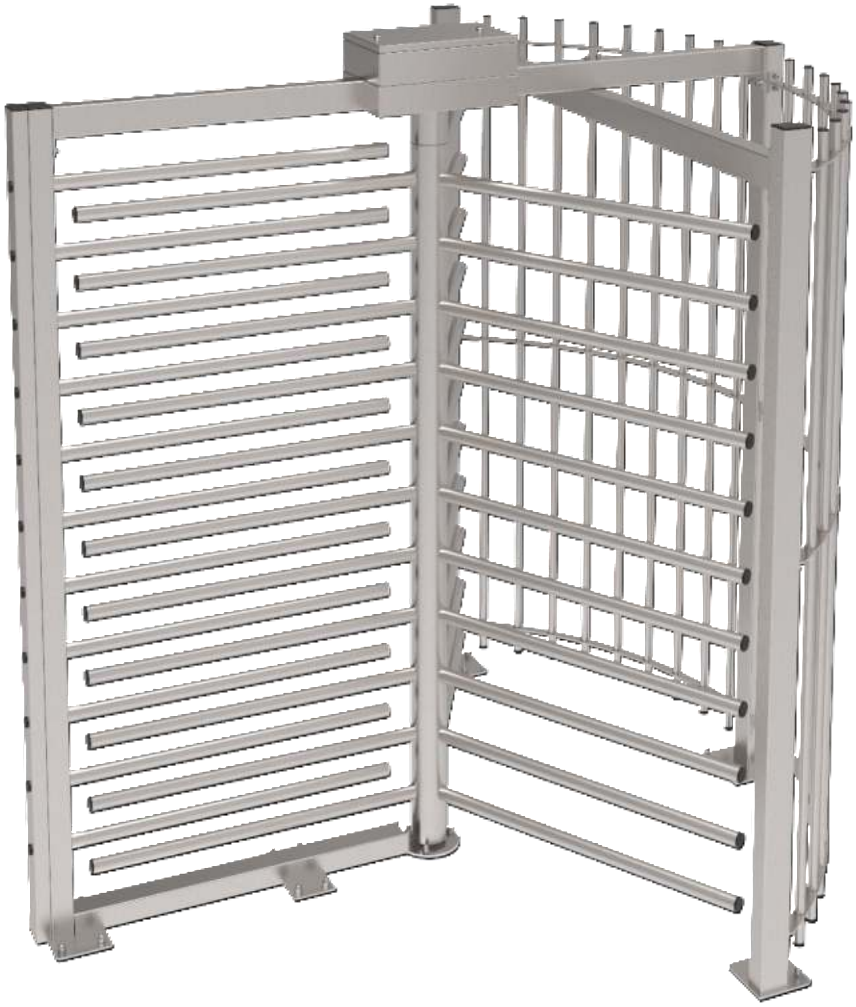
"TiSO-PRODUCTION" LTD

FULL-HEIGHT TURNSTILES MECHANICAL

single **“PUSH&GO”** of AUIA.456, AUIA.456-01 series



OPERATION AND INSTALLATION MANUAL

Combined, rev.1.1

2024

UKRAINE

CONTENTS

INTRODUCTION

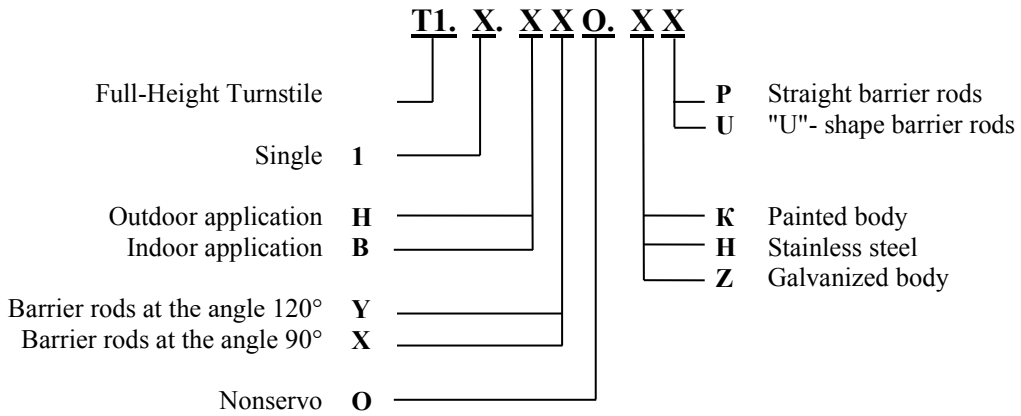
This Operation Manual (hereinafter referred to as OM) covers the nonservo indoor (or outdoor) single full-height turnstiles "PUSH&GO" (hereinafter referred to as the "turnstile"). The Operation Manual contains information about design, specifications, installation for proper operation and maintenance of the turnstile.

