**ENGINEERING SPECIFICATIONS**

**TollPlus 261 Barrier**

# SECTION 08 34 56 – Security Gates

# SECTION 28 13 00 – Access Control

# SECTION 34 71 13 – Vehicle Barriers

## **PART I – GENERAL**

* 1. **SECTION INCLUDES**
     + - 1. This section covers the furnishing and installation of a rising barrier for toll areas.
  2. **REFERENCES**
     + - 1. The rising barrier shall be compliant with EC standards.
  3. **SYSTEM REQUIREMENTS**
     + - 1. The rising barrier must control and restrict vehicle traffic entering toll areas.
         2. Must feature rising arm to block vehicles and control access to toll areas.
         3. Must have electromechanical brake integrated. The arm must be electromechanically locked at the vertical (up position), and the horizontal (down position).
         4. Must be able to automatically operate.
         5. Must be configurable in one of three (3) states:

Open - arm remains in the open or up position.

Closed - arm remains in the closed or down position.

Automatic - arm is normally in the closed position and controlled by the associated entry/exit hardware.

* + - * 1. Must be able to use the access control system to grant or deny access to the toll area and operate with a variety of user authentication devices such as card reader devices, ticketing systems or barcode reader systems.
        2. Must automatically open in case of power failure.
        3. The arm must be made of either aluminum or carbon fiber with a weatherproof protected cushion in polyester with PVC coating.
        4. Barrier’s arm must offer different options to avoid damage to the arm mechanism if an impact occurs.
        5. Design of the unit must provide visual notification option for intuitive process.
  1. **SUBMITTALS**
     + - 1. Submit product data: equipment description, dimensions, electrical wiring diagrams for installation, and manufacturer's technical manuals on each product to be used, including:

Preparation instructions and recommendations.

Storage and handling requirements and recommendations.

Installation methods.

Operation and maintenance manuals.

* + - * 1. Provide shop drawings and indicate component connections and location, anchorage methods and location, and installation details.
  1. **DELIVERY, STORAGE AND HANDLING**
     + - 1. Deliver equipment to job site in manufacturer’s packaging, undamaged and complete with installation instructions.
         2. Store indoors in a controlled environment, protected from construction activities and debris.
  2. **PROJECT/SITE CONDITIONS**
     + - 1. Install the rising barrier on leveled concrete base.
  3. **QUALITY ASSURANCE**
     + - 1. The rising barrier must be manufactured in the European Union.
         2. Manufacturer Qualifications:

Manufacturer shall be a company specialising in designing and manufacturing rising barriers with a proven minimum experience of forty-five (45) years

Manufacturer shall have a Quality Management System compliant with ISO 9001

* + - * 1. Source Limitations: obtain the rising barrier from Automatic Systems.

###### WARRANTY

* + - * 1. Automatic Systems warranties its products against parts defects for a period of two (2) years from the date of invoicing. This warranty excludes normal wear on finishes or damage that occurs due to abuse or misuse. Obtain full warranty terms from Automatic Systems.

## **PART II – PRODUCTS**

* 1. **MANUFACTURERS**
     + - 1. Manufacturers: subject to compliance with requirements, provide products by one of the following:

AUTOMATIC SYSTEMS, 22 rue du 8 mai 1945, 95340 Persan, FRANCE

Homepage : [www.automatic-systems.com](http://row.automatic-systems.com/home/index.html)   E-mail : [asmail@automatic-systems.com](mailto:asmail@automatic-systems.com)

* + - * 1. Products:

Rising barrier for toll area, Model TollPlus 261

* 1. **CONSTRUCTION**
     + - 1. Operator frame

Frame must be manufactured of folded and welded sheet steel, protected anti-corrosion treatment and polyester paint.

\*\* NOTE TO SPECIFIER \*\* Standard color is Orange (RAL 2000). It is possible to configure (for free) the color of the housing panels according to these colors: Red, Anthracite grey, White

Delete the following subparagraphs in brackets; retain the color that is appropriate for the project.

The housing must be painted in,

Orange (RAL 2000).

[*Traffic Red (RAL 3020)*.]

[*Anthracite grey (RAL 7016)*.]

[*White (RAL 9010)*.]

* + - * 1. Access panels

The hood must be removable to allow easy access to both the electromechanical drive and electronic control units.

Openings must be key-locked.

The hood must be manufactured in aluminum sheet.

