ST-02 Speed gate

+50 / +1 temperature range

24V operating voltage

204 W power consumption

2 passage direction

M motor drive

60 persons/min

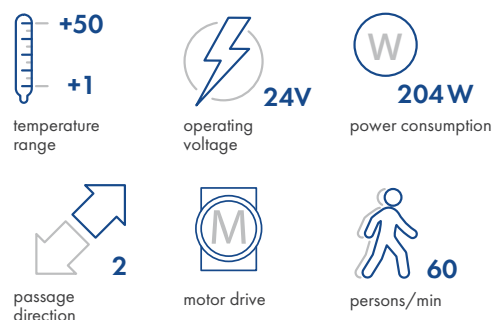## Application

ST-02 Speed gate with sliding panels is designed for indoor operation. It is an ideal solution for sites with high aesthetic and comfort requirements.

ST-02 is available in two versions: a standard passageway width of 600 mm (ST-02.600 version) or an extended one of 900 mm (ST-02.900). The extended version provides convenient access for people in wheelchairs and ensures free passage in case of an emergency. The panels are sliding away when a passage takes place.

If an increased number of passage lanes is needed, STD-02 double-sided sections can be installed. Each double-sided section allows arranging one extra passage lane. STD-02 is available in two main versions: STD-02.600 and STD-02.900 for organizing passage lanes with a width of 600 mm and 900 mm, respectively.

ST-02.600/900 is available on a separate order to arrange passage lanes of different widths (600 and 900 mm). For the same purpose, the STD-02.900 double-sided section has the possibility of reducing one panel to 600 mm.

The tracking system is equipped with two levels of infrared sensors, which guarantees the safety of passage at high throughput and provides avoiding the simultaneous passage of two or more people.

RC-panel

Operating modes

The speed gate supports two main operating modes: normally closed and normally open, as well as an additional "Automatic opening in the selected direction" mode (only in normally closed mode).

Control commands:

- passage denial,
- authorized single passage in the set direction
- authorized free passage in the set direction
- authorized free passage in both directions

When the power is off, the sliding panels are unlocked and can be moved away manually.

Main features

- operation of the speed gate from RC-panel, WRC, ACS
- built into the housing electronic boards
- safe voltage – 24 V

ST-02 Speed gate

- power consumption – max. 204 W per passage
- upper and lower levels of infrared sensors of the passageway, 30 sensors on each level
- possibility to perform authorized single passage of several users one after the other in a row in the same direction without closing the panels increases the throughput capacity
- closing the passage zone with panels; space above the sections can be overlapped with additional glass panels of up to a height of 148 cm
- if necessary, the number of passage lanes through the turnstile can be increased by installing STD-02 double-sided sections
- possibility to install proximity card readers inside sections under the glass top cover (overall reader dimensions – max. 230x72x32 mm, reading range – min. 40 mm)
- there is a place for installing the ACS controller inside the section (overall dimensions – max. 160x140x40 mm)
- section glass top covers feature grant/denial passage indication
- reader interrogation zones are indicated with backlit pictograms
- backlit lateral indication of passage direction
- Fire Alarm input for connecting the emergency passage opening device; when the command is sent from it, the panels are automatically opened and it is possible to walk through in both directions
- outputs for connecting remote indication blocks of passage grant / denial, as well as a sounder (sirens)
- two control modes: pulse and potential; it can operate both as a standalone unit controlled by the operator using RC-panel and as a part of ACS

Turnstile mode indication

Passage direction indication

Design

Housing – stainless steel; panels and filling glass – 8 mm tempered glass; section top cover – 10 mm tempered glass.

Operating conditions

The product with regard to resistance to environmental exposure complies with GOST 15150-69 category NF4 (operation in premises with climate control).

The operation of the turnstile is allowed at ambient temperature from +1°C to +50°C and relative air humidity up to 80% at +25°C.

It is a serially produced product certified for compliance with applicable Russian and European CE standards.

