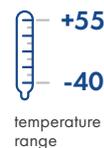


RTD-20 Full height rotor turnstile



Application

RTD-20 full height double rotor turnstile is a doubled version of RTD-16 full height rotor turnstile i.e. it features two passage lanes. This turnstile allows saving more than 25% of the passageway width compared with two RTD-16 turnstiles installed in a row.

Turnstile is available in two versions:

- RTD-20.1 – with the motor drive of automatic resetting
- RTD-20.2 – with the mechanical drive of resetting

RTD-20.1S and RTD-20.2S turnstiles are equipped with a stainless steel rotor.

Two RC-panels are included in the standard delivery set, one for each passage zone. Buttons orientation relative to the passage directions is to be set upon connecting the RC-panel to the turnstile.

It is recommended to install one turnstile based on a maximum working load of 20 persons/min. Turnstiles can be equipped with a matching gate and railings.



RC-panel

Operating modes

Each passage zone provides passage control in two directions, operating mode may be set independently for each passage direction of both passage zones. Supported operating modes:

- passage denial in both directions
- single passage in one direction and passage denial in the other direction
- successive single passage in both directions
- free passage in one direction and passage denial in the other direction
- free passage in one direction and single passage in the other direction
- free passage in both directions
- lock-chamber mode (two-step mode with a pass-through verification, set during installation)

The product is a normally closed device. When de-energized, the rotor is locked in its home position.

RTD-20 Full height rotor turnstile

Main features

- operation of the turnstile from RC-panel, WRC, ACS
- built-in control units for each passage zone
- lock-chamber mode is available
- power and control cables can be routed to the turnstiles through the special cable duct and through the top channel
- turnstiles can be installed close to each other without gaps and connected elements including installation under canopies
- reverse rotation locking – prevents reverse rotation of the rotor once the rotor has been turned more than 60°.
- Fire Alarm control input that allows connecting the emergency unlocking device (for example, fire alarm system)
- each passage direction of both passage zone features mechanical unlocking with a key
- built-in hyperluminous LED indicators of the passage grant / denial
- built-in walkway downlights (four 4W LED lamps)
- optional matching canopy protects the turnstile from precipitations and climbing over
- turnstile can be installed on loose ground using optional mounting frame
- high corrosion resistance provided by galvanized and powder coated elements guarantees a long service life in adverse environmental conditions; "S" version is equipped with a stainless steel rotor
- two control modes – pulse and potential
- possibility to connect an intrusion detector and a siren to the turnstile



Mechanical unlocking with a key



LED indication

Operating conditions

The turnstile, with regard to resistance to environmental exposure, complies with GOST 15150-69 category N2 (operation outdoors). The operation of the turnstile is allowed at ambient temperature from -40°C to +55°C and relative air humidity up to 98% at + 25°C. Top channel protection class – IP54.

RC-panel, with regard to resistance to environmental exposure, complies with GOST 15150-69 category NF4 (operation in premises with climate control). RC-panel should be operated at ambient air temperature from +1°C to + 55°C and at relative air humidity of up to 80% at +25°C.

Design

Finish – galvanized powder-coated steel; "S" version features a stainless-steel rotor.

Colour – blue. Powder coating to RAL colours is available on order.

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

Delivery set

Top channel with cover	1
Rotor section with hardware kit	3
Guide barrier set with indication block and indication cable assembly	2
Supporting girder of the guide barrier set	1
Section divider	2
Upper girder of the section divider	1
Lower rotor support with bottom rotation unit	1
Cable duct for cable laying from the bottom	1
Keys to mechanical release locks	8
RC-panel with cable	1

RTD-20 Full height rotor turnstile

Documentation set: Certificate and Operation manual	1
HDF marking template	1
Spare parts, accessories and hardware kit	1
Optional equipment (upon request)	
RF20 foundation frame	1
RTC-20 canopy	1
WHD-16 Full height security gate	1
MB-16 full height railing sections	1
Attaching plates and brackets for coupling turnstiles, railings, security gates, etc.	required number
WRC (consisting of a receiver and transmitters in the form of key fobs) with a range of up to 40 m	2
Turnstile power supply (24 V DC)	1
Walkway downlights power supply (12 V DC)	1
M10×60 bolt with PFG IR 10-15 anchor (SORMAT company, Finland)	24
M16×100 bolt with PFG IR 16-25 anchor (SORMAT company, Finland)	1