* + - * 1. Arm

Left or right mounted arm,

\*\* NOTE TO SPECIFIER \*\* Oval aluminum arm is the standard for the rising barriers TollPlus 261. At an additional cost, other materials and features are available [as option listed in brackets].

Delete the following subparagraphs in brackets if no optional material is required, or retain the material that is appropriate for the project.

To be oval and manufactured from aluminum (section of 80 x 54 mm with maximum 4m length), lacquered white with red reflective strips with swing-off device included the swing-off detection device.

[*To be round and manufactured from carbon fiber with a weatherproof protected cushion in polyester with PVC coating (made up of a tube called “lining” in aluminum alloy with a diameter of 34.5mm, covered with a tube called “composite” made up of fiberglass, carbon fiber and an epoxy resin with a diameter of 38mm, covered with two veined and glued “half-shells” in expended polystyrene with a diameter of 100mm, covered with a thermorectractable film in polyethylene which is covered with a cushion in polyester with PVC coating with a thickness less than a millimeter in order to have an arm with an external diameter of 100mm with maximum 4m length) with a swing-off device included the swing-off detection device.*]

[*To be round and manufactured from carbon fiber with a weatherproof protected cushion in polyester with PVC coating (made up of a tube called “lining” in aluminum alloy with a diameter of 34.5mm, covered with a tube called “composite” made up of fiberglass, carbon fiber and an epoxy resin with a diameter of 38mm, covered with two veined and glued “half-shells” in expended polystyrene with a diameter of 100mm, covered with a thermorectractable film in polyethylene which is covered with a cushion in polyester with PVC coating with a thickness less than a millimeter in order to have an arm with an external diameter of 100mm with maximum 4m length) with an automatic re-hinging device included the swing-off detection device.*]

* + - * 1. Enclosure

Design of the unit’s enclosure shall ensure an IP 55 degree of protection

* 1. **DIMENSIONS**
     + - 1. Arm length:

The arm length for equipment must be 2m to 4m depending to the arm type.

* + - * 1. Operator dimensions:

Overall dimensions TollPlus 261 operator:

Height: 1060 mm

Footprint: 300 x 360 mm

Rotation axis height

915 mm

* 1. **OPERATION**
     + - 1. Automatic mode (arm Normally Closed & Controlled by a loop or access control device):

Command to barriers. In stand-by position, the passageway must be blocked by the arm.

Upon receipt of a signal from the access control system or the inductive loop, the arm must open, freeing the passageway.

The obstacle immediately closes after passage or after a configurable delay.

* + - * 1. Power Failure

In case of power failure, the barrier can open/close manually once the mechanical lever is unlocked.

After the power has been restored, the unit must return to its previous operating mode.

* + - * 1. Emergency Operation

The unit can be set to remain open upon receiving an emergency signal. The obstacle opens and allows unobstructed exit / entrance.

This operating mode continues as long as the emergency signal is active.

After the emergency signal has been turned off, the unit must return to its previous operating mode.

* 1. **SECURITY**
     + - 1. Must provide operator and arm to securely block the passageway:
         2. Must have electromechanical brake integrated. The arm must be electromechanically locked in the closed position to prevent any attempted break-in.
         3. The cabinet’s side panels and top cover must be key-locked.

* 1. **SAFETY**
     + - 1. In case of emergency or power failure, the operator must allow opening automatically.
         2. Must provide minimum 2m wide passageway.
         3. Passage can be monitored in both directions by means of a loop detector, infrared beams, or other means of monitoring, to ensure user safety and prevent arm from closing when a vehicle is crossing the passageway:

If a presence is detected in the obstacle safety area during the opening motion, the arm will complete its opening.

If a presence is detected in the safety area during a closing motion, the arm can be set to either immediately stop or re-open depending on the selected mode. The obstacle will operate again after the safety zone has been cleared

* + - * 1. The arm controller motor must have a provision for an entrapment protection device that automatically reverses or stops the movement whenever the arm strikes an object during a closing action.
  1. **VEHICLE GUIDANCE**
     + - 1. Visual notification with clear graphics can be incorporated in each direction to control flow and to warn users.
  2. **DRIVE UNIT**
     + - 1. Reversible three-phase asynchronous geared motor brake, lubricated for life, ensures the perfect protection of the mechanism in case of malicious forced lifting.
         2. Drive shaft directly driven by reduction motor eliminating all complicated adjustments and risk of breakdown.
         3. Frequency converter ensuring progressive accelerations and dampened decelerations, for safe movement without vibrations, reversal direction without jolt and increased protection of the mechanism.
         4. Balancing of the arm by means of compensating springs, according to the weight of the arm.
  3. **CONTROLLER**
     + - 1. Microprocessor-based controller with the following characteristics:

