

SPECIAL SPECIFICATION

SECTION 02446S

FULL-HEIGHT TURNSTILES

PART 1 - GENERAL

1.01 PRODUCT DESCRIPTION:

The turnstile is an electric lock controlled, full height turnstile designed to provide controlled access into and out of high security facilities. T

PART 2 - MATERIALS:

2.01 PRODUCT: "MSTX" by Alvarado

- A. All tubing and sheet metal materials meet ASTM Standard A513.

2.02 MECHANICAL COMPONENTS:

- A. The Yoke (curved section) is a fully welded, continuous assembly. It consists of 10 pieces of vertically aligned 1 3/4" x 16-gauge cold rolled carbon steel tubing notched and welded to two curved, horizontal tubes bent to an inside radius of 28 3/4". Two 3/16" x 1" carbon steel straps are welded to the outside of the ten tubes for additional support. No external fasteners are used in the construction of the yoke.
- B. The Roto (rotating section) is a fully welded, continuous assembly comprised of three arm sections positioned 120 degrees apart from one another. Each arm section contains 13 arms for a total of 39 arms per roto. Each arm is constructed from 1 3/4" OD x 14-gauge cold rolled steel tubing, notched and welded to a vertical 3" OD x 3/16" wall tube. Each arm is capped with a 1 3/4" OD x 10-gauge cap, welded and ground smooth with powder coat. No external fasteners are used in the construction of the roto.
- C. The OV (barrier section) is a fully welded, continuous assembly. It consists of 13 arms notched and welded to a vertical tube. The arms are constructed from 1 3/4" OD x 14-gauge cold rolled steel tubing notched and welded at one end to a vertical 3" OD x 3/16" wall tube. Each arm is capped with a 1 3/4" OD x 10-gauge cap, welded and ground smooth with powder coat. No external fasteners are used in the construction of the OV.
- D. The Top Channel is constructed from a 7" wide structural steel "C" channel enclosed with a 16-gauge #304 stainless steel sheet metal channel cover. The

following are the main control mechanism components contained in the top channel:

1. Cam and Shaft Assembly – The lobed cam is precision investment cast stainless steel welded to a splined shaft. The splined shaft fits into a reciprocal splined coupling in the top of the roto, creating a solid non-slip connection between the parts
 2. Top Bearing Assembly – The cam and shaft assembly rotates in a bearing assembly consisting of two fully protected precision bearings.
 3. Friction Brake Assembly – The braking mechanism consists of a precision investment cast steel circular disc brake that rotates and maintains contact with two disc brake pads to provide friction braking during the rotation of the turnstile. The friction braking tension is adjustable.
 4. Mechanical Turnstile Control: The locking and unlocking of the unit is controlled with stainless steel lock arms that are moved into the appropriate locked or unlocked position by continuous duty rated solenoids and spring assemblies. There is one solenoid and spring assembly per lock arm, and one lock arm per direction, allowing for independent control of each rotational direction.
 5. Opto Interrupter Rotation Wheel Assembly: This assembly consists of two opto-interrupters (small, industrial grade, transmit and receive LEDs), and a rotation wheel. As the turnstile arm is rotated, the rotation wheel passes between the two opto interrupters, signaling the Alvarado Turnstile Controller (ATC) that a turnstile rotation has occurred. The ATC uses this information to re-lock and provide access control functionality without the need for mechanical microswitches.
- E. The Yoke Guard Plate is constructed of 16-gauge cold rolled carbon steel sheet metal and is bolted to the top of the channel / yoke assembly.
- F. Size: MSTX units have an overall height of 91”, an overall width of 62 1/4”, and a depth of 54 1/8”.
- G. Electric Lock Control: The electric lock and card reader/ keypad configurations of the MSGX are specified in section “Infographic Systems Entry Control and Alarm Monitoring System” of Division 25.

2.03 ACCESSORY COMPONENTS:

- A. Turnstile Open/Closed Lights – Red and Green LED lights are also available to indicate whether the MSTX turnstile is open or closed. This option is used in conjunction with the remote locking and unlocking option.

- B. Self-Centering Mechanism - The self-centering mechanism corrects under (less than 120°) or over (more than 120°) rotation of the turnstile arms following completion of a passage cycle. The turnstile arms automatically return to the “home” position (with one set of arms pointing directly at the center of the yoke) when this option is installed. This feature is standard on the MSTX-5X. This option can not be retrofit in the field.
- C. Heel Guards – Padded foam sleeves for the lower roto arms. Heel guards are packaged three to a set and are used to cushion the lowest arms on the roto.
- D. Arm Guards – Padded foam sleeves for the higher roto arms. Arm guards are packaged three to a set and are used to cushion the higher sets of arms on the roto.
- E. Computerized Counting – Each turnstile rotation outputs a count to GateWatch, Alvarado’s Windows based software program that monitors and records real time patron counts. Counts can be transmitted from the turnstile in several ways, including over a standard, in facility, Ethernet network or using wireless RF devices.
- F. Out of Service Lock Bracket – Enables the turnstile to be secured with a padlock when out of service.
- G. Extended Arms – Features extended 47” arms to accommodate wheelchair and stroller passage (extended arms are constructed from 12-gauge steel tubing). MST47 units have an overall width of 105 1/2”, a depth of 91 3/8” and an overall height of 91”.

2.04 FINISHES:

- A. Powder Coated; Sub-assemblies are to be sand blasted to prepare for the powder coat finish. The powder is electrostatically applied, then baked to assure proper curing and adhesion.
 1. Thickness: 5 mil (dry)
 2. Color as selected from manufacturer’s standards

PART 3 - EXECUTION

3.01 FIELD ACTIVATION TESTING

- A. The ATC provides a field activation testing button, for each electrically controlled direction. This feature provides a simple way for installers to test the functionality of the MSTX and isolate problems in the field.

3.02 SHIPPING

- A. MSTX turnstiles are shipped in five main sections: the Top Channel, the Yoke, the Roto, the OV, and the Yoke Guard Plate. Each section is fully fabricated and welded as a sub-assembly for easy installation. Each MSTX unit includes mounting hardware (anchors, bolts, washers, etc.) to mount the unit to a standard concrete pad.

3.03 INSTALLATION

- A. All MSTX units must be installed on a firm foundation in a manner that allows the required power and activation signal cabling to be pulled into the top channel. The recommended platform is 72" square by 4" deep, level concrete. No embedded fasteners are needed for installation. Installation should be performed by a skilled installer following the manufacturer's directions and instructions (supplied with the turnstile).

3.04 WARRANTY

- A. Alvarado Manufacturing Co., Inc. warrants the MSTX, from defects in material or workmanship, for the period of ONE YEAR from date of shipment. Complete details of the warranty are available from Alvarado by request.

3.05 TECHNICAL INFORMATION

- A. Technical information is available from Alvarado Manufacturing Co., Inc., and its representatives, distributors, and dealers.

END OF SECTION