Delivery set

ST-02	
Master section with mounting kit	1
Slave section with mounting kit	1
Glass top cover	4
Filling glass	2
Glass sliding panel	2
Side panel	4

Central insert	2
RC-panel with cable	1
Documentation set: Certificate and Operation manual	1
STD-02	
Section with top cover and mounting kit	1
Glass top cover	2
Filling glass	1
Glass sliding panel	2
Side panel	2
Central insert	1
RC-panel with cable	1
Certificate	1

Technical specifications

Operating voltage		24 V
Consumption current		8.5 A
Power consumption		204 W
Throughput in single passage mode		up to 60 persons / min
Passageway width	ST-02.600	600 mm
	ST-02.900	900 mm
Mean time to failure		4,000,000 passages
Mean lifetime		8 years
ST-02.600 weight (two sections with sliding panels and inserts)		424 kg
ST-02.900 weight (two sections with sliding panels and inserts)		488 kg
ST-02.600 weight (one section with sliding panels and inserts)		251 kg
ST-02.900 weight (one section with sliding panels and inserts)		263 kg
Overall turnstile dimensions*	ST-02.600	1923x1364x1482 mm
	ST-02.900	1923x1964x1482 mm

* The total width of a turnstile with double-sided sections when organizing multiple passage lanes is calculated using the formula

Ltotal = 600**N** + 382**n** + 900**M** + 532**m** (mm), being:

N – number of 600 mm-wide passage lanes, **n** – number of ST-02.600/M (S) and STD-02.600 sections, **M** – number of 900 mm-wide passage lanes, **m** – number of ST-02.900/M (S) and STD-02.900 sections.

Connection

Sections are equipped with integrated electronic boards. Master and Slave sections (sides of the bidirectional section) of the same passage lane are connected by standard CAN and DC cables. For external connections and connections between sections, each section (side of the bidirectional section) features a remote terminal block (DIN rail) at the bottom of the inner side panel. The master section (side of the bidirectional section) is equipped with a ST-02.-30.771 control board (located inside the section under one of the glass top covers). Microcontrollers installed on the boards, control the sliding panels drives, process signals from IR sensors, process external commands, and generate signals about passages through the turnstile.

Designation of the external terminal block contacts on the DIN rail			
No.	Contact	Master section	Slave section
1	+24V	Connecting an external power supply	Not used
2	GND		
3	+24V	Power supply to the Slave section (DC cable connection)	Power supply from the Master section (DC cable connection)
4	GND		
5	GND	CAN cable connection	CAN cable connection
6	H		
7	L		

8	GND	Common (RC-panel connection)	
9	Unlock A	Direction A control input	
10	Stop	Control input – passage denial	Not installed
11	Unlock B	Direction B control input	
12	Led A	Indication output of direction A on the RC-panel	
13	Led Stop	Indication output of passage denial on the RC-panel	
14	Led B	Indication output of direction A on the RC-panel	
15	Sound	RC-panel sound signal output	
16	Fire Alarm	Emergency passage opening control input	
17	GND		
18	+12V	GND	Not installed
19	GND	+12 V	
20	Alarm1	Siren connection output	
21	Alarm2		
22	Common	Common for PASS A, PASS B outputs	
23	PASS A	PASS A output (passage in the direction A)	
24	PASS B	PASS B output (passage in the direction B)	
25			
26	RF	Spare contact for a built-in reader connection	Spare contact for a built-in reader connection
27			
28			
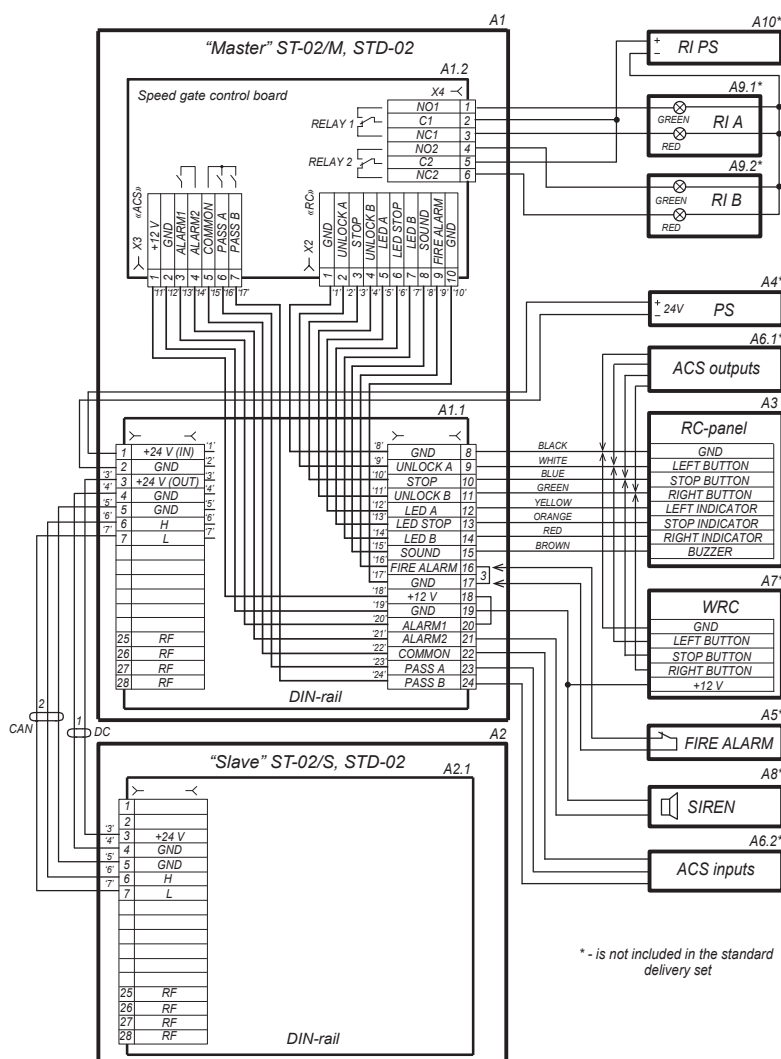
ST-02 speed gate wiring diagram