Technical specifications

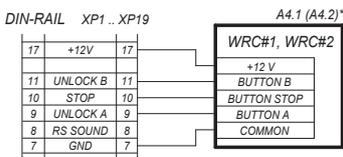
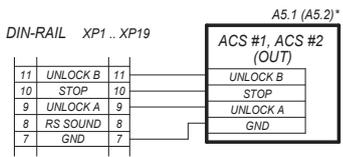
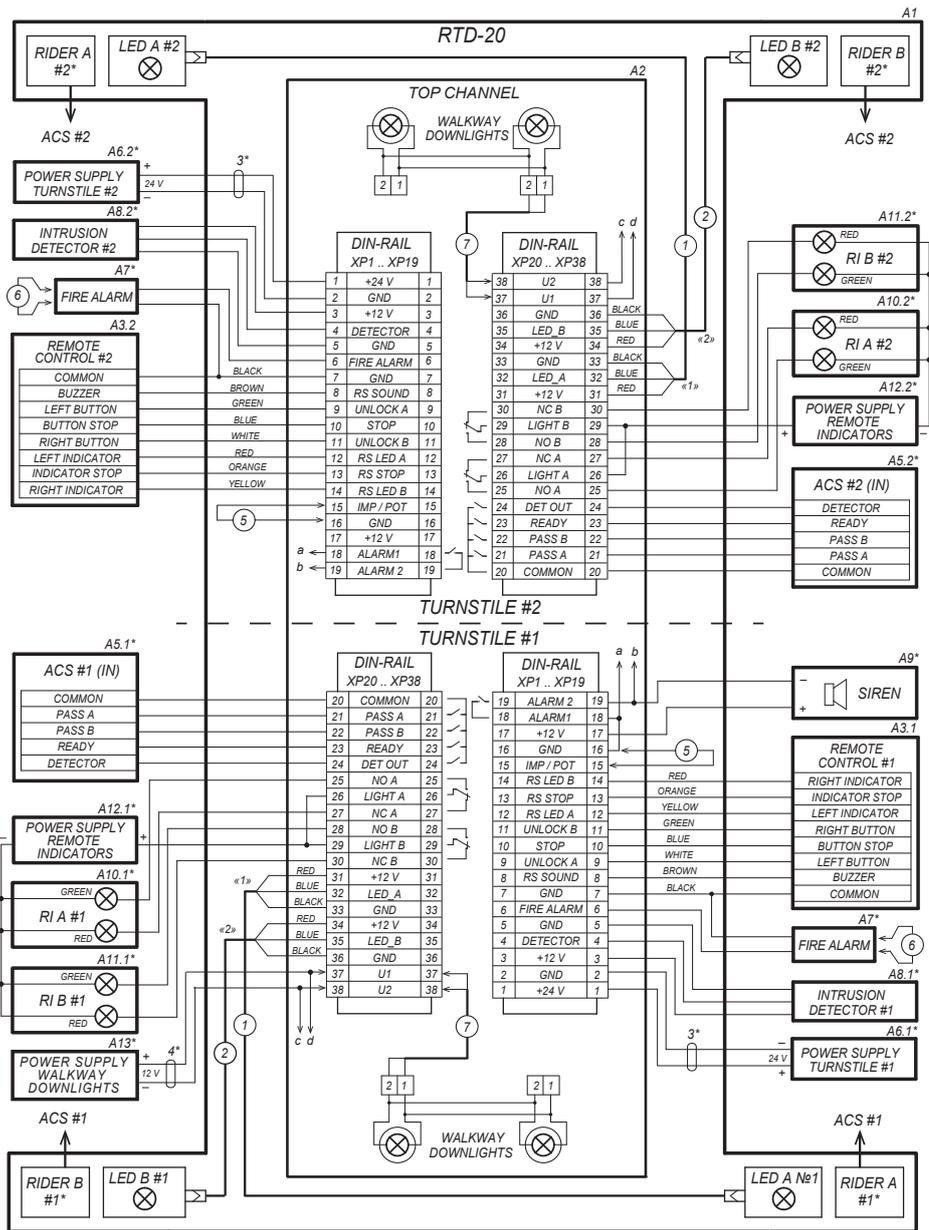
Operating voltage	turnstile	24 – 2.4 V DC
	walkway downlights	12±1.2 V DC
Current consumption for each passage zone	RTD-20.1	max 4.5 A
	RTD-20.2	max 1.2 A
	walkway downlights	max 0.8 A
	RTD-20.1	max. 105 W
Power consumption current for each turnstile	RTD-20.2	30 W
	walkway downlights	10 W
Throughput rate for each passage lane	in the single passage mode	20 persons / min
	in the free passage mode	30 persons / min
Overall dimensions	without canopy	2480x1595x2303 mm
	with RTC-20 canopy	2485x1840x2558 mm
Turnstile weight	RTD-20.1	max. 370 kg
	RTD-20.2	max. 375 kg
Width of each passage zone		630 mm
Mean time to failure for each passage zone		2,000,000 passages
Mean lifetime		8 years

