BOON EDAM

SPEEDLANE 900

Operating manual

Your **Security.** Our **Solution.**

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1   Preface

Read the Manual
Please read this manual carefully before using the Speedlane for the first time.

Unclear Information
The manual has been written with the utmost care and attention. Nevertheless, if certain parts are unclear to you or contain errors, you can contact Boon Edam or your supplier. He will be able to explain you how to operate the Speedlane.

Users of the Manual
A person that has sufficient knowledge of the language used in the manual is allowed to execute maintenance.
This manual is aimed at the user of the Speedlane and provides information on:
- Operating the Speedlane
- Maintenance
- Trouble shooting

Symbols
You will encounter a few symbols in this manual. The meaning of the symbols is as follows:

⚠	**WARNING!** Risk of personal injury or loss of life.
❗	**NOTE!** The material may be damaged or the operation of the door affected.

Abbreviations Used
- MCB   Microcontroller Board
- UPS   Uninterrupted Power Supply
- FI   Frequency Inverter
- N.O.   Normally Open
- N.C.   Normally Closed
- LED   Light Emitting Diode

CE Marking, name tags and glass stickers
The CE marking is placed at the inside of the master unit and directly visible when the top plate is removed. There are two nametags. One is placed at the non-secured side at the bottom of the column. One is placed at the secured side at the bottom of the column. The two Boon Edam glass stickers are placed on the doorwings at the bottom on either side.

2   Introduction

2.1   Concept and Design

Application
The Speedlane belongs to the security products group of Boon Edam. For an optimal security, the Speedlane needs to be installed in an environment where supervision is present.

The Speedlane consists of two opposite units (basic unit), each of which has been equipped with a mechanism operating the glass door wings. The door wings slide from a casing resulting in a standard position with completely blocked access (normally closed). The access width with both door wings fully opened is 510 [mm]. This width is narrow enough to prevent two persons passing the Speedlane while walking next to each other. The wide Speedlane has an opening of 900 [mm] for access of wheelchairs and trolleys.

The units are fitted with safety and security sensors, which monitor persons passing the door wings and also perform a safety function. The unit is 1000 [mm] high (excluding the top plate). Children ($<=$ 900 [mm]) are not detected by the security sensors, but are detected by the safety sensors between the doors. The emphasis is on maximising safety and not on access security. The safety sensors are placed (between 180 [mm] and 580 [mm]) to ensure optimal safety.

The total length of the standard Speedlane is 1395 [mm]; the length of the lengthened Speedlane is 2580 [mm]. This length is required for proper (secure) interaction between the sensors and the sliding door wings in the normally open mode.

The height of the glass door wings of the standard Speedlane is 900 [mm]; the height of the heightened Speedlane is 1200, 1400, 1600 or 1800 [mm]. This height has been chosen to prevent people attempting to climb over the door wing.

The chosen width and opening and closing speed results in a capacity of up to 25 to 30 persons per minute in one direction, depending on the authorisation system chosen. In a fully open situation, without authorisation, the capacity can be increased to 120 persons per minute.

The maximum relative humidity is 75%, which means that the Speedlane can be installed in all indoor environments. The high maximum of 75% has the advantage that the Speedlane can easily be installed in humid environments.

Design
The units consist of a frame incorporating the mechanics, sensors and controls. The frame design uses stainless steel features with a stainless steel column on each side. The stainless steel features (class AISI 304 with a grain K240 finish) have been chosen for its attractive appearance.
The top surface has standard options like Oak wood (lacquered), Cherry wood (lacquered) or Stainless steel look-a-like veneer (satin finish). As a special, other top plate materials are possible. This gives architects the opportunity to fit the Speedlane to its environment. The standard door wings are made of clear tempered glass.

Operation

The Speedlane can be equipped with a control panel. The panel is a separate unit and can be placed in/on a reception desk. The control panel can be used for a number of functions. The door wings can be locked (in the open or closed position) but can also be fully opened. The control panel has been provided with push buttons to allow a single person to pass in either direction or to allow persons to pass continuously.
The Speedlane itself can be equipped with a card reader system (not delivered by BE). Optionally, the card readers can be integrated into the Speedlane. It is also possible to place an additional card reader pedestal in front of the Speedlane, which is identical to the ones used at the ends of the Speedlane.

Safety and security

Safety has been the top priority in the development of the Speedlane. It passed our rigorous CE procedure. The extremely fast electronics in combination with the sensors described above make the Speedlane a very safe product.

Three different security modes can be selected: low, medium or high security mode. In the low security mode, when a person or object is in the safety zone between the two door wings, the door wings will not close. When the door wings are already closing they will stop and open slowly. The medium security level is like the low security level, only the area that is used to detect unauthorised persons is narrower. This results in a higher level of tailgating prevention. In the high security level (open on detect), the door wings will close on the person (object), but if an obstruction is detected they will open.

In case of a power failure, the Speedlane still operates because of the uninterruptible power supply (UPS). If the battery of the UPS is low the door wings of the Speedlane will open and stay open (default). Alternatively the last action can be programmed to close the doors and to keep them closed. When power is restored and the battery of the UPS is empty, the Speedlane will initialise. Otherwise the Speedlane will operate normally again. Before the Speedlane is ready for use it needs to position its door wings. The positioning of the door wings is done during initialisation. While the Speedlane is initialising, all security features will be disabled. It is recommend to keep clear of the Speedlane during initialisation. The fire alarm will also be disabled.