Diagram description		
Item	**Description**	**Q-ty, pcs.**
A1	Master section (side of the section)	1
A1.1	Remote terminal block (DIN rail) of the Master section	1
A1.2	Control board	1
A2	Slave section (side of the section)	1
A2.1	Remote terminal block (DIN rail) of the Slave section	1
A3	RC-panel	1
A4	Turnstile power supply	1
A5	Device for sending the FireAlarm command	1
A6 (A6.1, A6.2)	ACS controller	1
A7	WRC	1
A8	12V DC siren	1
A9.1 A9.2	Remote indication block	2
A10	Power supply for remote indicators	1
A11	RF1 and RF2 access card readers	2
1	DC connection cable	1
2	CAN connection cable	1
3	Jumper wire in case there is no Fire Alarm device (A5). Installed by default	1
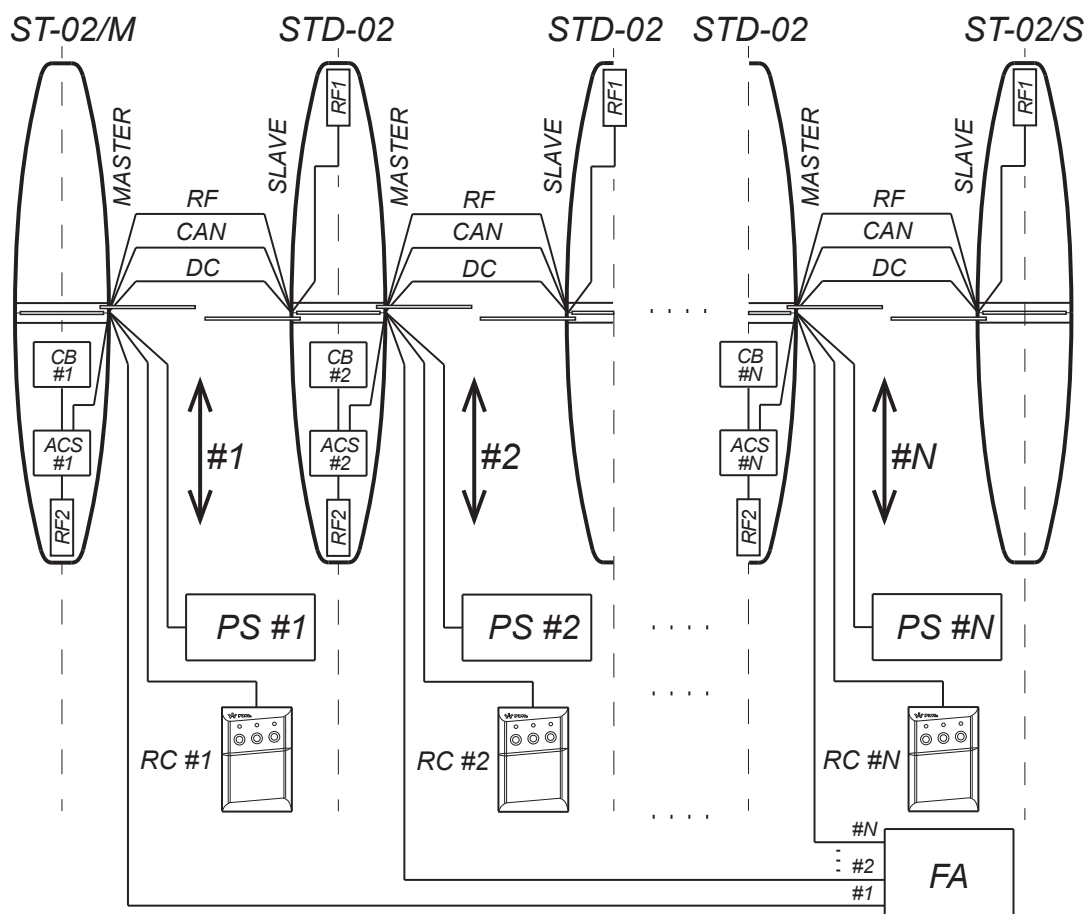
Connection layout of the ST-02 turnstile and STD-02 bidirectional sections to arrange a passage zone with several passage lanes