This Operation Manual is prepared in compliance with the specification requirements TU U 28.9-32421280-004:2018.

The turnstile shall be serviced only by the qualified staff having the relevant class of permit to work with electrical facilities with voltage up to 1000V and scrutinized this Operation Manual, instructed in safety and trained for operation and maintenance of the turnstile.

Reliability and durability of the turnstile operation is provided with observation of modes and conditions of transportation, storage, installation and operation. So, fulfillment of all requirements specified in this document is mandatory.

Depending on the purpose and design features of the turnstile, the following pattern of reference designation is accepted:



Example of reference designation of the nonservo full-height turnstile with straight barrier rods and stainless steel body when the turnstile T1.1.HYO.HP TU U 28.9-32421280-004:2018 is ordered.

Description	*Designation*	*Rotor type*	*Coding*
"PUSH&GO"	AUIA.456	Y-type rotor (120°)	T1.1.HYO._ _ T1.1.BYO._ _
	AUIA.456-01		

Due to regular improvement of the product its design can be modified without degradation of the product features and quality not covered by this Operation Manual.

CUSTOMER WARNINGS ON SAFE OPERATION OF THE TURNSTILE

These warnings are designed to ensure safety during operation of the turnstile to prevent violation of safety features by improper installation or operation. These warnings are aimed at drawing attention of the customer to safety problems.

GENERAL WARNINGS

Safety measures and requirements specified in this OM must be observed:
– the turnstile must be connected to ground loop prior to operation;
– the turnstile should be connected to AC network with parameters specified in paragraph 1.2 "Specifications";
– inspection, adjustment and repair should be performed only after the turnstile is deenergized.

After purchasing of the turnstile it should be unpacked and its integrity should be checked. In case of doubt in integrity of the turnstile it should not be used and the customer should refer to the supplier or the manufacturer.

Packing accessories (wooden pallet, nails, clips, polyethylene bags, cardboard etc.) as potential sources of hazard must be removed to unacceptable place prior to proper use of the turnstile.

As electric shock protection device the turnstile is related to 01 protection class according to GOST (State Standard) 12.2.007.0-75 and is not intended for operation in explosive and fire-hazardous areas by the "Rules for design of electrical installations".

Using of the turnstile for unintended purpose, improper installation, nonobservance of conditions of transportation, storage, installation and operation, specified by this OM, may result in damage to people, animals or property for which the manufacturer is not responsible.

1. DESCRIPTION AND OPERATION

1.1. General Information and Purpose.

1.1.1 Turnstile purpose:

Push&Go is a full-height mechanical turnstile. Such a turnstile ensures passage in one direction and prevents unauthorized entry from the other side. Push&Go has a mechanical drive, which simplifies the installation of such a turnstile. In addition, Push&Go is available in a completely welded version, which makes the structure more stable. Push&Go is suitable for both indoor and outdoor installation. This turnstile is an ideal solution for organizing access control in places such as city parks, swimming pools, fairs, open markets, as well as factories, factories and other industrial facilities.

The turnstile traffic flow capacity is at least 60 persons per minute.

1.1.2 The turnstile dimensions and weight correspond to the values specified in Table 1.

Table 1

Model	*AUIA*	*Type rotor*	*Width of passage*	*Dimensions, mm*			*Max. weight*, kg,*
				H	*L*	*B*	
PUSH&GO	456	Y-type rotor (120°)	980	2300	2200	2000	300*
	456-01		1380	2300	3000	2590	380*
**Weight will depend on the shape of barrier rods and on the material of manufacture*							