Connection

Control units are located in the top channel in the upper part of the turnstile. External cables are connected to the DIN-rail located inside the top channel.

Cables are routed to the DIN-rail: from below through the cable duct (included in the delivery set), on top through the cable bushings at the front end of the top channel or between two turnstiles through the special bracket.

RTD-20 Full height rotor turnstile



* Not included in standard delivery set

Wiring diagram to the RTD-20 turnstile

Diagram description	
Item	Description
A1	RTD-20 turnstile
A2	Top channel
A3, A4	RC-panel (#1 and #2), WRC (#1 and #2)
A5	ACS controllers (#1 and #2)
A6	+24V / 5.5A Turnstile power supplies (#1 and #2)
A7	Device that gives Fire Alarm emergency unlocking command
A8	Intrusion detectors (#1 and #2)
A9	+12V siren
A10, A11	Remote indicators of directions A and B
A12, A12	Power supplies for remote indicators

RTD-20 Full height rotor turnstile

A13	Walkway downlights power supply (+12 V / 3 A)
	Walkway downlights
LED	Indication blocks of passage directions A and B
RA, RB	ACS readers
1, 2	Indication cables
3	Passage zones power cables
4	External cable for powering walkway downlights
5	Jumpers for switching "IMP/POT" mode
6	Fire Alarm jumpers are connected if there is no Fire Alarm device (A7)

DIN-rail description		
Contact	Electrical circuit	Designation
1, 2	+24 V, GND	Power supply connection
3-5	+12 V, Detector, GND	Intrusion detector connection
6, 7	Fire Alarm, GND	Emergency unlocking input
8	RC Sound	RC-panel sound indication output
9-11	UnlockA, Stop, UnlockB	Turnstile control inputs
12-14	RS LedA, RS LedStop, RS LedB	RC-panel indication outputs
15, 16	IMP / POT	Turnstile control mode setting
17	+12 V	Output for powering additional devices
18, 19	Alarm 1, Alarm 2	Siren connection outputs
20	Common	Common contact for PASS A, PASS B, Ready, Det Out signals
21	PASS A	PASS A relay contact (passage in the direction A)
22	PASS B	PASS B relay contact (passage in the direction B)
23	Ready	Ready relay contact
24	Det Out	Det Out relay contact
25-30	NO, Light, NC	Relay contacts for connecting remote indicators
31-36	+12 V, LED, GND	Contacts for connecting indication blocks located on the guide barrier set
37, 38	U1, U2	Connection of the walkway downlights power supply

Operation algorithm

Each passage zone can operate from the RC-panel (included in the delivery set), WRC or ACS controller. Operation is performed by applying a low-level signal to unlock A, Stop and Unlock B contacts relative to the GND contact. Response to these signals depends on the control mode the user has selected (specified by if the IMP/POT jumper wire is installed / removed on the DIN-rail of the passage zone).

Pulse control mode is when a pulse is applied to the Unlock A (B) input, the passage zone rotor will automatically unlock for a single passage in the direction A (B). The waiting time for the passage being completed does not depend on the duration of the control pulse and lasts 5 seconds. Sending a pulse to the Stop input locks the rotor in both passage directions.