Operation algorithm

The speed gate can operate from the RC-panel (included in the delivery set), from the WRC and from the ACS controller.

Operation is performed by applying a low-level signal to unlock A, Stop and Unlock B contacts relative to the GND contact. The response to these signals depends on the control mode selected by the Pulse switch.

Pulse control mode (Pulse switch in the ON position) is when a pulse is applied to the Unlock A (B) input, the speed gate panels will automatically open for a single passage in the A (B) direction. The waiting time for the passage being completed does not depend on the duration of the control pulse and lasts 8 seconds. Sending impulse to the Stop input closes the panels from any position, thus blocking the passage. Simultaneous sending of pulses to Unlock A (B) and Stop inputs places the turnstile in the "Free passage" mode in the selected direction.

It is recommended to use pulse mode when operating from RC-panel or WRC. The orientation of RC-panel buttons can be changed by swapping the wires from the RC-panel that are connected to unlock A and Unlock B contacts, as well as Led A and Led B contacts, respectively.

Potential control mode (Pulse switch in the OFF position) is when the control signal is applied to Unlock A (B) input, the glass panels slide away for passage in the selected direction during the entire holding signal time. Sending the control signal to the Stop input closes the sliding panels, thereby blocking the passage, regardless of the signals at the Unlock A (B) inputs.

Potential mode recommended when operating from the ACS controller.

Regardless of the selected control mode, PASS A or PASS B signals are generated when walking through the turnstile in one direction or the other. These signals can inform the ACS controller of the fact of passage.

The emergency opening of the passage is performed by removing a low-level signal from the Fire Alarm contact relative to the GND contact.

Turnstile also features:

1. Normally closed and normally open operating mode (selected by the "XP2 Mode1" jumper)

2. Additional "Automatic opening in the selected direction" mode (R1 switch in the ON position), this mode is only relevant in normally closed operating mode. This is a mode of free passage through the turnstile in one pre-selected direction (selected by the R2 switch) with automatic opening and closing of the panels during the passage.