1.1.3 The parameters defining operation conditions according to GOST 15150-69 are specified in Table 2.

Table 2

	The parameters for climate version	
Operational conditions	NF4 (for indoor application)	N1(for outdoor application)
1	*2*	*3*
Ambient temperature	from plus 1 to plus 40 °C	From minus 40 to plus 45 °C
Relative humidity	80 % if plus 25 ºC (non-condensing)	80 % if plus 25 ºC (non-condensing)
Permissible ambient air pressure	from 84 to 106,7 kPa	from 84 to 106,7 kPa
Temperature range during transport	From minus 50 to plus 50 °C	from minus 50 to plus 50 °C
Temperature range during storage	From plus 5 to plus 40 °C	from plus 5 to plus 40 °C
Mechanical design group	L3	L3
Altitude above sea level	up to 2000 m	up to 2000 m
Environment	Explosion-proof does not contain conductive dust, corrosive gases, and vapors in concentrations that destroy insulation and metals that disrupt the normal operation of the equipment installed in the turnstile	Explosion-proof does not contain conductive dust, corrosive gases, and vapors in concentrations that destroy insulation and metals that disrupt the normal operation of the equipment installed in the turnstile
Place of installation	in closed rooms in the absence of direct impact of atmospheric precipitation and solar radiation	Outdoors and non-heated rooms
Operational position	vertical, not more than 1 ° of deviation from a vertical position in either direction is allowed	vertical, not more than 1 ° of deviation from a vertical position in either direction is allowed

1.1.4 Reliability performances:

Table 3 - Reliability performances

Reliability performances	*Parameter value*
- average recovery time of the operable condition (omitting the spare parts' delivery time)	no more than 6 hours
- mean time between failures	at least 5 000 000 passes
- average life of the turnstile till overhaul	not less than 10 years.

1.2. Specifications

The main parameters of the turnstile are given in Table 4.

Table 4

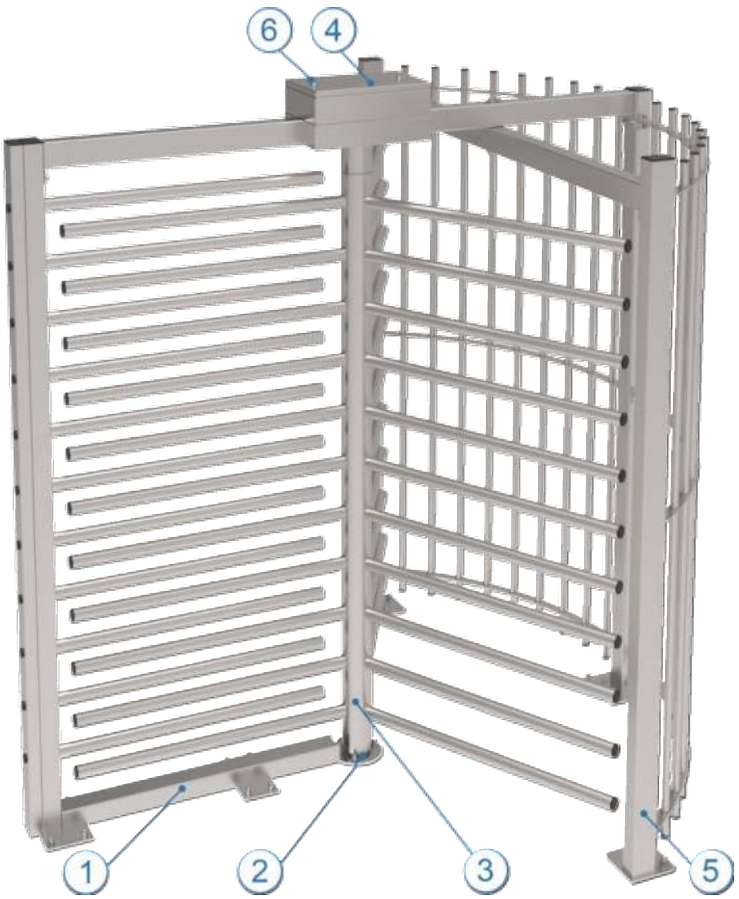
Parameter name	*Parameter value*
Throughput in a single pass mode, not less than	60 person/min.
Access width, no more than - for turnstile with Y-type rotor (120°) Push&Go AUIA.456 Push&Go AUIA.456-01	 980 mm 1380 mm
Degree of protection according to EN 60529 - for an internal turnstile - for outdoor turnstile	 IP41 IP54 (optional)
Mechanism	mechanical
Housing designation and modification: - modification - type of assembly	 standard / mirrored fully welded / disassembled

1.3. Product components and scope of delivery

1.3.1 The turnstile modifications

The single full-height turnstile design consists of the following major devices and components (See Figure 1):

– prefabricated arched structure including:
  1) access way wall;
  2) enclosure wall with hackle;
– rotor;
– container with control mechanism;



Legend:

1. Enclosure wall with hackle;
2. Base
3. Rotor with barrier rods
4. Container assembly
5. Access way wall
6. Container locks

Fig. 1 – Design and general appearance of the "PUSH&GO" single turnstiles

1.3.2.The turnstile modifications are made from the following materials:

- polished or brushed stainless steel (reference designation T1.1.HYO.HX);
- carbon steel subject to painting (reference designation T1.1.HYO.KX);
- carbon steel subject to galvanization (reference designation T1.1.HYO.ZX).

