

ARCHITECTURAL SPECIFICATION TURNLOCK-100

SECURITY TURNSTILE

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# Security Optical Turnstile Section 11-14-00 Pedestrian Control Equipment (Gates/Turnstiles)

## Part I General

### 1.01 Section Includes

1. This section covers the furnishing and installation of a complete Turnlock-100 Security Turnstile. Provides complete system that has been fabricated, assembled, and tested for proper operation at the factory.
2. It includes rotor assembly, shield assembly, barrier assembly, mechanism housing, and ceiling plate, as required for installation.

### 1.02 RELATED SECTIONS

1. Section 09600 - Flooring
2. Section 16123 - Electrical Supply and Termination
3. Section 11 14 – Pedestrian Control Equipment
4. Section 11-14.13.19 – Turnstiles
5. Section 11-14.53 – Pedestrian Security Equipment
6. Section 08400 – Entrances and Storefront

### 1.03 REFERENCES

1. ANSI Z97.1 - American National Standard for Safety Glazing Materials used in Buildings.
2. AAMA 2604 - Voluntary specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
3. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
4. ASTM A 480/A 480M - Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
5. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
6. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

### 1.04 QUALITY ASSURANCE

1. Manufacturer shall be a company specializing in the supply of the Turnlock-100 Security Turnstile with a minimum of 10 years’ experience.

### 1.05 SUBMITTALS

1. Submit project specific shop drawings, finish samples and Operating & Maintenance Manuals.
2. Indicate pertinent dimensions, general construction, component connections and locations, anchorage methods and locations, hardware, and installation details.

### 1.06 DELIVERY, STORAGE AND HANDLING

1. Deliver materials to job site in manufacturer’s packaging undamaged, complete with installation instructions.
2. Store off ground, under covered area, protected from weather and construction activities.
3. Approximate Weight of Crate: 800lbs (2 x 800 for Tandem unit)

### 1.07 PROJECT/SITE CONDITIONS

1. The Turnlock-100 Security Turnstile installs on finished floor only.

### 1.08 WARRANTY

Boon Edam warranties its products against defects in material and workmanship for a period of twelve (12) months from the date of shipment of the product. This warranty excludes glass breakage, normal wear on finishes or damage that occurs due to abuse, misuse or acts of God.

## PART II – PRODUCTS

### 2.01 MANUFACTURER

Boon Edam, Inc., 402 McKinney Parkway, Lillington, NC 27546.

(910) 814-3800 Fax: (910) 814-3899 Homepage: [www.boonedam.us](http://www.boonedam.us)

### 2.02 PRODUCT

Turnlock-100 Full Height Security Turnstile, no substitutions. Features of this turnstile shall include a self- centering mechanism to maintain rotor at the stop position, a tamper proof ceiling, an IP56-rated top channel cover to house mechanical and electrical controls and a UL listing (i.e., 294) for the turnstile.

### 2.03 TURNSTILE CONSTRUCTION

1. **Mechanism Housing:** is constructed from a structural steel channel. All electrical and mechanical components are attached to the channel. The channel is covered by a 16 gauge stainless steel cover.
2. **Ceiling Plate:** fabricated from 16 gauge steel or stainless steel attached to the mechanism housing and spans the shield assembly, providing stability and support.
3. **Rotor assembly:** consist of 3 rotor posts of 2” square x 11gauge steel tubing, each containing 12 arms spaced equally, 5” apart. Each rotor post is set at a position 120 degrees apart from each other. The top and bottom of the rotor assembly is held together by a flange, to which the rotor posts are attached. Each arm shall be welded to the rotor posts. If desired, the rotor posts may also be field welded to the upper and lower flanges, thereby providing a fully welded construction.
4. **Barrier:** shall consist of a barrier post and eleven arms equally spaced at an offset to the rotor assembly. The barrier post is constructed from 2” x 4” 11 gauge carbon steel tubing, with carbon steel 1 ½” schedule 40 pipe barrier arms (galvanized and powder coated units). (1 ¼” schedule 40 pipe for all stainless steel unit).
5. **Shield Assembly:** consists of 2 welded frames that are installed adjacent to each other to form the passageway. The shield assembly is constructed from 2” x 2” square tubes and 1 3/8” round tubes (galvanized and powder coated – stainless steel for all stainless steel units).
6. **Arms:** 1-1/4” schedule 40 carbon steel pipe, each arm (galvanized and powder coated) has plastic caps on the end; 1 ¼” schedule 40 #304 stainless steel pipe with rounded, spun closed and polished ends (for all stainless steel unit).
7. **Bottom Bearing:** pre-greased thrust Axial Deep Groove Ball Bearing. The bearing is on a 9”x 1” clear anodized aluminum base plate. The base plate attaches to the floor with 3 anchor bolts, 3/8”x4” long. It has a dynamic load capacity in excess of 14,300 lbs., a static load capacity of over 39,500 lbs. and maximum rated RPM of 1800.
8. All components shall be constructed in such a manner as to eliminate all structural weaknesses.