Note:

When operating the speed gate from the ACS controller, it is recommended to connect the RC-panel to the ACS controller.
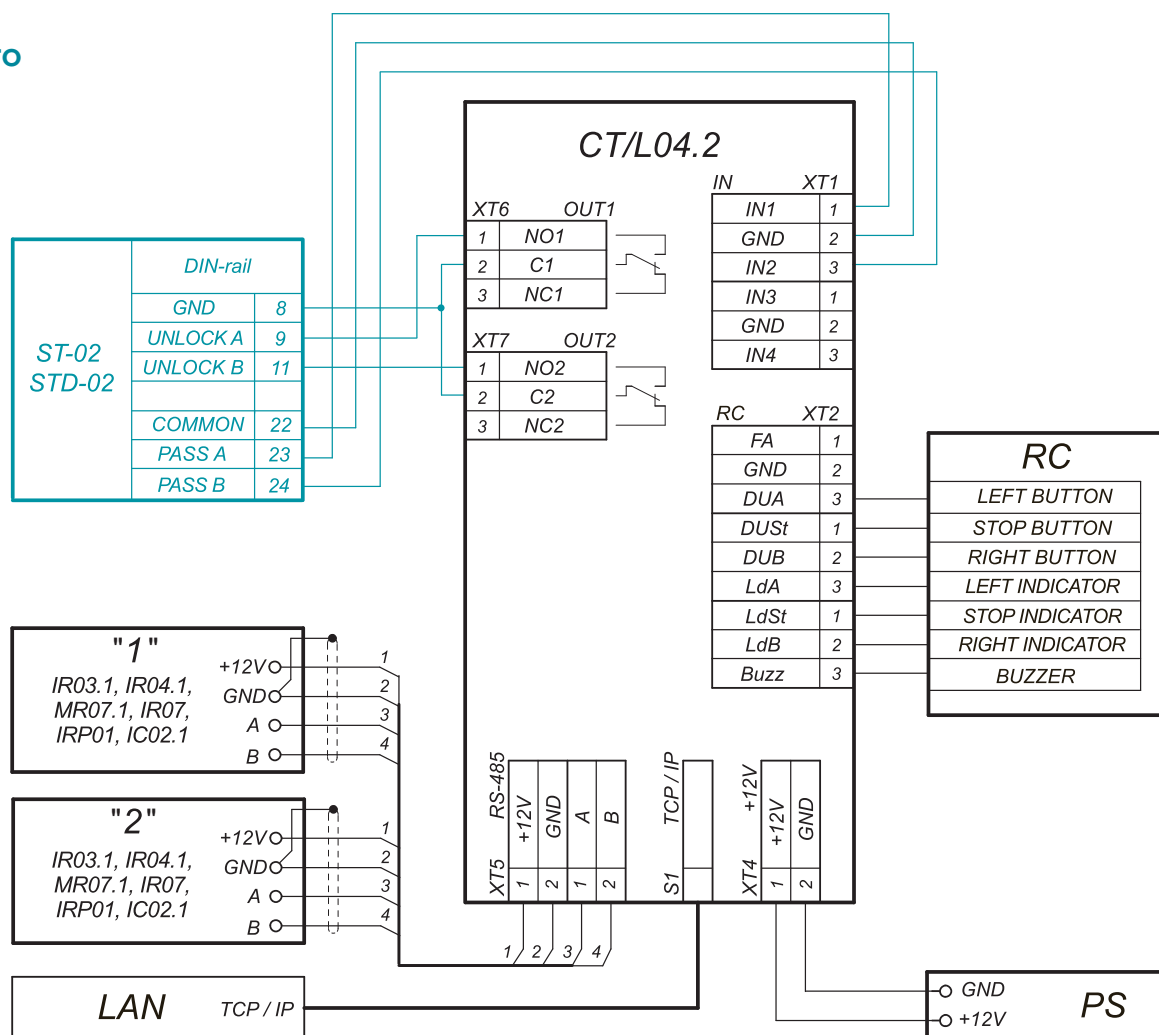
The maximum allowed cable length of the RC-panel (ACS controller) is 40 meters.

