Speed Gates – Full Glass Sliding Leaves

ARCHITECTURAL & ENGINEERING SPECIFICATIONS

NOTE for the Specifier:

- Text in **Black**, is standard and valid for all product range described by this document
- Text in **Red** is for peculiarities ref to a Product model or version specific, and the specifier must remove what not relevant and remove also the references to the product name.

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This section covers the furnishing and installation of a complete full glass sliding leaves Speed Gate system for pedestrian access control. Provide complete system that has been fabricated and tested for proper operation at the factory. The system includes moving (motorized operated drive) barrier on aisle, cabinet housing the mechanism and logic, power supply unit, detection sensors, and options/accessories (if included in the object of supply).

1.2 QUALITY ASSURANCE AND REFERENCES

A. Manufacturer shall be a company specializing in the supply of automatic security pedestrian access control systems, with a minimum of 10 (Ten) years of experience.

B. Manufacturer with well-proven experience in public transportation is recommended

C. Manufacturer shall have a Quality Management System compliant with ISO 9001:2015 and ISO 14001:2015 and OHSAS 18001:2007 or ISO 45001:2018

D. The full glass sliding leaves Speed Gate system shall be in compliance with EC standards

1.3 APPLICATIONS

A. Entrance/exit to/from buildings, or any pedestrian entrance in general in sensitive facilities and premises, with need for separation of the secure area from the non-secure area, for security management and regulation of the pedestrian flow between them and egress monitoring.

B. Typical applications include:

- Office buildings,
- Government buildings,
- Retail,
- Finance,
- Telecommunications, IT,
- Banking,
- Publishing, Leisure, Education,
- Petrochemical, Industrial sites,
- as well as other sensitive facilities

1.4 SYSTEM REQUIREMENTS

A. The pedestrian full glass sliding leaves Speed Gate shall control and be able to restrict pedestrian flow between non-secure and secure areas.

B. Shall use the building access control system to grant or deny access to the facility and operate with a variety of user authorization devices.

C. On receiving the signal from the access control system, or push button, this allows the passage of one person at a time.

D. Shall be motorized driven operated and bi-directional, to allow passage flow in both directions. Each direction shall be independently programmable, in one of the following states:

- Free:
  all persons are authorized to pass, and authentication means are ignored
- Controlled:
  each person must present a valid credential to the authentication means before to pass. Only people with authorized credentials are then authorized to transit
- Blocked:
  no person is authorized to pass, and authentication means are ignored

E. The status is shown:

- in entry and exit side on the optional LED way-mode indicators in the legs, and optional Pictograms in the top lid, (for SpeedStile FP BA or EV).

- in the in entry and exit side on the LED way-mode indicators in the legs, in the inlay sides by the LED strips housed into the top lid and in the sides inward the aisle, (for SpeedStile FP DS).

F. In case of emergency, and power on, the full glass sliding leaves open to allow an easier exit. Passage in both directions is electronically controlled.

G. Shall be suitable for indoor installations only.

H. For security and safety reasons, children must be supervised by an adult at all times, in the vicinity of an active lane. Any children being escorted through the lane must always precede the accompanying adult during passage

1.5 SUBMITTALS

A. Submit product data for full glass sliding leaves Speed Gates: equipment description, dimensions, material and finishes, electrical diagrams for installation, manufacturer's manual for each product showing:

- danger, warnings, cautions and risk assessment notes
- good practice, storage and handling of the equipment
- product description (dimensions, general construction, finishes)
- technical specifications
- instruction for use
- installation (unpacking, site preparation, environmental conditions, power supply characteristics, cabling, mounting details, unit positioning, anchorage and floor drilling, electrical connections, Emergency/Fire alarm connections, I/O connections)
- operation and maintenance
- recommended spare parts

B. CAD drawing product layout showing overall dimensions, anchorage and cable entry details

C. BIM object in compliance and accredited according to Cobie level 2 specifications, delivered in both Autodesk Revit software and also in the neutral Industry Foundation Classes (IFC) software formats for exchange and interoperability between AEC software applications.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to job site in manufacturer's packaging undamaged, complete with installation instructions. Instruction shall be available in a digital file, pdf format.

B. Store off ground, under cover, protected from weather and construction activities and debris.

C. Storage and transportation temperature -25°C to +55°C (Relative Humidity 95% not condensing)

1.7 PROJECT/SITE CONDITIONS

A. Installation suitable for finished floor. Floor must be flat and level ± 5mm (value will need to be verified product family by product family. Here highlighted as a reminder in the master document) at all locations within the footprint of the product/system.

1.8 WARRANTY

A. The manufacturer shall warrant its products against defects in material and workmanship for a period of one (1) year from the date of substantial completion, and no longer than two (2) years from the date of invoicing of the delivered products from the factory. (To be revised by Sales Company as per local policies)

B. This warranty excludes glass breakage, normal wear on finishes or damage that occurs due to abuse, misuse or acts of God.