Simultaneous sending of pulses to the Unlock A (B) and Stop inputs places the passage zone in the "Free passage" mode in the selected direction.

It is recommended to use pulse mode during operation 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 the unlock A and Unlock B contacts, as well as Led A and Led B, respectively.

Potential control mode is when the control signal is applied to the Unlock A (B) input, the passage zone rotor unlocks in the selected direction during the entire holding signal time.

RTD-20 Full height rotor turnstile

Sending control signal to the Stop input locks the rotor regardless of the signals at the Unlock A (B) inputs.

Potential mode is recommended during operation from the ACS controller.

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

Emergency passage opening is performed by removing a low-level signal from the Fire Alarm contact relative to the GND contact. Note:

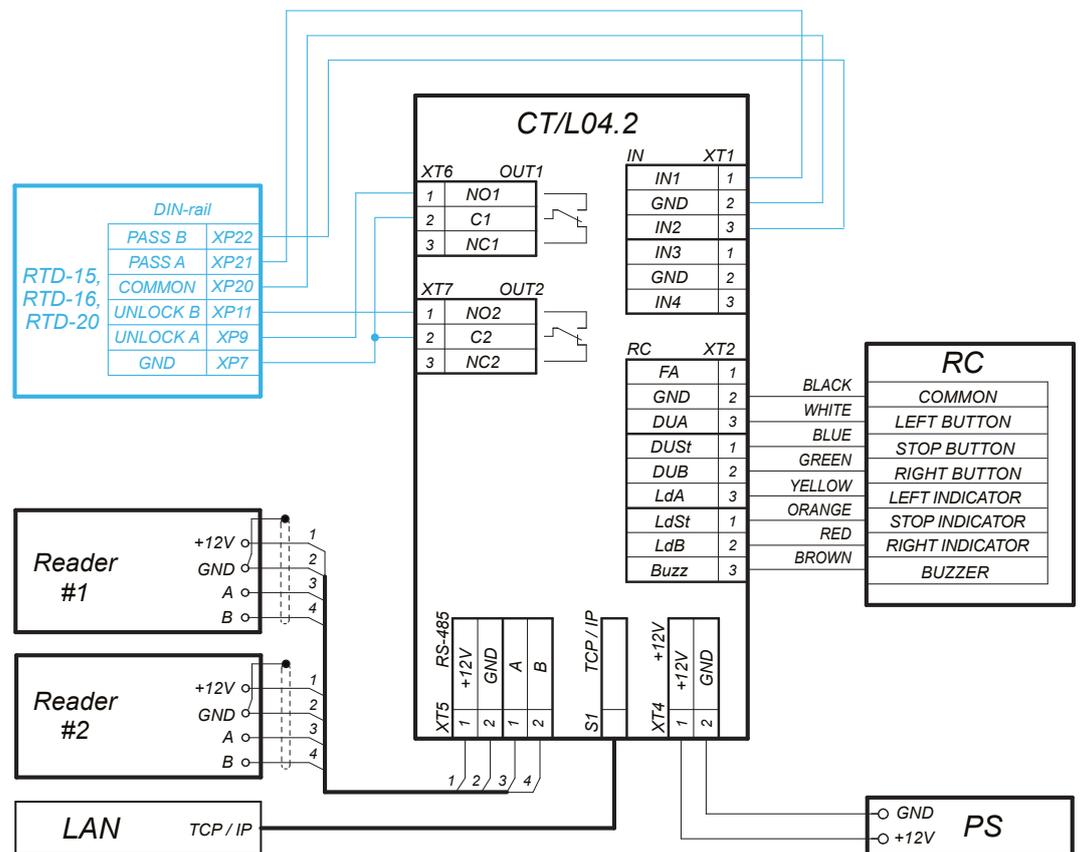
When operating the speed gate from the ACS controller, it is recommended to connect the RC-panel to the ACS controller.

