct-coupled torque IP66 waterproof motor without brakes, clutches, chains or sprockets. Hook shall apply constant upward force against rear impact guard while restraining trailer. Continuous duty rated water proof DC torque motor with 180"1 ratio helical gears holds in position with 10mA of power consumption. **Use of clutches, brakes, and chains are not acceptable.**
 - 6. Inside Communication System: Either a Green LED light to indicate when vehicle is restrained or a Red LED light to indicate that vehicle is not restrained or when restraint is stored. Audible alarm indicates a fault condition where a rear impact guard may not be present or a malfunction has occurred. Bypass selection by attendant silences alarm and illuminates alternating Red and Green lights indicating that the vehicle is not restrained and in manual bypass mode. Include label on front cover of control panel to instruct dock attendant.
 - 7. Outside Communication System: Red light to indicate when vehicle is restrained or in bypass mode. Green light to indicate restraint is stored in low profile position leaving a clear path for a vehicle to enter or leave the dock. Include large caution sign to instruct truck driver to "MOVE ON GREEN ONLY" in both forward and reverse letters.

8. Controls: All controls to be in a NEMA 12 dust tight metal enclosure with hinged cover. Complete control box to be UL/CSA approved. Power consumption requirement to be 115 volt, single phase, 2 amperes.
 9. Power Loss: Unit to remain fully operational if incoming power is interrupted for up to 24 hours. Full functions include inside and outside signal lights, engage, dis-engage and fault condition monitors. Unit to return to original conditions when power is restored. **Units requiring manual release of restraint during power loss are not acceptable.**
 10. Finish: All structural steel components to be coated with a two-part silver finish zinc dichromate including hook, carriage and vertical frame. Five-Year structural warranty included.
- C. Options:
1. LOGI-SMART® control systems to integrate other loading dock equipment into one panel with pre-wired interlocks.
 2. Cast in steel wall mounting plate or cantilever bracket.
 3. Dock leveler stored interlock to disallow restraint release until leveler is removed from truck bed.

PART 3 EXECUTION

3.01 PREPARATION

- A. Provide cast in plate for setting in front wall. (Optional)

3.02 INSTALLATION

- A. Inspect site conditions and report anything detrimental to the proper installation and performance of vehicle restraint. Do not proceed until unsatisfactory conditions have been corrected.
- B. Manufacturers representative shall install vehicle restraint in accordance with manufacturer's instructions and recommendations.
- C. Adjust installed unit for operation as specified by manufacturer.
- D. Manufacturers representative to examine finished installation to ensure proper operation and demonstrate proper use of the restraint to the owner.



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