The turnstile basic modification is with straight barrier rods and painted steel body (reference designation T1.1.BYO.KP).

1.3.3 Turnstile Scope of Delivery

The turnstile is supplied **disassembled** (by components) or **assembled** (ready-to-install).

– When the turnstile is ordered disassembled it the components of the turnstile (rotor, container and walls) are packed in film and is delivered one packing place.

– When the turnstile is ordered ready-to-install (assembled) it is delivered on pallet by one packing place;

1.4. Design and operation

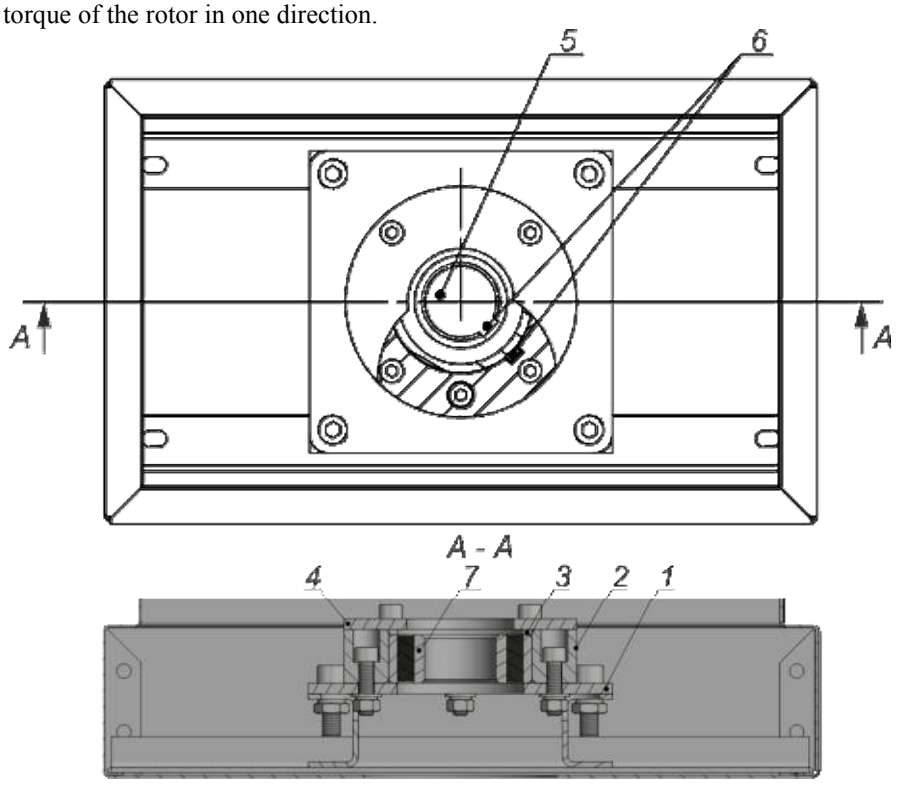
1.4.1Turnstile design

The design (*See Figure 1*) consists of enclosure wall ***1***, passage wall ***5*** and rotor ***3***. The top connecting bar of design is container ***4***, inside which the control mechanism.

The revolving rotor ***3***, divided into three sectors, each of 120º (or four sectors, each of 90º), is located between enclosure wall and access way wall. The upper part of rotor is shaft linked with sleeve one-way clutch with a vicor key for transmit torque. The base of revolving rotor and walls is fixed to frame or floor by means of Redibolt (with jacket and screw).

1.4.2The control mechanism design

The design of the control mechanism (*See Figure 2*) consists of bottom plate ***1*** and top plate ***4***, on which the main structural elements are located. Between bottom plate ***1*** and top plate ***4*** of the control mechanism, a one-way clutch ***7*** is installed, the sleeve of which is connected to the rotor shaft by ***5*** keyed connections to transmit the rotational thrust and torque of the rotor in one direction.