PART 2 PRODUCTS

2.2 FUNCTIONS AND MODE OF OPERATION

A. Operation modes

The full glass sliding leaves Speed Gate is an access control barrier system designed for facilities requiring bidirectional or unidirectional control of pedestrian passage and access flow between a secure area and a non-secure area. The full glass sliding leaves, with a Normally Closed (NC) setting, open soon upon receiving a signal from the access control system. If an unauthorized person tries to tailgate or attempts to enter from the opposite direction, the in-built alarm system is activated. If within the pre-set time out no passage has occurred, the lane will close and reset. With a Normally Open (NO) setting, the leaves remain open in rest position and will only close at unauthorized entry or tailgating attempts (only available for SpeedStile FP BA and EV). The system, with optional features, is able to handle accompanied or not accompanied wheelchair transit, or to improve child passage management with enforced safety means. Passage is programmable and controllable independently in each direction, in the following modes/states:

- Controlled mode: access is granted to persons with a valid authorization mean only.
- Free mode: any person is allowed to pass and the authorization mean is ignored.
- Blocked mode: any person is not allowed to pass and the authorization mean is ignored.

Further modes are available as follow:

B. Security Features

- The barrier leaves in rest position blocks the passageway (NC setting)
- leaves remains self-locked with or in absence of power; shall the leaves be in closed position, it is not allowed to force open the gate by pushing the leaves back into the cabinet gap housing, unless the leaves are driven in by the motor drive upon an open command from the logic, or the mechanism includes the Fail-Safe option which enables a mechanical-driven self-opening of the leaves in the case of absence of power.
- Sensor detection able to detect the following fraud attempts:

a) intrusion: if a person tries to gain access to the passageway without authorization
b) wrong way access: an authorized person transits, and an unauthorized person trays to pass in the opposite direction
c) Tailgating: an authorized person transits, followed by an unauthorized person trays to pass behind in the same direction
d) Leave aisle time out: presence of people standing into the aisle with or without authorization not completing the transit, over a time out

C. Emergency / Fire Alarm

- In the case of emergency / fire alarm signal is triggered, the gate behaves as follow:
  - The motor drives the leaves to open a clear passageway
- Emergency / fire alarm input facility available for free voltage contact to effect fail-state.
- The full glass sliding leaves Speed Gate is not certified as an emergency egress device.
- The full glass sliding leaves Speed Gate is not provided with rechargeable battery packs.

D. Power Failure

- The mechanism leaves remain in the position at the time the power is off. In the case the leaves reached the aisle closed position, (Fail-Lock) it is not allowed to push them open into the cabinet slot.
- Fail-Safe: in the case of power off event:

a) with the optional battery back-up, the leaves are motor-driven to open the aisle
b) with the optional mechanical Fail-Safe, the leaves are automatically, mechanic-driven to open the aisle

- The flap leaf Speed Gate is not certified as an emergency egress device.

E. Alarm outputs

- A local visible alarm is generated when alarms occur. Flashing red cross.
- A local audible alarm is generated when alarms occur. Buzzer sounds.
- Dry contact and serial protocol, digital programmable outputs are available for e.g. strobe, CCTV, voice prompts, remote monitoring or other security integration responses.

- An audible and visible alarm as well as dray contact and serial protocol alarm signal is enabled in the following scenarios:
  - INTRUSION: if a person tries to gain access to the passageway without authorization. Climb over or crawl under the gate alarm or improper transit
  - LEAVE AISLE TIME OUT: if a presence into the aisle is detected over a programable time out.
  - WRONG DIRECTION: if a pedestrian attempt to turn around and walk back or if attempts to pass in the opposite direction while a valid authorized person is transiting
  - TAIL GATING: if an unauthorized pedestrian attempts to follow into the aisle an authorized person
  - TECHNICAL/DIAGNOSTIC FAILURE: if a malfunction in either of the product system or door obstruction occurs

2.3 DESIGN, CONSTRUCTION AND FINISHES

A. Shape

- An aisle is formed by two caseworks opposing to each other, each casework driving a glass sliding leaf
- two glass sliding leaves per aisle are necessary for closing-opening the passageway for normal pedestrian transit.
- Multi aisle layouts are allowed by using center caseworks carrying a glass sliding leaf on each side of the cabinet.
- The casework is with an oval shape cabinet, housing the mechanism caring 1 glass sliding leaf on one side, or one glass sliding leaf on each side for center cabinet layouts, detection sensors, logic, and power supply unit.
- Casework lid with a rounded top shape housing LED signalization strips on top and side panels through the passage inlay (for SpeedStile FP DS).

