



1. Product Name

■ NOVA Lock-Up™ Vehicle Restraint

2. Manufacturer

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3. Product Description

General Description

The patent pending NOVA Lock-Up™ Vehicle Restraint is designed to secure an intermodal container chassis or trailer to a loading dock by engaging the Rear Impact Guard (RIG) with a vertical barrier operated by a control panel mounted inside the building. The Roller Slope Extension is designed to decrease resistance of carriage travel while it is adjusting to the height of the RIG on the trailer thereby saving wear on the RIG, carriage and pavement. Engagement range extends from 9-30 inches (229 mm to 762 mm) above the ground. A spring-loaded, structural steel housing automatically positions the unit when contacted by a backing truck.

Mounts to dock above ground level to stay clear of accumulated precipitation and debris. Protected from the elements with watertight connectors and zinc plating, which provides exceptional corrosion resistance.

Operation

As the trailer backs into position, the RIG contacts the spring loaded structural steel housing which rides down in its track, allowing the RIG to move over the top of the housing. The dock attendant pushes the **RESTRAIN** button which activates the vertical barrier to secure the trailer to the dock. The vertical barrier can withstand a pullout force in excess of 38,000 pounds. The Lock-Up™ restraint maintains contact with the RIG and adjusts automatically with trailer float motion to ensure proper engagement at all times. If there is a cover plate or obstruction above the rear impact guard, the



vertical barrier adds an additional level of safety providing secure engagement. An activation system ensures RIG/barrier engagement when electrical power source is lost. After servicing is complete, the dock attendant pushes the **RELEASE** button. In the event a trailer's RIG is missing or damaged, the Lock-Up™ will communicate a fault condition. An audible alarm and flashing red light alerts the operator that the trailer has not been properly secured. The operator may then override the fault condition and secure the trailer by other means. The communication system automatically adjusts to reflect the current operational mode.

Structural

The vertical barrier weldment is a lamination of two (2) 2 $\frac{3}{4}$ x $\frac{3}{4}$ inch thick ASTM A572 Grade 50 steel plates with 1 inch ASTM A36 steel spacers in between. The vertical barrier weldment is located within the carriage between the two (2) side plates. The carriage side plates are constructed from abrasion resistant 400F steel for maximum wear resistance from the rubbing of Rear Impact Guards (RIG) on trailers. The carriage axles are made from 1 $\frac{1}{4}$ inches diameter cold rolled 1045 steel and the carriage rollers machined from 2 $\frac{5}{16}$ inches diameter cold rolled 1045 steel. The roller track is formed out of ASTM A572 Grade 50 steel into a 6 $\frac{3}{8}$ x 3 inches channel with $\frac{7}{8}$ -inch flanges. The roller track is attached to the dock face with fifteen (15) $\frac{5}{8}$ x 4 inches long heavy duty sleeve anchors.

Electrical

All operator controls are mounted in a control panel which is fully operational at all times. Specially engineered electric motor and limit switches are enclosed in an abrasion resistant structural steel housing. Electrical components and wiring are UL listed or recognized. Lock-Up™ restraint requires a power source of 110/115 volt, single-phase with a 15 amp service circuit.

(NOTE: Unless specified on quotation, all electrical, including hookups is the responsibility of others).

Communication System

Outside: constant flashing red or green LED lights with signs instruct the truck driver when it is safe to back into or pull away from the loading dock.

Inside: constant flashing red or green LED lights with signs inform the dock attendant when it is safe to perform loading/unloading operations.

Audible Alarm: in addition to the flashing red light, inside alarm warns the dock attendant when a RIG has not been properly engaged.

Horn Override: a key switch allows personnel to override the audible alarm. When the audible alarm is in override, the inside red and green lights continue to flash simultaneously while the outside light flashes red and the audible alarm is silenced.

LED Lights: standard LED lights provide long life and reduced electrical power consumption.