### 2.04 EQUIPMENT

1. One-way mechanical turnstiles use a steel ratchet assembly to direct traffic flow.
2. Electric controls are available in both entrance and exit directions. Controls may be fail-lock and fail-safe or any combination, in either controlled direction. All turnstiles are built to the customer’s specified configuration. If for some reason, the configuration needs to be changed, this can be easily done in the field in less than 30 minutes without any additional spare parts.
3. Electric turnstiles use a heavy-duty electro-mechanical ratchet and pawl operating mechanism to restrict traffic flow. All electrical controls are low voltage 24 VDC. (Step-down transformer is supplied as a standard item- please select either 110 VAC or 220 VAC input voltage).
4. Standard self-centering feature automatically returns rotor assembly to the home position assuring the correct starting position of the rotor.
5. The operating mechanism is fabricated using extra heavy duty components to accommodate the high rotor weight. Rotation speed is controlled by hydraulic shock absorber and gear system. All internal operating components are enclosed in a fabricated stainless steel top cover.
6. Concealed top and bottom bearings provide free, easy rotation even in hostile environments.

### 2.05 Communication System.

* 1. Authorized entry method, the Turnlock-100 Full Height Security Turnstile shall signal the user when the unit receives the authorized access signal from the access control system.
  2. The Turnlock-100 Full Height Security Turnstile shall visually signal the authorized user to enter.
  3. In addition, a visual violation LED signal will be activated if unit is locked.

1. **Security Reporting:** The Turnlock-100 Full Height Security Turnstile must have the capability of providing security violation alerts to the access control system or an on-site remote panel (not supplied by Boon Edam).
2. **Inputs**: Two inputs are available.
3. **Outputs**: Three configurable outputs are available in a Normally Open state.
4. **Standard inputs include**: **Standard outputs include**:

Input 1: Access Granted Clockwise (CW) Output 1: Home Position

Input 2: Access Granted Counter-Clockwise (CCW) Output 2: Rotation Detection Switch CCW

Output 3: Rotation Detection Switch CW

### 2.06 SECURITY EQUIPMENT

1. **Actuation**: Turnstile actuation by external card reader mounted on endpost or remotely. (Not supplied by Boon Edam)
2. **Actuation Device**: Although tied into the turnstile, actuation devices are provided by the Access Control Integrator.
3. **Inputs and Outputs**: The control module includes a series of inputs and outputs which can be selected for optimal use:
4. Inputs: two inputs are available. Specific inputs will be configured as listed in Section 2.05 D. Along with Fire Alarm Integration.
5. Outputs: Three outputs are available as Normally Open. Specific outputs are configured as listed in Section 2.05 D. *– See Additional Options Section 2.11 for optional outputs.*
6. All fail-lock applications include a mechanical key release, which allow free passage in an emergency.

### 2.07 ACCESS CONTROL AND FIRE ALARM INTEGRATION

A. The Turnlock-100 Full Height Security Turnstile must be capable of integrating with the Access Control System (ACS) and Fire Alarm System via a series of dry contact potential free input signals. Control wiring from the ACS system are to be connected (integrated) to the turnstile via an I/O board, or terminal strip, supplied within the turnstile control system (ACS cabling supplied by others).