B. Materials

- Plinth:
  - 304 grade grained stainless steel (for SpeedStile FP BA).
  - Stainless steel mirror finish (for SpeedStile FP DS)
- Lid:
  - painted metallic grey polyurethane (for SpeedStile FP BA).
  - Stainless steel 304 grade (for SpeedStile FP EV).
  - Technopolymer (clear PET-G (Polyethylene terephthalate) white finish (for SpeedStile FP DS only)
- End Legs:
  - painted metallic grey polyurethane (for SpeedStile FP BA).
  - Stainless steel 304 grade (for SpeedStile FP EV).
  - Technopolymer (clear PET-G (Polyethylene terephthalate) white finish (for SpeedStile FP DS only)
- end-legs and lid inlay:
  - 304 grade grained stainless steel (for SpeedStile FP BA and EV).
  - Included in the lid: Technopolymer (clear PET-G (Polyethylene terephthalate) grey finish (for SpeedStile FP DS)
- Wing housing:
  - painted steel to match with the lid and end-legs (for SpeedStile FP BA).
  - Stainless steel 304 grade (for SpeedStile FP EV).
  - Included in the side panel: Technopolymer (ABS/PMMA acrylic resin) white finish (for SpeedStile FP DS only)
- Side panels:
  - checkered acrylic and stainless steel, or 8.3-8.5mm thick 3ply laminated safety glass, or full stainless steel 305 grade (select the applicable side as any of the previously listed are compatible with SpeedStile FP BA and EV).
  - Technopolymer (ABS/PMMA acrylic resin) white finish (for SpeedStile FP DS only)
- Glass sliding leaves: 12mm thick toughened glass, with rubber safety edge

C. Mechanism

- Mechanism housed in the casework-plinth frame shall comprise motor gearbox, encoder or angular sensor. Sliding leaves are moved by two linked mechanical arms. The arms are rotated by a torque shaft connected to a motor drive, DC motor. The mechanism comprises springs to counterbalance the weight of the leaves ensuring smooth operation without vibration and reducing the power requested by the motor during the opening and closing cycles. A microprocessor control system to assure precise movement and positioning of the leaves.
- Shall provide 1 glass sliding leaf per side, to assure in the rest position, 2 leaves per aisle to block the passageway and ensure single-user throughput
- Shall provide a Fail-Lock feature when the glass sliding leaves are closing the aisle in a power on or off scenario: it is not allowed to manually push the leaves to open the aisle
- Shall be Fail-Safe, if with:

a) the optional battery back-up: the leaves are automatically motor-driven to open the aisle.
b) The optional mechanical self-opening mechanism: the leaves are automatically mechanic-driven to open the aisle

- The full glass sliding leaves speed gate mechanism configurable as:
  - Normally Closed configuration: the aisle is kept permanently closed until a valid authorization signal is received
  - Normally Open configuration: the aisle is permanently open and will only close if passage is attempted without a valid authorization signal

D. Electronics Interface

- 27 digital interface I/O
- Serial port RS 232
- Serial port RS485
- Input for voltage free contact for fire signal alarm
- Settings programmable via parameters
- Remote control connectivity: inputs are provided for external control by remote of modes

E. Visual and audible Signalization

- Buzzer alarm sound
- Optional LED way-mode indicators housed in the legs, with red cross and green arrow symbols to provide the status of the lane to users approaching from distance to the gate (for SpeedStile FP BA and EV).
- Optional Pictograms LED housed into the top lid, with red and green color providing the status of the lane to a user at the gate (for SpeedStile FP BA and EV).
- LED strips on top lid and on side inward the aisle (for SpeedStile FP DS only)

F. Power Supply unit and consumption

- 230 Volts AC 50 Hz or 115 Volts AC 60 Hz
- Nominal consumption:

a) Stand by: 2VA (46VA with the optional Fail-Safe mechanism)
b) In operation: 345VA maximum (700VA with the optional Fail-Safe mechanism)

G. System Performance

- MCBF 4 million of cycles (5 million if NO -Normally Open. For SpeedStile FP BA or EV only)
- MTTR less than 30 minutes
- Operating temperature 5°C to +40°C (Relative Humidity 95% not condensing)
- IP rating 20

2.4 DIMENSIONS

SpeedStile FP BA and EV / SpeedStile FP DS

A. OVERALL SYSTEM DIMENSIONS (ONE PASSAGE LANE)

- Overall width: total depending on sliding leaves dimension and layout mm

- Overall length: mm 1448, 1932 / 1448 mm
- Overall height: 1200, 1800 mm

B. OVERALL CABINET DIMENSIONS

- Overall cabinet width: 300, 480, (490 for EV) / 300, 490 mm
- Overall cabinet length: 1448, 1932 / 1448 mm
- Overall cabinet height: 950 mm