The door wings will open slowly in case of a fire alarm. Once the fire alarm is cancelled, the door wings will close. The Speedlane is then ready for normal operation. The fire alarm position always takes precedence over the locking position.

Installation and Maintenance

Installation and maintenance have been kept as simple as possible. Numerous maintenance free components have been used. The Speedlane has also been equipped with easy removable panels. This will save the service engineer lots of time. The frame and columns can easily be installed and levelling is by means of adjusting bolts.

Multiple Speedlane Set-up

Optionally, a so-called Multiple Speedlane set-up may be installed. In this set-up, an additional unit (intermediate unit) is installed between the existing master/slave Speedlane units. This will create a double passage while saving space and costs. This set-up demonstrates why the glass door wings in the opposite units are always "staggered". All options available on the standard Speedlane are also available for the Multiple Speedlane set-up. It is possible to connect a wide and a standard Speedlane by a special intermediate unit. This unit has a standard and a wide door panel.

3 Variations

There are 8 standard variations of the Speedlane:

Type	900	900-H	900-W	900-L	900-HW	900-HL	900-LW	900-HLW
Standard	X							
Heightened		X			X	X		X
Widened			X		X		X	X
Lengthened				X		X	X	X

3.1 Standard unit

The Speedlane can be activated by most access control systems.

These systems can be built into the column under the top panel in front of the LED-display.

There are 16 safety sensors.
Total weight is 300 [kg].
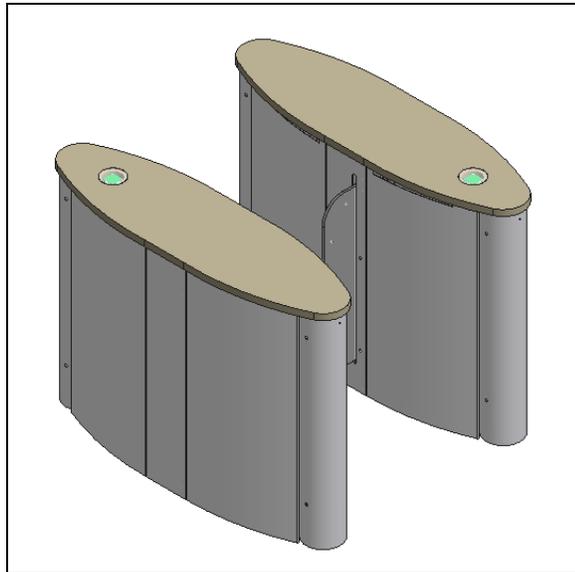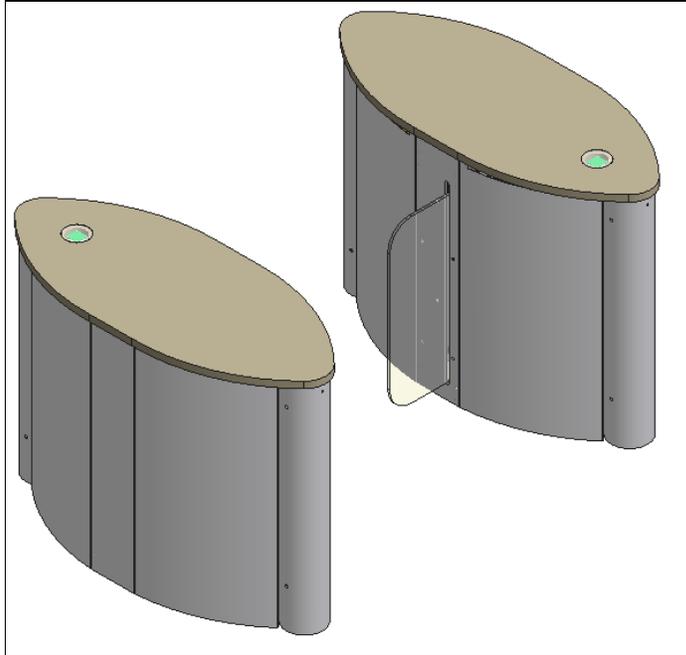

3.2 Heightened unit
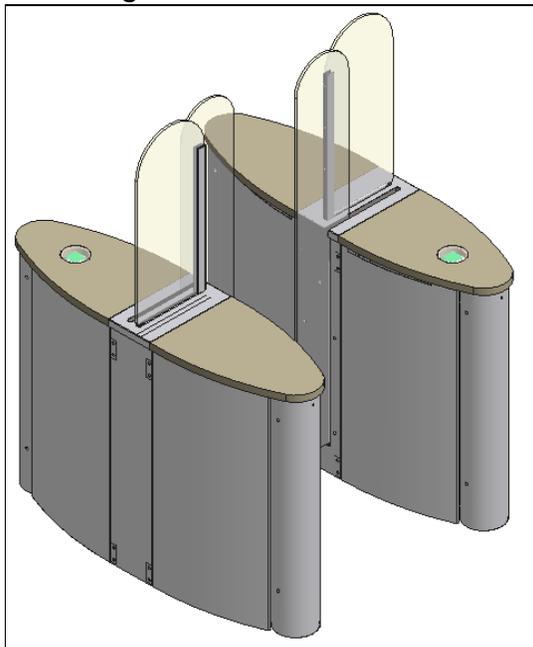
The heightened Speedlane is available in 4 different heights (to prevent climbing over).

