



1. Product Name

■ NOVA Lock & Load™ Vehicle Restraint

2. Manufacturer

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3. Product Description

General Description

The NOVA Lock & Load™ is a hook-style vehicle restraint that secures the trailer's rear impact guard (RIG) at the dock to reduce the risk of premature departure and trailer movement during loading and unloading. Its spring-loaded housing lowers with truck contact, positions the unit with the RIG bar and automatically adjusts to trailer float. The Lock & Load™ has an enhanced design with a patented Triple Range Hook that outperforms competitor hook-style restraints. The roller slope extension decreases the resistance of carriage travel while it adjusts to the height of the RIG and features a wheel that effortlessly rolls over the pavement to prevent marks/gouges on the dock approach pavement.

The Lock & Load™ has an engagement range of 9 to 31-inches (220 to 787-millimeters) and mounts to the dock face above ground level to stay clear of accumulated precipitation and debris. Its elevated installation protects it from the elements, along with watertight connectors and zinc plating for added corrosion resistance.

Operation

As the trailer backs into position, the RIG contacts the spring-loaded structural steel housing, which rides down in its track and allows the RIG to move over the top of the housing. The dock attendant pushes the **RESTRAIN** button, which activates the hook to secure the trailer to the dock. The rotating hook can withstand a pull-away force of over 32,000-pounds. The Lock & Load™ restraint maintains contact with the RIG and



Secures pentagonal RIG bars



Engages reinforced RIG bars with 4 1/2-inch vertical center plates



Secures standard trailers and any vehicle with an open RIG bar

adjusts automatically with trailer float motion to ensure proper engagement at all times. After service is complete, the dock attendant pushes the **RELEASE** button. In the event a trailer's RIG is missing or damaged, the Lock & Load™ will communicate a fault condition. An audible alarm and flashing red light alert the operator when a 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 rotating hook can withstand a pull-away force of over 32,000-pounds and is machined from 1 1/4-inch thick A514 Grade B steel plate and driven with a 1 1/4-inch diameter shaft made from cold-rolled 1008 steel. The carriage side plates are constructed from abrasion-resistant 200F steel for maximum defense against wear from contact and friction with the RIG. The 1 1/4-inch diameter carriage axles and 2 5/16-inch diameter rollers are both made from cold-rolled 1045 steel. The roller track is formed out of ASTM A572 Grade 50 steel into a 6 3/8 x 3-inch channel with 7/8-inch flanges. The roller track is attached to the dock face with 15 heavy-duty sleeve anchors that each measure 5/8 x 4-inch long.

Electrical

All operator controls are mounted in a control panel that remains fully operational at all times. Specially engineered electric motor and magnetic cam and sensor system are enclosed in a structural steel housing. Electrical components and wiring are UL Listed® or Recognized®. The Lock & Load™ requires a power source of 110/115 volt single-phase with a 15 amp service circuit.

NOTE: Unless specified on quotation, NOVA Technology will not provide any conduit, disconnects, junction boxes or other electrical components.

Communication System

Outside Signal Lights: 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.

Control Box LED Signal Lights: 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, the interior alarm warns the dock attendant when a RIG has not been properly engaged.

Horn Override: the customizable keypad allows authorized personnel to override the audible alarm using a programmable password. 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 longevity and reduce electrical power consumption.

Standard Features

- The motor is IP67 compliant
- The gear motor, specifically engineered for this application, utilizes a one-way braking system that keeps the hook continuously engaged for added safety
- Roller slope extension effortlessly rolls on pavement
- PLC-based control box with integrated maintenance diagnostics; optional with CB-20/21
- Control box includes key pad code for override as standard
- LED lights are standard for energy efficiency and long life
- CB-00 control box enables interlocking of the dock leveler, door, and gate
- Triple Range Hook
- Non-contact magnetic proximity sensors provide robust, high-durability, and long-lasting performance

Optional Features

- IntelliDock Combination control box
- CB-20/21
- Open dock stanchion for control box
- Articulated slope extension
- Projection brackets and reinforcing plates

Benefits

- Secures RIG bars that are rectangular, pentagonal and feature 4 1/2-inch vertical center plates
- Triple Range Hook safely secures RIGs while the hook is at various heights
- Elevated hook shank maintains engagement and eliminates false negative RIG bar sensing from gaps created by carriage bounce



- Hook is upwardly biased and rotates to increase engagement if contacted by the RIG when trailer shifts during loading and unloading
- The gear motor utilizes multiple power train components to distribute stress and optimize velocities, maximizing long-term durability
- The Lock & Load™ gear motor only uses electricity when engaging or disengaging the hook with the RIG, resulting in more reliable operation (will not disengage during power failures) and ultra-low energy costs
- 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
- Designed to withstand more than 32,000-pounds of pulling force
- The roller slope extension eliminates gouging and marking on the dock approach by simply rolling on the pavement; it also effectively reduces friction when positioning the restraint on concrete approaches and is even more effective on asphalt surfaces

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 D11—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, provided the purchaser maintains and operates the Lock & Load™ in accordance with the Owner's Manual:

- **Extended Two Year General Warranty**—for a period of two (2) years from date of shipment, this warranty only applies to the roller track assembly, carriage assembly and control box
- **Extended Five Year Structural Warranty**—for a period of five (5) years from date of shipment, product will carry a prorated structural warranty. This warranty only applies to the roller track, carriage weldment, chain cover, straight hook and lower spring bar

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

- Additional product information is available 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.