The maximum allowed cable length of the power supply depends on its cross section and must be:

- for 1.5 mm² cable – 10 meters
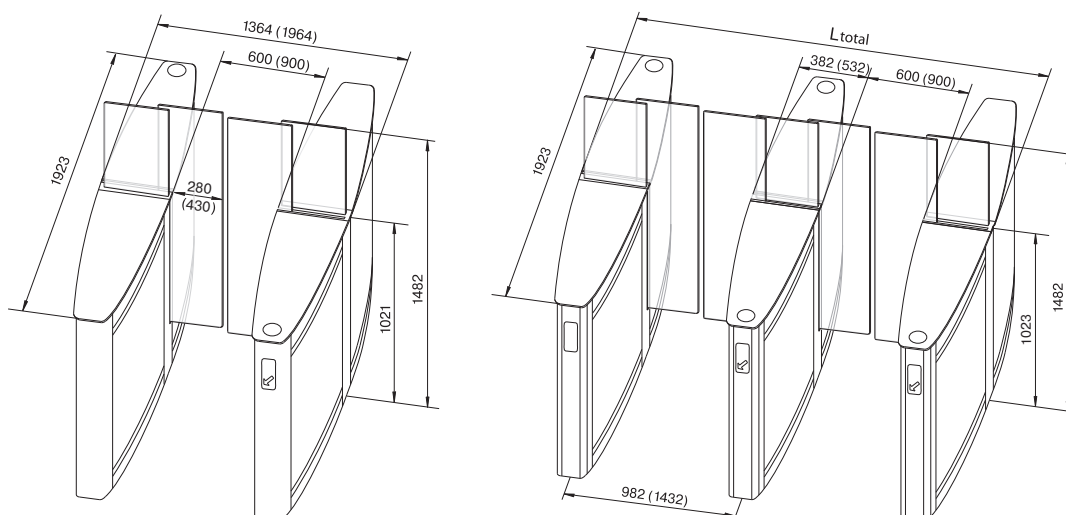- for 2.5 mm² cable – 20 meters

ST-02 Speed gate

Example of connection to the ACS

CT/L04.2

ST-02 STD-02	DIN-rail	
	GND	8
	UNLOCK A	9
	UNLOCK B	11
	COMMON	22
	PASS A	23
	PASS B	24

XT6	OUT1	
1	NO1	
2	C1	
3	NC1	

XT7	OUT2	
1	NO2	
2	C2	
3	NC2	

IN	XT1	
IN1	1	
GND	2	
IN2	3	
IN3	1	
GND	2	
IN4	3	

RC	XT2		RC	
FA	1			
GND	2			
DUA	3		LEFT BUTTON	
DUSt	1		STOP BUTTON	
DUB	2		RIGHT BUTTON	
LdA	3		LEFT INDICATOR	
LdSt	1		STOP INDICATOR	
LdB	2		RIGHT INDICATOR	
Buzz	3		BUZZER	

"1"
IR03.1, IR04.1, MR07.1, IR07, IRP01, IC02.1

+12V		1
GND		2
A		3
B		4

"2"
IR03.1, IR04.1, MR07.1, IR07, IRP01, IC02.1

+12V		1
GND		2
A		3
B		4

XT5	RS-485				S1	TCP/IP	XT4	+12V	
	+12V	GND	A	B				+12V	GND
	1	2	1	2				1	2

1	2	3	4

LAN TCP/IP

PS
GND
+12V

Example of the speed gate connection to ACS controller

Overall dimensions

1364 (1964)
600 (900)
1923
280 (430)
1021
1482

Ltotal
382 (532) 600 (900)
1923
1482
1023
982 (1432)

Overall dimensions

ST-02 Speed gate

Mounting

ST-02.600 (STD-02.600)   ST-02.600 (STD-02.600)

12 holes Ø16

Cable entry zones Ø50

125

250   66   250   732   600   112

ST-02.900 (STD-02.900)   ST-02.900 (STD-02.900)

12 holes Ø16

Cable entry zones Ø50

195

250   71   390   1042   600   112

ST-02.600 (STD-02.600)   STD-02.600/900   ST-02.900 (STD-02.900)

6 holes Ø16
(for each section)