Standard Features

- The gear motor operates on electrical current only when engaging or disengaging the vertical barrier with the RIG, resulting in more reliable operation
- The barrier lifting mechanism engages an over-center device which maintains the barrier in the engaged (raised) position in the event of power failure, shaking, or normal movements of a vertically oscillating trailer with a forklift entering and exiting
- Roller slope extension that effortlessly rolls on pavement
- Control box features discrete components for ease of service
- Control box includes key switch for override as standard
- LED lights are standard for energy efficiency and long life

Optional Features

- Cantilever mounting bracket
- Open dock stanchion for control box
- Driveway plate for ground mounting
- Green light interlock

Benefits

- Vertical barrier position ensures engagement with intermodal containers and trailer RIG configurations with cover plates or obstructions
- The Lock-Up™ restraint maintains contact with the RIG and adjusts automatically with trailer float motion to ensure proper engagement at all times during the loading and unloading process
- Patent pending activation system ensures RIG/barrier engagement is maintained even when electrical power



source is lost

- ANSI MH30.3 tested and certified
- The gear motor utilizes multiple power train components to distribute stress and optimize velocities, maximizing long-term durability
- Our specially designed gear motor operates less than three seconds for the full cycle of restraining and releasing a vehicle—this equates to a fraction of a penny of electricity per vehicle, regardless of how long each is serviced at the loading dock; with competitive models featuring a continuously operating system, the longer each vehicle is serviced, the more electricity that is used by the restraint—ultimately driving up the total cost of operation
- Slim profile carriage design reduces the risk of collision damage to the Lock-Up™ or truck trailers
- Designed and certified to withstand more than 38,000 pounds of pulling force
- The Roller Slope Extension reduces/eliminates gouging/marking on the dock approach compared to "skid" style slope extensions; it also effectively reduces friction of positioning the restraint on concrete approaches and even more effective on asphalt approaches

4. Technical Data

Applicable Standards

American National Standards Institute (ANSI)

- ANSI MH30.3—Vehicle Restraining Devices Safety, Performance and Testing
- ANSI Z535.1—Safety Color Code
- ANSI Z535.3—Criteria for Safety Symbols
- ANSI Z535.4—Product Safety Signs and Labels

American Society for Testing Materials (ASTM)

- ASTM A6/A6M—Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet Piling
- ASTM A36/A36M—Standard Specification for Carbon Structural Steel
- ASTM A370—Standard Test Methods and Definitions for Mechanical Testing of Steel Products
- ASTM B117—Standard Practice for Operating Salt Spray (Fog) Apparatus
- ASTM D4950—Standard Classification and Specification of Automotive Service Greases

American Welding Society (AWS)

- AWS D1.1—Structural Welding Code, Steel

Federal Motor Vehicle Safety Standards and Regulations (FMVSS)

- FMVSS 223—Laboratory Test Procedure for FMVSS 223 Rear Impact Guards
- FMVSS 224—Rear Impact Protection

National Electrical Manufacturers Association (NEMA)

- NEMA 250—Enclosures for Electrical Equipment (1000 Volts Maximum)

National Fire Protection Association (NFPA)

- NFPA 70—National Electric Code (NEC)
- NFPA 79—Electrical Standard for Industrial Machinery

Underwriters Laboratories, Inc. (UL)

- UL 508 A—Standard for Industrial Control Panel

Environmental Considerations

NOVA Technology uses environmentally friendly material in its packaging where available.

5. Installation

Product installation instructions are available online at www.novalocks.com.

6. Availability & Cost

Availability

NOVA Technology products and services are sold entirely through the NOVA nationwide dealer network.

For a dealer in your area, routine service, preventative maintenance, product questions, or to request a quote, contact NOVA Technology.

Cost

Pricing information may be obtained from an authorized NOVA dealer.

7. Warranty

In addition to the Standard Product Warranty provided with all NOVA Products, NOVA Technology guarantees materials, components and workmanship to be free of defects for the following extended periods:

- **Extended Two Year General Warranty**—for a period of two years from date of shipment, this warranty specifically applies to; the roller track assembly, carriage assembly, RIG sensor assembly and control box only
- **Extended Five Year Structural Warranty**—for a period of five years from date of shipment, product will carry a prorated structural warranty; this warranty specifically applies to; the roller track, carriage weldment, motor cover, barrier assembly and lower spring bar only

8. Maintenance

Product maintenance and operation are specific to product types and are available online at www.novalocks.com.

9. Technical Services

Technical assistance, including more detailed information, product literature, test results, project lists, or assistance in preparing project specifications, is available by contacting NOVA Technology.

10. Filing Systems

- ARCAT®
- Additional product information is available from the manufacturer upon request.

Nova Technology engages in ongoing product development and reserves the right to make changes and improvements to any of the products described in this document without prior notice.