The optional heights are:
- 1200 [mm]
- 1400 [mm]
- 1600 [mm]
- 1800 [mm]

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3.3 Widened unit

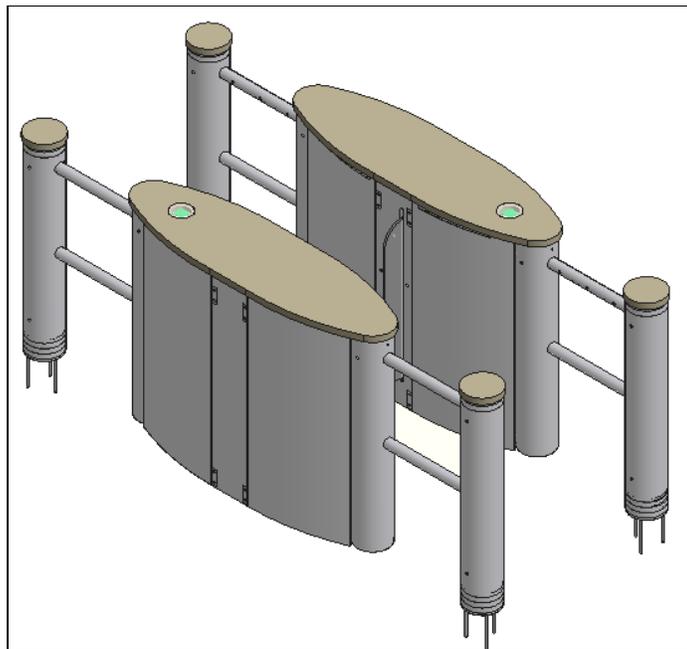The enlarged passenger width is 900 [mm].

3.4 Lengthened unit

The passage length of this Speedlane is 2580 [mm].

Optional for the lengthened Speedlane, the card reader system can be built into the extended column.

The max. dimensions of the card reader system are:
130 x 80 x 50 [mm]

There are 24 safety sensors.

For the lengthened Speedlane a normally open mode is possible. For description see chapter 4.

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Version :   10/2007
Issue   :   SLBH-GBR

3.5 Multiple Speedlanes (optional)

Optionally a multiple Speedlane
set-up may be installed.

All Speedlane versions can be
combined to a multiple
installation.
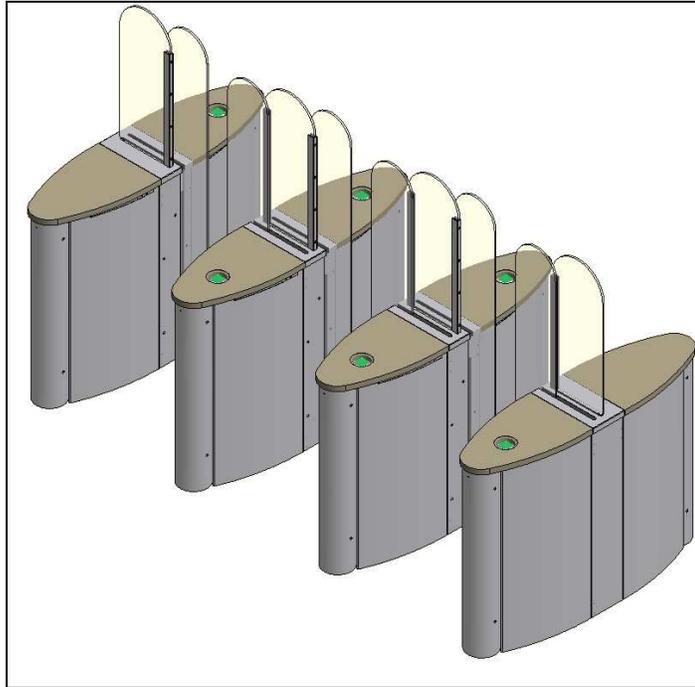
3.6 Activation options

In the standard Speedlane a card reader system can be integrated. The card reading
system is located under the top plate.

Optionally a card sized insert
can be fitted, which is mounted
flush with the top plate. This
insert indicates the position
where to hold the access
control card for identification.

To install the card reader
system a space of 150 x 60 x
50 [mm] is reserved.

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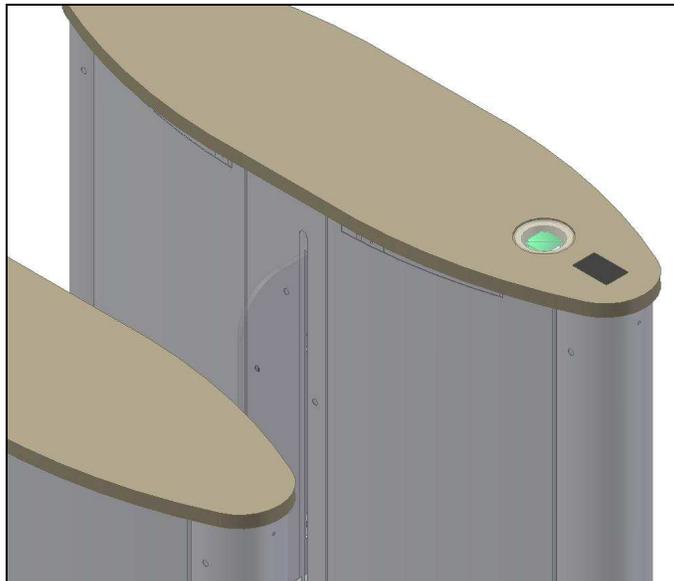
Optionally a pedestal in front of the Speedlane can be mounted for the card reader system.