C. PASSAGE LANE WIDTH AND BARRIER RELEVANT DIMENSIONS

- Net passage width: 550, 900 / total depending on sliding leaves dimension and depending from the gap between moving barrier and wall/obstacle
- Glass leaf height from finished floor to top edge: 1200, 1800 mm
- Gap between moving barrier: installation requires min 50mm gap from the end of arm to the wall or any other obstruction)

2.5 OPTIONS AND ACCESSORIES

A. ALTERNATIVE COLOR AND FINISHES

- Polyurethane cabinet parts (legs, top), and steel swing housing in alternative colors (for SpeedStile FP BA)
- Technopolymer parts (legs, top, sides, and inlays) in alternative colors or finishes (for SpeedStile FP DS)

B. FAIL-SAFE MECHANICAL OPENING

- The sliding leaves, in the case of a power off scenario, and in absence of battery-back up, are mechanical-driven for self-opening the aisle (only for SpeedStile FB BA and EV)

C. BATTERY OPERATED COUNTER

- One counter per direction required
- 8 digit LCD with reset option, 6 years battery life

D. CARD READER INTEGRATION

- Suitable for integration into the top lid.
- Suitable for surface mounted card reader integration. It requires drilling in the plant (for SpeedStile FP BA and EV)
- Suitable for integration into the leg (for SpeedStile FP BA or EV only).

E. GRAVITY CARD COLLECTOR (for SpeedStile FP BA or EV only)

- Top lid and leg modified in order to: allow for a reader integration, include a bin collector for card dimension (including holder) not exceeding 94mm x 65mm x 7mm, with possible clip on card not exceeding 18mm, and min card weight of 5 grams (for SpeedStile FP BA or EV only)
- Maximum reader dimension not exceeding 100mm x 100mm x 30mm.

F. PRDISPOSITION FOR MOTORIZED CARD COLLECTOR (for SpeedStile FP BA or EV only)

- Top lid and leg modified to in order to allow for a predisposition to house a motorization type Nortech MRC 350 or compatible, include a reader integration housing, and include a bin collector for cards.
- Maximum reader dimension not exceeding 100mm x 100mm x 30mm.

G. LED WAY MODE INDICATOR

- Housed in the legs: display green arrow and red cross symbols (for SpeedStile FP BA and EV).

H. LED PICTOGRAM

- Housed in the top lid: display green arrow, red cross and yellow badge symbols. (for SpeedStile FP BA and EV).

I. BATTERY BACK-UP

- Battery housed into the cabinet, allows for automatic opening of the aisle in the case of power off.

J. REMOTE CONTROL UNIT

K. NOTE TO SPECIFIERS: ADD REQUIRED OPTIONS TO THIS PROJECT

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

C. Installer shall examine the location and advise of any site conditions unacceptable for proper installation of product. These conditions include, but are not limited to the following:

- Identification and planning for expansion joints, project access, onsite staging areas, site configuration/temporary construction enclosures, and work hours as related to other activities.
- Recommended floor preparation to be RCK250 type UNI 9858 concrete with minimum thickness of 150mm. Floor must be flat and level +/- 5mm over footprint area.
- The ability for the door system in object to be installed shall be verified prior to installation on any part.
- Power supply and electrical must be installed by licensed electrician and verified to be of the correct local electrical standard.
- Required facility systems such as security, fire interface and electrical power must be ready for connection/termination at time of installation.

3.2 INSTALLATION

D. Installer shall install the system in accordance with manufacturer's provided instructions, and by trained personnel at the manufacturer's facility, to prove a proficient level of knowledge on installation, settings and maintenance on the product object of installation, and capable to train on site the client after installation.

E. System must be set level, plumb, with uniform hairline joints, and anchored securely into place.

F. Confirm and maintain dimensional tolerances, as indicated by the manufacturer recommendations and instructions.

G. Coordinate installation with facility stakeholders such as electrical, security, fire and others as required.

3.3 OPERATIONAL ADJUSTMENTS

A. Operational adjustments in the field shall be achievable with general facility maintenance personnel after being trained.

3.4 CLEANING

A. Clean the product and area carefully after installation to remove excess caulk, dirt and labels

3.5 COMMISSIONING INSTRUCTIONS AND TRAINING

B. Installer shall provide on-site training.

C. Adjust door, hardware, speeds in case of motorized moving elements, settings and sensors in case of detection ability, for smooth operation, compliance with end user expectation (within operational tolerances) and all safety codes and standards.

D. Installer shall demonstrate to stakeholders the proper operation of the door and the necessary service requirements such as lubrication, cleaning, and inspection or components.

3.6 MAINTENANCE

E. Maintain the equipment according to the manufacturer's instructions.

END OF SECTION