IP communication interface

Embedded web server, accessible by a web browser, to monitor the barrier in real time, set operating modes, advanced parameters and to provide diagnostics for quick detection of problem source

IP communication interface for extended settings and functions

* + - * 1. The logic must be equipped with:

LED indicators showing the status of the inputs and outputs,

Twelve (12) digital inputs,

Two (2) output relays, six (6) digital outputs.

The logic must be equipped with one (1) loop detector connector when loops are used as safety or to control the barrier opening/closing.

The barrier operator may be equipped with an extension module that adds a loop detector connector, eight (8) digitals inputs and eight (8) output relays.

* + - * 1. The controller must have equipment diagnostic capability and the ability to be configured:

The Human Machine Interface:

Eight (8) Dipswitches,

Two (2) potentiometers,

One (1) push button and eight (8) Leds

The diagnostic software must be web based and embedded in the controller,

The embedded diagnostic software must be accessible by a web browser from any device,

The diagnostic software must provide the following features:

Real time monitoring of the barrier,

Operating modes and advanced parameters setting,

Quick detection of problem source and trouble notification with the unit.

* 1. **POWER SUPPLY**
     + - 1. Power supply:

\*\* NOTE TO SPECIFIER \*\* 230 Volts AC 50/60 Hz is the standard power supply. For an additional cost, 120 Volts AC 60 Hz is available as an option in brackets.

Delete the following subparagraphs in brackets if no optional material is required, or retain the material that is appropriate for the project.

230 Volts AC 50/60 Hz

[*120 Volts AC 60 Hz*]

* + - * 1. Consumption in operation:

At rest : 44W maximum

Peak : 450W maximum

* 1. **PERFORMANCES**
     + - 1. Opening Time & Closing Time

The obstacle opening time: 0,6 second depending on arm length

The obstacle closing time: 0.6 second depending on arm length

* + - * 1. Operating Temperatures: -25 to +60 degrees Celsius
        2. MCBF: 5.000.000 average number of cycles between breakdowns, when respecting manufacturer’s recommended maintenance
  1. **OPTIONAL EQUIPMENT**

\*\* NOTE TO SPECIFIER \*\* Delete the following subparagraphs in brackets if no optional equipment is required, or add as necessary.

*[Hood and door intrusion information]*

*[Push buttons box for opening-closing-stop]*

*[Key switch on housing for automatic-locked open-locked closed modes]*

*[Vehicle detection loop]*

*[Presence detector for detection loop]*

*[Photoelectric cell for opening-closing-safety]*

*[Cell assembly on housing]*

*[Cell support post]*

*[Ultrasonic detector]*

*[Extension card for inputs, outputs]*

*[Totaling counter]*

*[LED traffic lights]*

*[Support post for traffic lights]*

*[LED traffic light + acoustic and visual alarm]*

*[Paint of another RAL color (other than standard colors)]*

*[Treatment for aggressive saline environment]*

*[Thermostatic heater for operation down to -35°C]*

*[Raised base]*

## **PART III – EXECUTION**

* 1. **INSPECTION**
     + - 1. Installer must examine the installation location and advise the Contractor of any site conditions inconsistent with proper installation of the product. These conditions include but are not limited to the following:

Rising barrier for parking area operator must be installed on a level concrete pad,

Power supply and control wiring must be installed. Follow manufacturer’s recommendations.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
  1. **INSTALLATION**
     + - 1. Install rising barrier in strict accordance with manufacturer’s instructions. Set units level. Anchor securely into place.
  2. **ADJUSTMENT**
     + - 1. Installer must adjust rising barrier for proper performance after installation.
  3. **INSTRUCTION**
     + - 1. A factory trained installer must demonstrate to the owner’s maintenance crew the proper operation and the necessary service requirements of the equipment, including exterior maintenance.
  4. **CLEANING**
     + - 1. Clean barrier operator and area carefully after installation to remove excess caulk, dirt and labels.
  5. **MAINTENANCE**
     + - 1. Maintain the equipment according to the manufacturer’s instructions.

**Automatic Systems reserves the right to change this specification at any time without notice.**

END OF SECTION