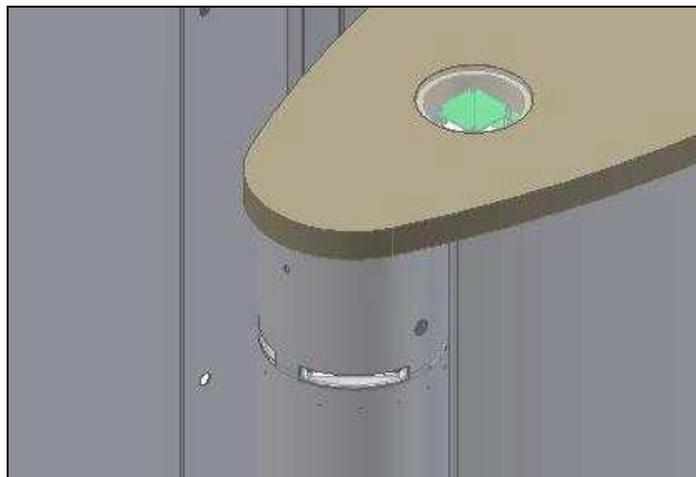The max. dimensions of the card reader system are: 130 x 80 x 50 [mm]

3.7 Display options

Optionally a LED-display can be mounted in the stainless steel column on each side of the Speedlane. The display is visible via two slots.

The display can light up red or green.

The display can be used to display traffic indication signals or authorisation signals.

4 Operating Concept

4.1 Introduction

The Speedlane consists of two opposing units. The barrier is formed by two sliding doors. In a single Speedlane, each unit is equipped with one sliding door. In a set-up with multiple adjacent Speedlanes, each unit (except for the outside ones) is equipped with two sliding doors. A number of specific alarms are raised in case of unauthorised use.

4.2 Standard operation

4.2.1 Normally closed mode (default setting)
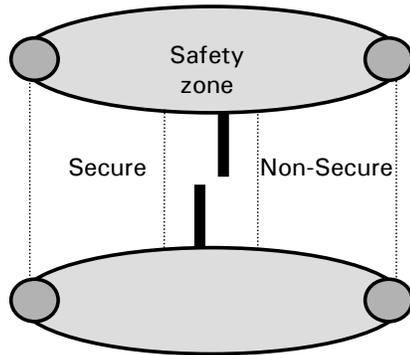
A person is given authorisation by presenting a proximity card to the access control system or when the push button is pressed (depending on the authorisation system chosen). When an authorised person enters or is already in the Secure (Non-Secure) zone, the door wings will open. After the person has passed the safety zone, the door wings will close immediately. When no one passes through the Speedlane, the door wings will close after 8 seconds (maximum authorisation time).

When authorisation by means of a card reader proceeds more quickly than persons are passing the Speedlane, a maximum of 3 (default value, adjustable between 1 and 10) authorisations for each direction will be kept in memory. Each authorisation has a maximum duration of 8 seconds. This means that when a person passes the Speedlane, the authorisation time is reset and the next person gets a maximum authorisation time of 8 seconds. The door wings remain open until the last authorised person has passed the safety zone of the Speedlane. Then the door wings will close immediately.

4.2.2 Normally open mode (optional for lengthened Speedlane)
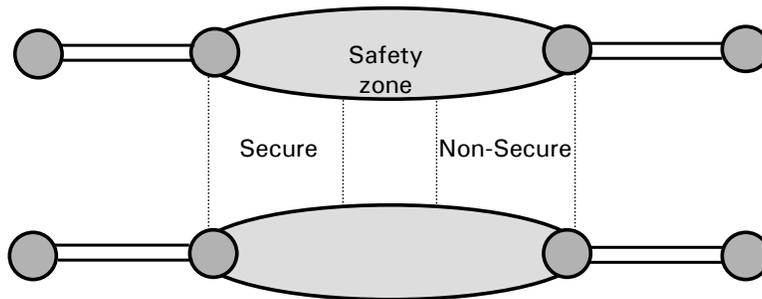
The door wings are always open in the normally open mode. The door wings stay open when an authorised person enters the Speedlane. The door wings close when an unauthorised person enters the Speedlane.

When authorisation by means of a card reader proceeds more quickly then persons are passing the Speedlane; a maximum of 3 (default value, adjustable between 1 and 10) authorisations for each direction will be kept in memory. Each authorisation has a maximum duration of 8 seconds. This means that when a person passes the Speedlane, the authorisation time is reset and for the next person there is a maximum authorisation time of 8 seconds again. The door wings remain open.

4.3 Direction Types

The following direction types can be selected by using the optional control panel.

- **Controlled access in both directions:** Access in both directions requires authorisation. Each unauthorised movement constitutes an alarm situation.
- **Controlled access in one direction and free exit in the opposite direction:** Only one direction requires authorisation. The other direction does not require authorisation provided no one attempts to pass the Speedlane (authorised or unauthorised) from the opposite direction.
- **Controlled access in one direction and blocked passage in the opposite direction:** Only one direction requires authorisation. The other direction is permanently blocked. In this situation the Speedlane can only be passed in a single direction, thus creating a traffic control.
- **Free access in both directions:** The Speedlane can be passed in both directions without authorisation. It is recommended to select this mode by using the "Open" functionality.
- **Blocked access in both directions:** The Speedlane cannot be passed.