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

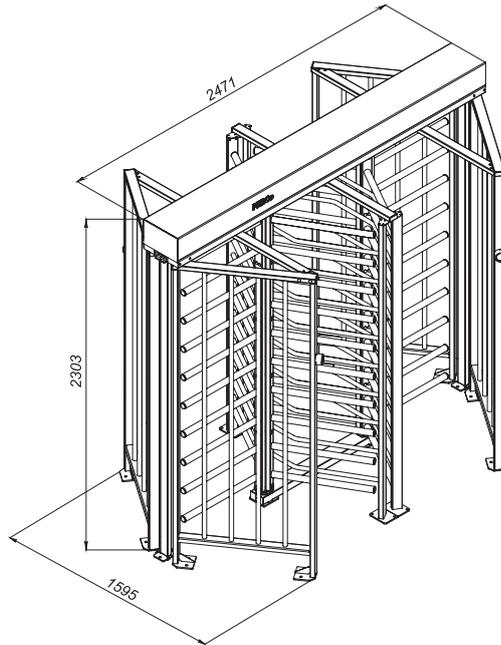
Example of connection to the ACS



Example of one passage zone connection to the ACS controller

RTD-20 Full height rotor turnstile

Overall dimensions



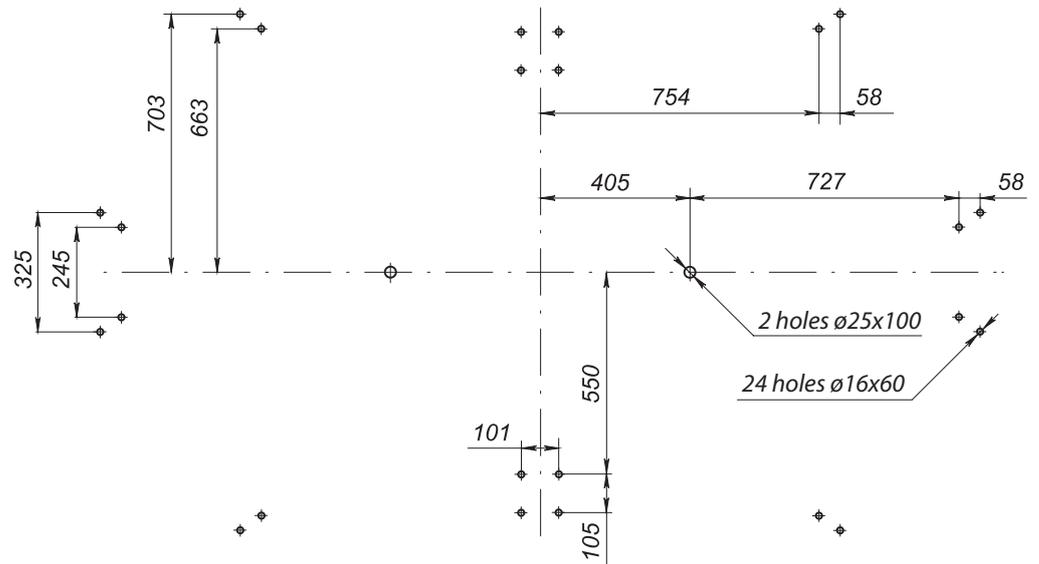
Overall dimensions

Overall dimensions

Foundation requirements: concrete (grade 400 or higher), stone or similar foundations of at least 150 mm thick, when installing the turnstile on a less steady foundation, it is recommended to apply reinforcing elements (500x500x500 mm) or RF-20 foundation frame.

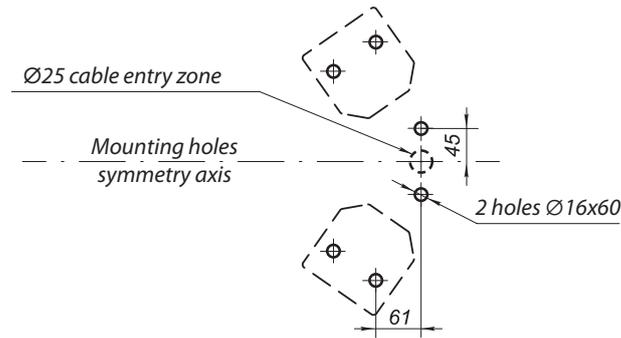
When using the foundation frame, hole marking and anchors are not required; in this case, the turnstile mounting is more secure.

Hole marking, cable duct for cable-laying, turnstile with security gate and railing section mounting layouts are shown in Figures.