Cable entry zones Ø50

66   250   737   390   1042   250   71   600   112
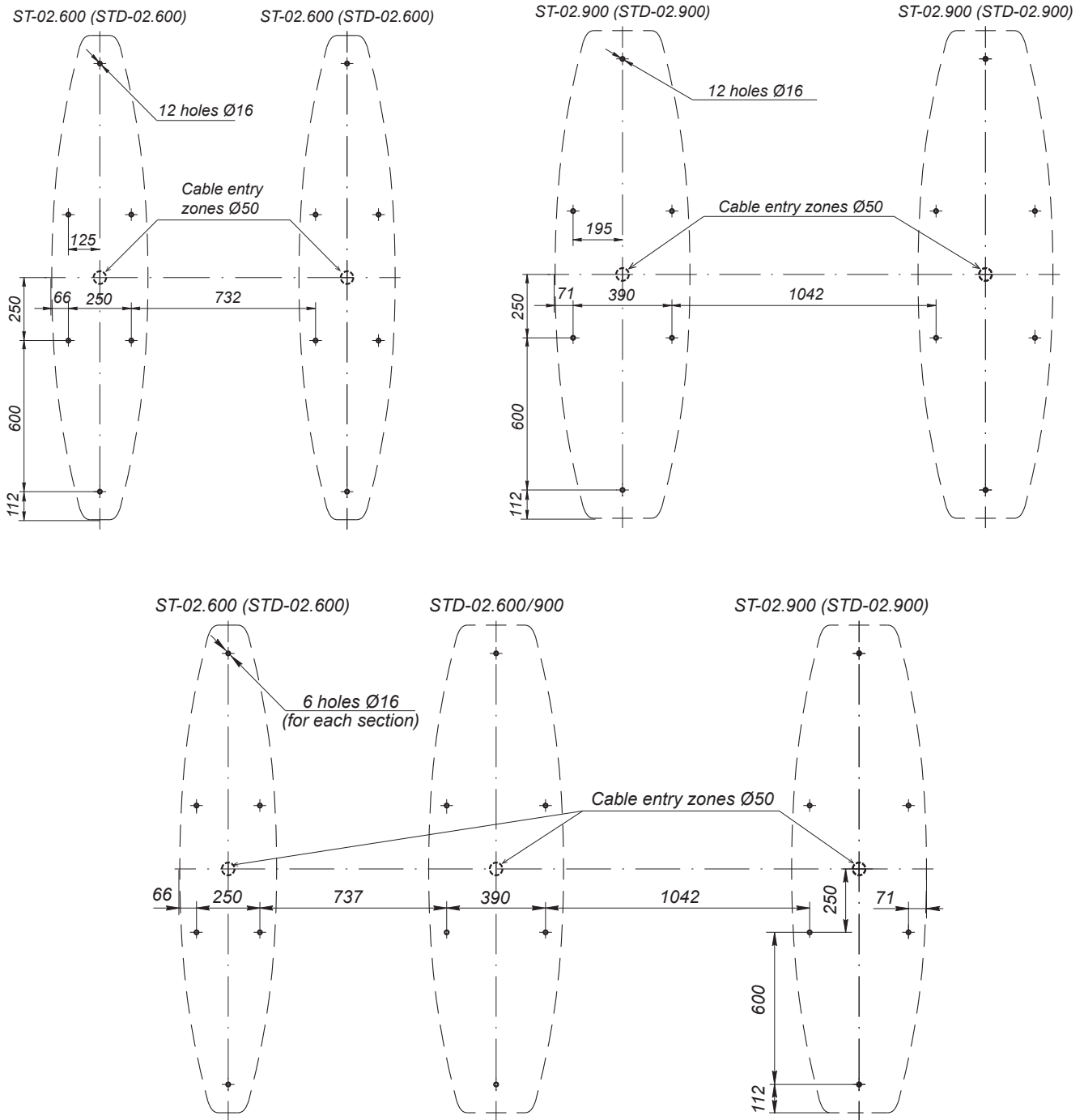
Hole marking for speed gate sections installation and cable entry zone

Foundation requirements: concrete (not lower than 400 grade), stone, etc. foundation of at least 150 mm thick, use reinforcing elements (450x450x200 mm) when installing sections on a less steady foundation.

Warranty

The warranty period is 5 (five) years commencing from the date of sale, unless otherwise determined in the delivery contract of the Product. In case of sale and installation of the equipment by authorized PERCo dealers and service centers, the warranty starts from the date of commissioning. Should there be no date of sale on the warranty card, the warranty period shall commence from the date of manufacture specified in the Certificate and on the Product label.