4.4 Card reader control

When a person is authorised by the card reader for the Secure (Non-Secure) zone entry, the card reader gives a pulse to the control box of the Speedlane. If the person then passes the door panels a booking pulse is given to the card reader controller, if needed by the card reader control.
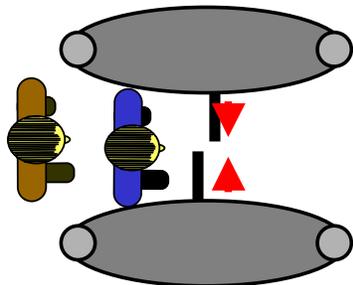
4.5 Security

When an unauthorised person steps in the Speedlane a sound signal will be activated. In normally closed mode the door wings stay closed and in normally open mode the door wings will close. When the person is standing in the Secure (Non-Secure) zone and authorises, the door wings will open.
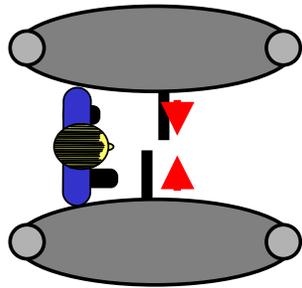
When an unauthorised person is standing in the Speedlane (Secure-, Non-Secure- or safety zone) and a second person approaches from the opposite direction, the second person cannot be authorised. The first person needs to leave the Speedlane before the second can be authorised.
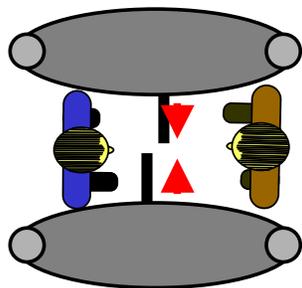
When an unauthorised person is standing in the Speedlane and a second person is approaching from the same direction, the second person can be authorised. The first person has to leave the Speedlane at the side the other person is approaching to allow the second person to pass. When the unauthorised person does not step out, this person can pass the door wings using the authorisation of the second person. The second person then needs to be authorised again to be able to pass the Speedlane.

4.5.1 Low security mode (default setting)

When a person who has been authorised to enter the Secure (Non-Secure) zone is closely followed by a second person who has not been authorised, the authorised person will be allowed to enter. The second person will not. The door wings will only close after the first person when the second person is not in the safety zone. A sound signal will be activated. If the door wings are closing and the unauthorised person steps in the safety zone the door wings will stop directly and open with slow speed.
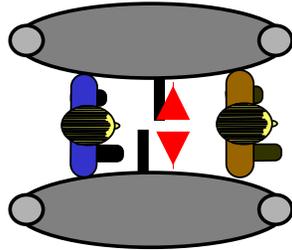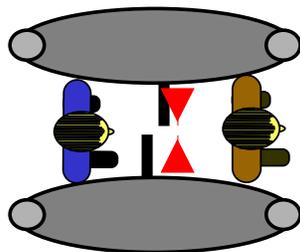

With authorisations in one direction only, when an authorised person steps into the Speedlane and steps out, the authorisation will remain active for 3 seconds (adjustable).

4.5.2 Medium security mode

The medium security level is like the low security level, only the area that is used to detect unauthorised persons is narrower. This results in a higher level of tailgating prevention.

4.5.3 High security mode

When a person who has been authorised to enter the Secure (Non-Secure) zone is closely followed by a second person who has not been authorised, the authorised person will be allowed to enter. The second person will not. The door wings will close after the first person and a sound signal will be activated. If the unauthorised person is in the safety zone the door wings will close with a slow speed. In the "Open on Detect" mode the door wings will close on the person or object, but if the door wings detect an obstruction they will open again.

With authorisations in one direction only, when an authorised person steps into the Speedlane and steps out, the authorisation is void.

4.5.4 Traffic mode

It is possible to generate intelligent traffic control in case of a complete lane of Speedlanes. The following settings are possible:

- **Traffic mode in both directions.**
  This is the default setting; persons can be authorised for both directions.
- **Traffic mode in Secure direction.**
  Only persons passing in the Secure direction can be authorised. The Non-Secure side LED-display shows a red cross (✗) continuously.
- **Traffic mode in Non-Secure direction.**
  Only persons passing in the Non-Secure direction can be authorised. The Secure side LED-display shows a red cross (✗) continuously.

4.6   Feedback signals

4.6.1 Standard signalling (default setting)

- When the Speedlane initialises, the display on both sides will be red (✗). If initialising fails after three attempts the display on both sides will blink red (✗).
- When the Speedlane is locked, the display will be red (✗) on both sides.
- When the Speedlane is open, the display on both sides will be green (↖).
- When there is a fire alarm, the display of the Speedlane will be green (↖) on both sides.
- When an unauthorised person enters the Speedlane, the display on both sides will blink red (✗).
- When an authorised person enters the Speedlane, the display of the entering side will be green (↖). If the person is in the Speedlane the display will be directly red (✗) and the next person can be authorised. If there are more authorisations ("pulse in" push button is pressed more than once) the display will become green (↖), turn red (✗) when the person is in the Speedlane and become green (↖) for the next authorised person when the first authorised person has left the Speedlane. After the last authorised person the display will be red (✗), and the doors will close.

### 4.6.2 Alternative signalling

- When the Speedlane initialises, the display on both sides will not be lit. If initialising fails after three attempts the display on both sides will blink red (✗).
- When the Speedlane is locked, the display will be red (✗) on both sides.
- When the Speedlane is open, the display on both sides will be green (↖).
- When there is a fire alarm, the display of the Speedlane will be green (↖) on both sides.
- When an unauthorised person enters the safety zone of the Speedlane the display on both sides will blink red (✗).
- When an authorised person enters the Speedlane, the display of the entering side will be green (↖) for one second. If the person is in the Speedlane the display will be directly red (✗) and the next person can be authorised. If there are more authorisations ("pulse in" push button is pressed more than once) the display will become green (↖) for one second, turn red (✗) when the person is in the Speedlane and become green (↖) (for one second) for the next authorised person when the first authorised person has left the Speedlane. After the last authorised person the display will be off, and the doors will close.