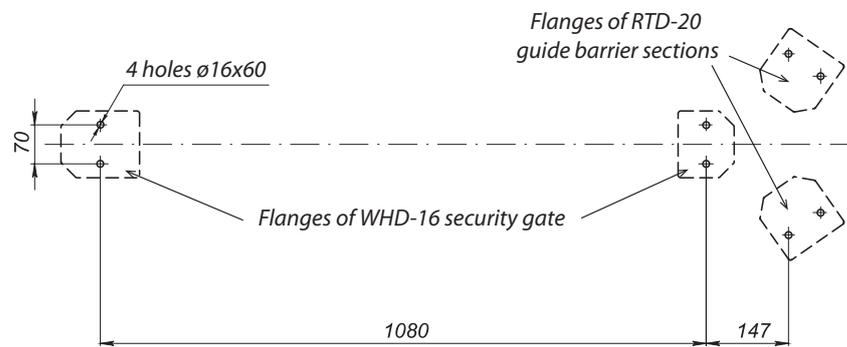


Hole marking for turnstile mounting

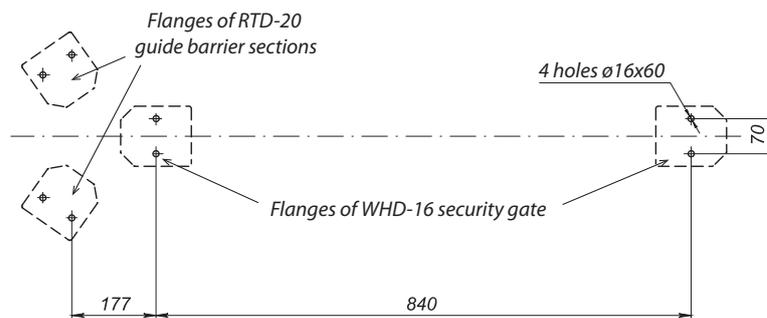
RTD-20 Full height rotor turnstile



Hole marking for cable duct mounting



Hole marking for mounting turnstile and WHD-16 security gate

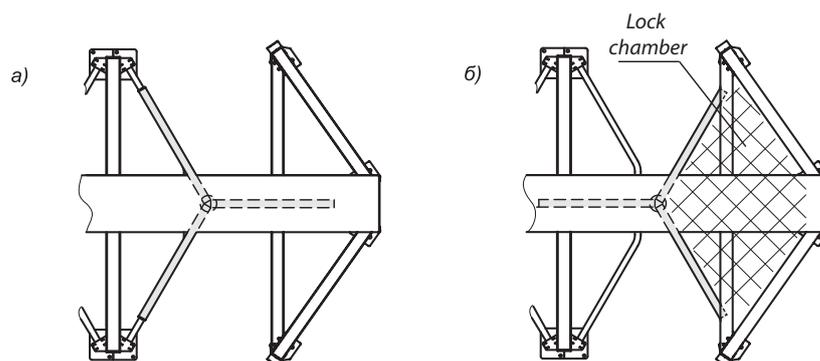


Hole marking for mounting turnstile and MB-16 security gate

HDF marking template is provided for easier marking. It is recommended to place ACS readers on the guide barrier sets near the indication blocks.

Lock-chamber mode is arranged during the installation, the home position of the rotor sections should be installed in a corresponding way.

RTD-20 Full height rotor turnstile



Rotor home position (top view):
a - for standard passage mode, – б - for lock-chamber mode

Foundation frame

RF-20 foundation frame is designed to raise the mounting quality level which makes the turnstile more secure during operation. The foundation frame is recommended for turnstiles intended for outdoor applications. Bolts, included in the foundation frame delivery set, are used for fixing the turnstile to the foundation frame.

The foundation frame is made of galvanized sheet steel.

