Speed Gates – Flap Leaf FLS

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 flap 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 flap 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 flap 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 on the LED way-mode indicators, in entry and exit side. In case of emergency, and power on, the leaves open to allow an easier exit. Passage in both directions is electronically controlled.

F. Shall be suitable for indoor installations only.

G. 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 flap 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 brakeage, 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 flap 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 flap 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. 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.
- Locked 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)
- in an attempt to force open the gate by rotating the leaves, the brake power up from the steady power rate applying a torque to oppose to the rotation.
- 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:

a) 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 flap leaf Speed Gate is not certified as an emergency egress device.
- The flap leaf Speed Gate is not provided with rechargeable battery packs.

D. Brake Force:

- Optional: extra brake performance, by applying a greater torque able to brake to permit the leaves to rotate.

E. Power Failure

- Mechanism Fail-Safe as follow:

a) Fail-Safe: in the case of power off event, leaves are released and the can freely rotate.

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

F. 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:

a) INTRUSION: if a person tries to gain access to the passageway without authorization. Climb

over or crawl under the gate alarm or improper transit.

b) LEAVE AISLE TIME OUT: if a presence into the aisle is detected over a programable time out.
c) WRONG DIRECTION: if a pedestrian attempt to pass in the opposite direction while a valid authorized person is transiting.
d) TAIL GATING: if an unauthorized pedestrian attempts to follow into the aisle an authorized person.
e) 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 leaf
- two leaves per aisle are necessary for closing-opening the passageway for normal pedestrian transit.
- One leaf per aisle is allowed only for closing-opening a service gate dedicated passage, not meant for normal pedestrian transit
- Multi aisle layouts are allowed by using center caseworks carrying a leaf on each side of the cabinet.
- The casework is a barrier work housing the mechanism caring 1 leaf on one side, or one leaf each side for center cabinet layouts, detection sensors, logic, and power supply unit.
- Casework lid shape with square ends (for SpeedStile FLS BA), with round ends for (SpeedStile FLS EV), with curved elliptic top (for SpeedStile FLS DS)

B. Materials

- Rotor column Casework: 304 grade grained stainless steel
- Plinth and end leg posts: 304 grade grained stainless steel
- Casework Inlay: 10mm thick clear toughened frameless glass panel
- Flap leaves: 10mm thick clear toughened frameless glass panels
- Top lid: black technopolymer or Polyurethane foam (RIM) Baydur 60- 600g/m3 in matt grey color (optional color RAL scale, applied finish carbon fiber-effect or wood-effect, or solid corian selection for SpeedStile FLS BA or EV only)

C. Mechanism

- Mechanism housed in the column frame shall comprise motor gearbox, encoder and brake assembly
- Shall provide 1 leaf each side to assure in the rest position, 2 leaves block the passageway and ensure single-user throughput
- Shall provide an anti-panic feature in order to:

a) In a power on scenario, allows to manually push the leaves to open the aisle by applying a torque on the rotation axis of the leaf
b) In a power off scenario, or in a fire alarm scenario, the brake is disengaged and the leaves can be freely pushed open.

- The flap leaf speed gate mechanism configurable as:

a) Normally Closed configuration: the aisle is kept permanently closed until a valid authorization signal is received
b) Normally Open configuration: the aisle is permanently open and will only close if passage is attempted without a valid authorization signal

- Mechanism Fail-Safe as follow:

a) Fail-Safe: in the case of power off event, the entrance gate leaves are released and can freely rotate.

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 of the modes by remote

E. Visual and audible Signalization

- Buzzer alarm sound
- LED way-mode indicators, with red cross and green arrow symbols to provide the status of the lane to users approaching from distance to the gate
- Pictograms LED strip housed into the top lid, with red and green color providing the status of the lane to a user at the gate (only for SpeedStile FLS DS).

F. Power Supply unit and consumption

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

a) Stand by: 20VA

b) In operation: 120VA maximum

G. System Performance

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

2.4 DIMENSIONS

SpeedStile FLS BA, EV and DS / SpeedStile FLS BA, EV and DS Service Gate

A. OVERALL SYSTEM DIMENSIONS (ONE PASSAGE LANE)

- Overall width: total depending on glass leaf dimension and layout mm
- Overall length: mm 1200, 1400, 1870 (1800 only for SpeedStile FLS DS) / total depending on glass leaf dimension mm
- Overall height: 940, 1200, 1400, 1800 (940 only for SpeedStile FLS DS) mm

B. OVERALL CABINET DIMENSIONS

- Overall cabinet width: 120 (add 65 for end side cabinet and 130 for center cabinet) mm
- Overall cabinet length: 1200, 1400, 1870 (1800 only for SpeedStile FLS DS) mm
- Overall cabinet height: 940 mm

C. PASSAGE LANE WIDTH AND BARRIER RELEVANT DIMENSIONS

- Net passage width: 600, 900 / total depending on glass leaf dimension and depending from the gap between moving barrier and wall/obstacle
- Glass leaf height from finished floor to top edge: 880, 1200, 1800 (880 only for SpeedStile FLS DS) 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

- Top lid with alternative colors, finishes and materials

B. CARD READER INTEGRATION

- Suitable for surface mounted card reader integration. It requires drilling in the plant
- Suitable for integration into the top lid.

C. LIGHT CURTAIN EXTRA SAFETY SENSORS

- Additional sensor to increase safety in the case of transit and presence of children. The gate is not meant for use by a minor if not accompanied by an adult in any event.

D. WHEELCHAIR EXTRA SAFETY SENSORS

- Additional sensor to increase safety in the case of transit and presence of wheelchairs. The gate is not

meant for use by a minor if not accompanied by an adult in any event.

E. BRAKE

- In a power on scenario, maintains the brake active to prevent any to push the leaves and open the aisle. The extra brake performance, means must be applied a greater torque on the rotation axis of the leaf to open the aisle.
- In a power off scenario, or in a fire alarm scenario, the brake is disengaged and the leaves can be freely pushed open.

F. REMOTE CONTROL UNIT

G. 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