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4.7 Other Alarms

- **Malfunction alarm**
  When the Speedlane fails to initialise an alarm is generated. The alarm is also generated when the Speedlane is mechanically blocked during operation.

- **Anti-masking detection**
  The Speedlane has an anti-masking detection. Masking is the condition when one of the sensors is triggered (covered) continuously for more than 10 seconds. When one of the sensors notices masking, the acoustic alarm will be activated after ten seconds. The alarm continues for three seconds. This alarm will also be activated when a person stays to long in the detection sensors. The alarm repeats after ten seconds.

- **Intruder alarm (entry/exit)**
  When an unauthorised person enters the Speedlane and activates one of the sensors, the acoustic alarm is generated. The alarm can be switched off or set to trigger when the intruder is in the safety zone.

- **Open door alarm**
 When the door wings remain open an alarm is given after a number of minutes.

4.8 Control Panel (optional)

1. When the "block in" push button is pressed, the doors will remain shut even when an authorisation is given. The opposite direction remains in operation.
2. When the "block out" push button is pressed, the doors will remain shut even when an authorisation is given. The opposite direction remains in operation.
3. When the "pulse in" button is pressed, the doors will open and one person will be able to pass the Speedlane. A maximum of 3 pulses (adjustable) is kept in memory.
4. When the "pulse out" button is pressed, the doors will open and one person will be able to pass the Speedlane. A maximum of 3 pulses (adjustable) is kept in memory.
5. When the "free entry" button is pressed, no authorisation is needed for passing.
   Normally closed mode:
   ○ The door wings open when the person enters the Speedlane
   ○ The door wings close after the person passes the safety zone except when a second person is already in the Speedlane
   Normally open mode:
   ○ The door wings stay open
   ○ The door wings will close immediately and a sound signal will be activated when a person enters from the opposite direction
6. When the "free exit" button is pressed, no authorisation is needed for passing.
   Normally closed mode:
   ○ The door wings open when the person enters the Speedlane
   ○ The door wings close after the person passes the safety zone except when a second person is already in the Speedlane
   Normally open mode:
   ○ The door wings stay open
   ○ The door wings will close immediately and a sound signal will be activated when a person enters from the opposite direction
7. While the "open" button is pressed, the doors will open and remain open. When the button is pressed again, the doors will close and operate in the normal way.
8. Alarm light.
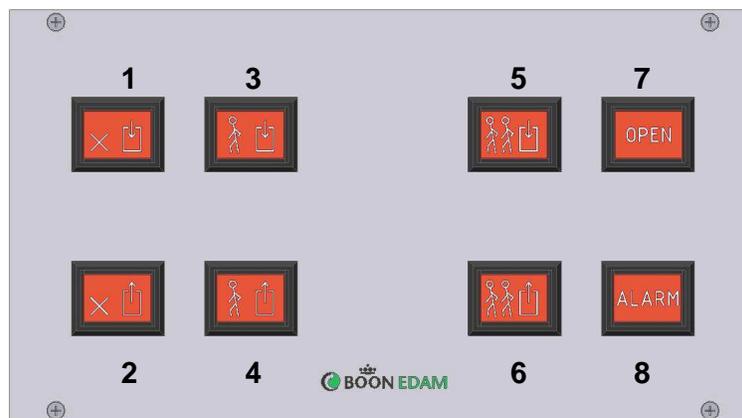
4.8.1 Other features of the control panel

Global reset. When the "pulse in" and "pulse out" buttons are pressed simultaneous during five seconds, the Speedlane will reset. The Speedlane will re-initialise after which it is ready for use.

SECURED SIDE

Master

NON-SECURED
SIDE   Slave
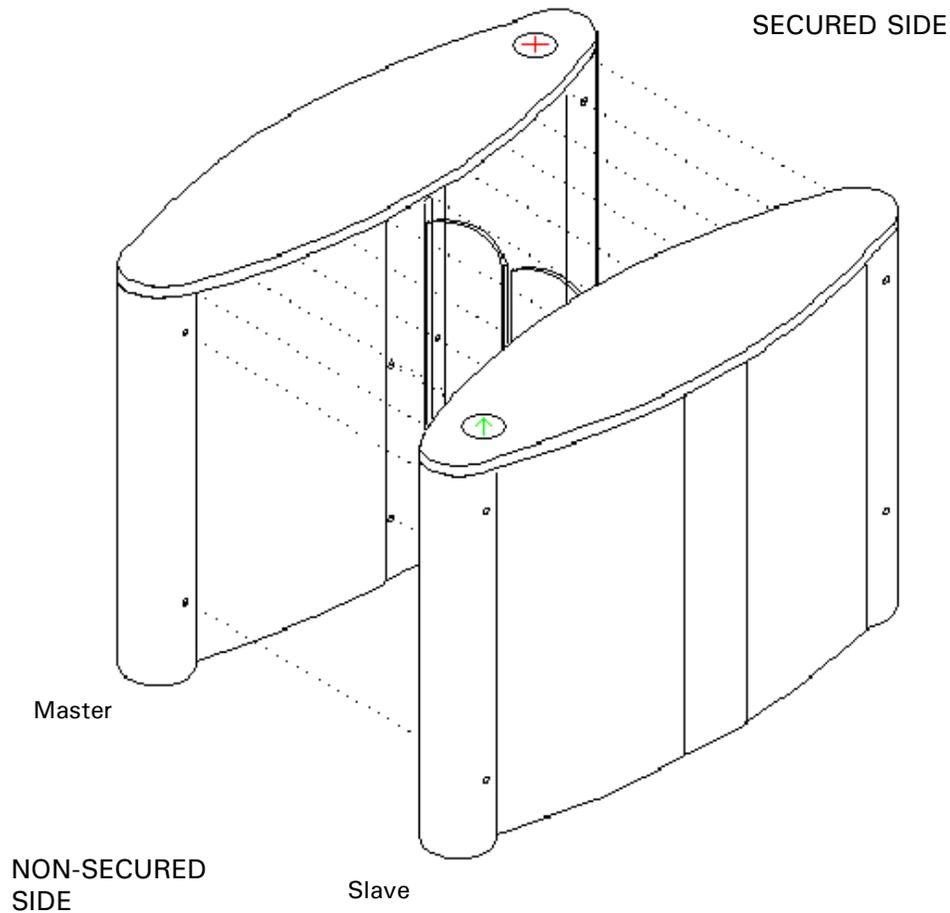
4.9 Adjustments Selection Menu