Frameworks 1, 2, 3	5
Mounting hardware (set)	1
Installation instruction	1

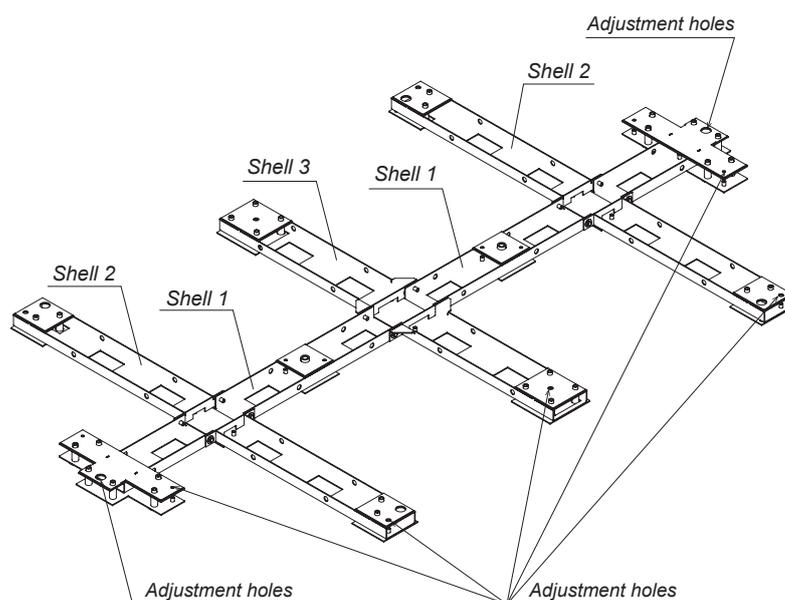
Overall dimensions (length x width x height) – 2548x1536x65 mm. Weight – max. 50 kg

Mounting

Assembled frame is installed on prepared foundation sized 2800x1700 mm and 200-250 mm deep, is levelled with included in the delivery set pins and reinforcement wires.

Cable channels are to laid (cable channel is allowed to be placed inside the frame). Concrete (grade not less B22,5) casting of foundation is to the upper thread bushings for turnstile fixation.

Concrete overall thickness must be min. 150 mm.



Frame assembly layout

RTD-20 Full height rotor turnstile

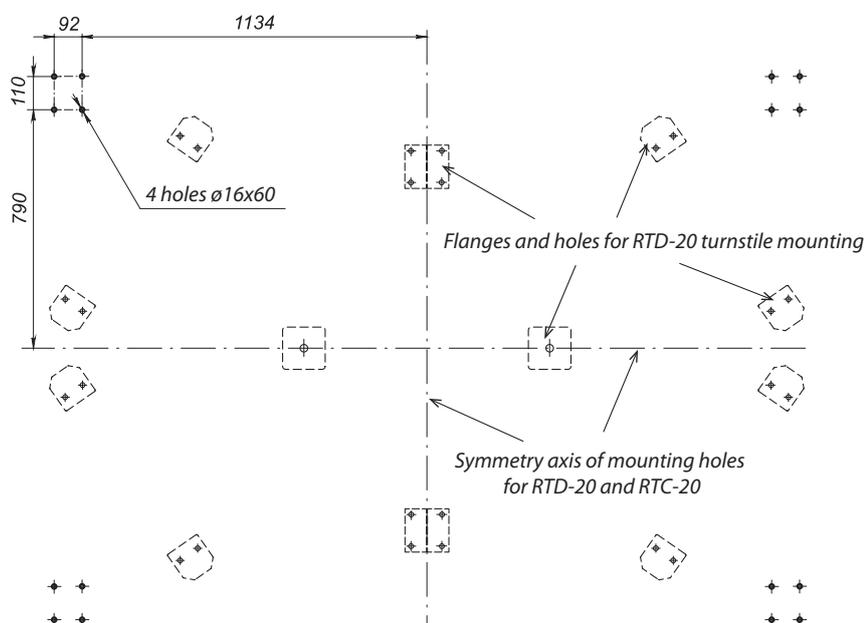
Canopy

RTC-20 canopy is designed to be used together with the RTD-20 turnstile and to protect the turnstile from precipitations. Several turnstiles can be installed in a row.

Delivery set

Left/right half-framework	2
Post with brackets	4
Coupling plate	1
Mounting hardware (set)	1
Operation Manual	1

Overall dimensions (length x width x height) - 2500x2420x2560 mm, Weight – max. 130 kg
 Turnstile overall dimensions with canopy are defined by the canopy overall dimensions.
 Canopy foundation requirements are similar to the requirements for the turnstile mounting.
 The symmetry axes of the turnstile mounting holes are the same.



Hole marking for canopy mounting

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.