1. **Fire Alarm**: Each Turnlock-100 Full Height Security Turnstile must have it’s own dedicated fire alarm relay signal, normally closed contact (opens on active alarm), dry contact circut. Depending on directional set up, the Turnstile will release lock for free egress when the fire alarm is activated.

### 2.08 SEQUENCE OF OPERATION

A. **Authorization, Pulse to Secure:** Authorization from the Access Control System (ACS) or remote panel button is required before the unit will open. After valid authorization the Turnlock-100 Full Height Security Turnstile will release the lock in the direction of authorization. User manually rotates the rotors to gain passage. Activation is by a momentary, isolated normally open dry contact closure.

B Immediately after authorized passage, the Turnlock-100 Full Height Security Turnstile returns to its home position where it securely locks.

1. **Authorization, Pulse to Non-Secure**: Identical to the “Authorize In” sequence of operation above.
2. **Fire/Life Safety**: Fire/Life Safety: All authorized life-safety and emergency alarm contacts must drop signal to automatically release Turnstile locks for free egress. Life Safety overrides all other functions unless mechanically locked per customer specification.
3. **Power Loss:** Dependant on the specified configuration the unit will act accordingly upon power loss. (Fail Safe / Fail Safe – Fail Safe Exit / Fail Lock Entry – Fail Safe Entry / Fail Lock Exit – Fail Lock / Fail Lock)

### 2.09 PERFORMANCE/THROUGHPUT

* Throughput is defined as the number of people per minute which can pass through a Turnstile in *one direction only*. The average throughput of the Turnlock-100 Full Height Security Turnstile is aproximately 15 - 20 people per minute. Tandem units will be 2 x 15-20 people per minute.

### 2.10 FINISHes

1. Hot-dipped galvanized
2. Powder coated, black. Other colors of powder coating available.
3. #304 Stainless Steel

### 2.11 ADDITIONAL OPTIONS

The following are additional features and options available with the Turnlock SecurityTurnstile.

* Speed Control
* Red/green indicator lights
* Remote release pushbutton
* Solenoid Activation Switch
* Out of use lock
* Card reader mounting weather resistant box
* Heel protectors

### 2.12 BE sECURE OPTION

BE Secure is an option for the Turnlock family of product which incorporates Sensing technology capable of detecting and preventing piggyback attempts.

* The sensor scans a defined critical path measuring 500 critical points to determine the characteristics of a human being.
* The sensor is very robust in its ability to perform in extreme light, temperature and changing backgrounds.

BE Secure is currently available on the following models as a factory deliverable option:

* Turnlock 100, EC, ECP and ES Models
* Turnlock 150, ASTG Models
* Turnlock 200, EL Models (Standard Top Chanel Only)
* 60” Models Only
* Counterclockwise Direction Only
* Single Shield or Dual with Standard Top Channel.

## PART III – EXECUTION

### 3.01 INSTALLATION

1. **Inspection:** Installer must examine the location and advise the Contractor of any site conditions unacceptable for proper installation of product. The minimum conditions necessary to initiate installation are:
   1. Floor must be dead level at any point within the footprint of the door.
   2. Finished floor must be installed.
   3. Floor must be complete with conduit supplied to meet manufacturer’s specified drawings.
   4. Power supply (110-240VAC) must be installed. Power and comunication come from the floor to the secure side of the cabinet as per approved specified drawings.
2. **Erection:** Install turnstile in accordance with manufacturer’s printed instructions. Set units level, plumb, and with uniform hairline joints. Anchor securely into place. Use only factory trained installers.
3. **Adjustment:** Installer shall adjust turnstile for smooth operation and proper performance.
4. **Maintenance**: Follow maintenance procedures as outlined in the Instruction or Operation Maintenance Manual
5. **Cleaning:** Clean metal surfaces carefully after installation to remove excess caulk, dirt and labels.

**Boon Edam, Inc. reserves the right to change this specification at any time without notice.**