To adjust the working of the Speedlane to its optimum, a selection menu is built in. The selection menu is visualised on a display on the control panel. The selection menu is operated with the four push buttons directly under the display. The table below gives all the menu items with the default settings and the setting range. For the adjustment procedure please refer to the Electrical Service Manual.

Menu Item	Default	Range
Signalling mode	Standard	Standard, Alternative
Security mode	Low	Low, Medium, High – Open on detect
Model selection	Standard	Standard, Wide, High, Extended, Wide/High, Wide/Extended, High/Extended, Wide/High/extended After selecting a High model, the number of sensor pairs 1 to 5 must be chosen.
Door closing speed	4 1	1..4 (Low security mode) 1 (Medium and High security mode)
Sensor usage	All	All, Spare
Entry time [seconds]	8	1..20
Hold time [seconds]	3	1..20
Reply time [deci seconds]	3	1..20
Gate open	Sensor open	Sensor open, Pulse open
Intruder alarm	On	On, Partial, Off
Error state	-	Service item: Indicates error state
Encoder data	-	Service item: Displays encoder data
Maximum authorisations	3	1..10
Buzzer	On	On, Off
Last action	Open doors	Open doors, Close doors
Default settings	-	Service item: Restore default settings

Left   Escape   Enter   Right
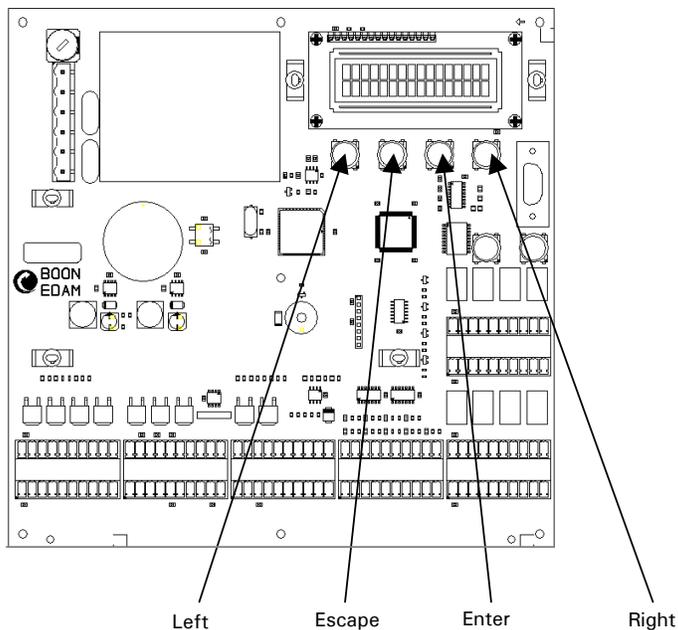
5   Maintenance

Switch off the power of the door during maintenance or other work.

Do not use water near the drive-unit or control boxes.

This schedule can be used as a checklist to maintain the Speedlane in its correct condition.

Daily
Check the emergency devices/safeguards and the general operation of the Speedlane.

Weekly
Cleaning of stainless steel parts:
- Clean these parts with a little water and a sponge.
- Dry these parts with a clean cloth.
- Spray Stainless Steel Polish & Cleaner on the dry parts and rub them with a dry clean cloth.

Monthly
Cleaning of stainless steel parts:
- Clean these parts with water and a sponge.
- Dry these parts with a clean cloth.
- Spray Stainless Steel Polish & Cleaner on the dry parts and rub them with a dry clean cloth.

Yearly
Once a year the Speedlane needs a major maintenance service. This service should be carried out by Boon Edam or by an authorised dealer.

6   Trouble Shooting

⚠️   **Switch off the power of the door during maintenance or other work.**   ⚠️

Use for replacement original parts, so that a correct operation is guaranteed.

Mechanical

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
Unusual noises	➢ Mechanical components loose or faulty.	☞ Find the cause of the noise. ☞ Consult your Boon Edam Service Agent.

Electrical

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
Speedlane stays locked.	➢ Power supply	☞ Check power supply and the fuses. ☞ Reset by switching power off and power on. ☞ Consult your Boon Edam Service Agent.
Speedlane does not stay locked.	➢ Control system failure ➢ Power supply ➢ Fire alarm ➢ Panels out of position	☞ Check cable connection power supply. ☞ Check power supply and the fuses ☞ Reset by switching power off and power on. ☞ Check mechanism ☞ Consult your Boon Edam Service Agent.
Doors are in half open position.	➢ Processor malfunctioning.	☞ Check cable connection power supply. ☞ Check power supply and the fuses ☞ Reset by switching power off and power on. ☞ Consult your Boon Edam Service Agent.

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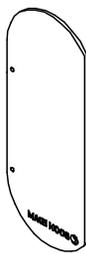## 7   Components
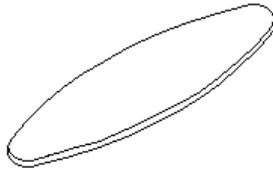
5577 0011

TOP PLATE
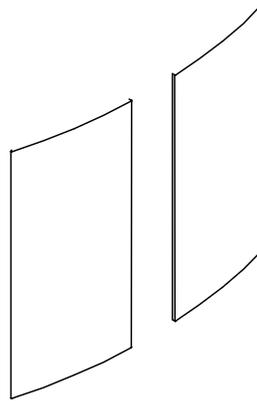
5577 0005

REMOVABLE PLATES

5577 0003

CENTRE PLATE BACK SIDE
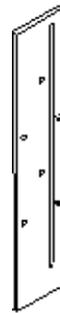
5577 0002

CENTRE PLATE DOOR SIDE

5577 0018

DOORWING GLASS 10 mm

5577 0000

END TUBE

8   Specifications and dimensions

Type:	Two-wing stainless steel access control barrier with sliding doors.
Application:	Barrier for controlled access (supervision) of people with a total height of 1000 mm (excl. top panel)
Capacity:	Controlled access (1 direction), nominal capacity: 25 to 30 persons/min. Combined controlled access in 2 directions, Free entry/exit, nominal capacity: 120 persons/min
Finish:	Stainless steel, AISI 304 with a K240 grain finish plating material Stainless steel, AISI 304 with a K320 grain finish end column
Door wing:	Glass, 10 mm transparent, tempered
Door height:	900 mm standard (opt. 1200, 1400, 1600 or 1800 [mm])
Weight:	2x150 kg, including glass (standard version)
Installation:	Chemical anchors
Cabling:	Power supply, operating panel optional, fire alarm & communication cables (see drawings)
Power supply:	240 VAC, 50/60 Hz
Fuse:	16 A slow *(structural)*

Drive

Input power:	Input power when not used: 30 Watt Maximum input power: 350 Watt
Motor type:	Asynchronous 3-phase motor, 6 poles
Voltage:	3x240V, 50Hz
Motor power:	0.25 kW ID = 25% (S3) (per unit)
Protective system:	IP 54
Temperature sensing:	135 degrees Celsius
Motor speed:	900 rev/min
Gearbox reduction:	15 : 1
Door speed:	Maximum 0.75 m/sec
Door lock:	Dead centre mechanism

Control

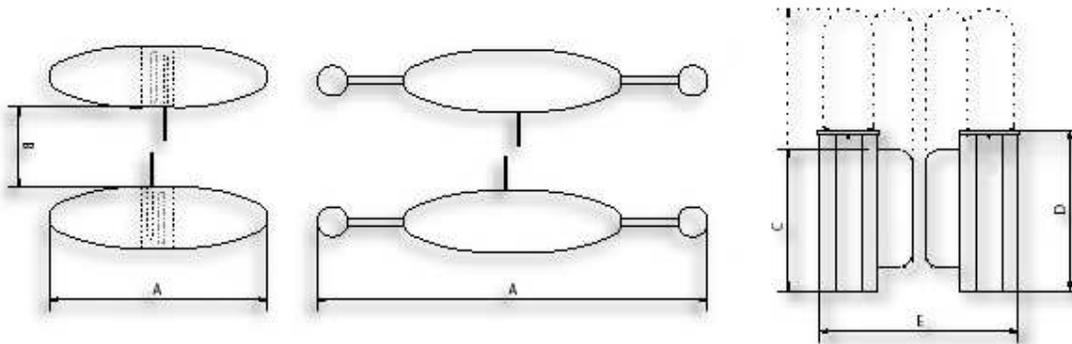|	
Microcontroller:	16 bits micro processor
Frequency inverter:	Input: 240 VAC, 50/60 Hz Output: 240 VAC, 1.1 kVA, 3.0 A
Nominal motor power:	0.55 kW

Sensors

Power supply:	12-24 VDC, 100mA
Min. distance:	1m
Max. distance:	10m
Temp. range: -	20°C / +55°C
Response time:	± 20ms

Dimensions table

		900	900-H	900-HL	900-L	900-W	900-HW	900-LW	900-HLW
A	Passage length	1390	1390	2580	2580	1390	1390	2580	2580
B	Passage width	510	510	510	510	900	900	900	900
C	Door wing heigth (from floor)	900	1200 1400 1600 1800	1200 1400 1600 1800	900	900	1200 1400 1600 1800	900	1200 1400 1600 1800
D	Unit heigth (approximately)*	1030	1030	1030	1030	1030	1030	1030	1030
E	Overall width	1270	1270	1270	1270	2100	2100	2100	2100

*Unit height is 1000 mm, plus the thickness of the top.
H = High, L = Long, W = Wide.

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