Notation:

1 – bottom plate;
2 – overtaking clutch cage;
3 – ring;
4 – top plate;
5 – rotor shaft;
6 – feather key;
7 – one-way clutch

Fig. 2 – Design of control mechanism

1.4.3 Changing the direction of rotation in the Push&Go turnstile

Changing the direction of rotation in the Push&Go turnstile involves turning the one-way 180°:

1. Open the locks on the container
2. Remove the cover of the container;
3. Unscrew the M8x25 screws that fasten the top plate;
4. Remove the top plate;
5. Unscrew the M10 nuts and M10x30 screws that the plate;
6. Remove the bottom plate to allow access to M8x35 screws;
7. Unscrew the M8 nut and M8x35 screws that the overtaking clutch cage;
8. Take off the overtaking clutch cage, ring, and feather key;
9. Turn over the one-way clutch 180° (change the lower and upper surfaces in reverse);
10. Assemble the control mechanism in the opposite direction

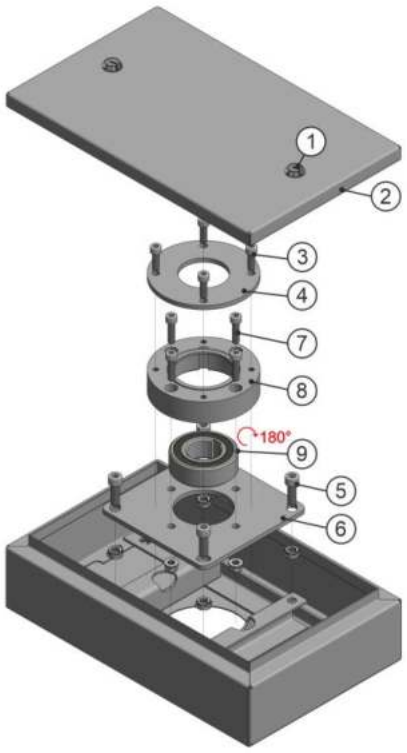


Fig. 3 – Changing the direction of rotation in the «Push&Go» turnstile

1.5. Instrumentation, tools and accessories

Dedicated tools are not required for the turnstile installation (multi-purpose measurement instrumentation and installation tools are enough). *(See Figure 4).*

- puncher;
- concrete drills (according to diameter of anchors included in the turnstile scope of delivery);
- extension cord;
- kit of end and pin wrenches;
- kit of hexagons;
- kit of screwdrivers;
- hammer;
- multimeter (tester);
- measuring tape;
- marker;
- pliers, side cutters;

Fig. 4 - Tools and accessories for layout and installation

2 INTENDED USE

2.1. Operational limitations

2.1.1 The product should be operated under the conditions specified in 1.1.3 of this document, while keeping the specifications given in section 1.2.

FOLLOWING IS PROHIBITED:
1) TO USE THE TURNSTILE NOT FOR APPOINTMENT (see section 1 "DESCRIPTION AND WORK");
2) MOVE THROUGH THE TURNKEY PASSAGE ZONE AREAS OUTS EXCEEDING THE PASS WIDTH;
3) MANUFACTURING IMPACT ON PREVENTING GATES, LIGHT TABLET OF INDICATION OR OTHER PARTS OF THE PRODUCT,

2.1.2 Do not operate the turnstile with:
– the presence of mechanical gritting in the moving parts of the turnstile;
– mechanical damage of the metal structure of the turnstile, its devices and components;

2.2. Layout and installation

The turnstile and other products of the delivery set must be delivered to the installation site in the manufacturer's packaging. Unpack the turnstile only at the installation site.

Preparation of the turnstile for installation (dismounting) and commissioning to be performed according to this OM.

WARNING:
The turnstile damage occurred during transportation is not covered by the manufacturer's warranty obligations.

2.2.1 Safety cautions:

- Only persons who have passed the Safety Instruction and who have studied this manual, the structure and the principle of operation of the turnstile, should be allowed to install.
- when installing the turnstile, use only a serviceable tool;
- installation of the turnstile should be carried out by a team of installers, consisting of not less than 2 people.

2.2.2 Procedure for the installation

Install the product in the following order:

1) The package integrity to be checked prior to unpacking. If package is damaged, then damages to be fixed (picture to be taken, damage report to be made).

2) The turnstile to be unpacked and inspected for defects and damages as well as completeness to be checked according to the turnstile data sheet;

WARNING:
When the turnstile damages are detected or in case of shortage of delivery, installation work to be stopped and the turnstile supplier to be referred to.

3) Make sure that the turnstile installation area is ready as follows:

- The installation site surface should be plain, hard and without defects (corrugations, overlaps etc.);and provide vertical position plus or minus 1°;
- Thickness of concrete blinding coat under site to be at least **150 mm**.
- Concrete blinding coat along the perimeter should overhang the project turnstile for **100 mm.**

WARNING:
The turnstile shall be fixed by means of Redibolt (with jacket and screw) included in the scope of delivery.

4) The turnstile fixation holes to be marked on the area surface according to the drawing (See Annex A). The turnstile components, placed upright on the installation site, marking can be used as a template.

2.2.3 Installation of the turnstile

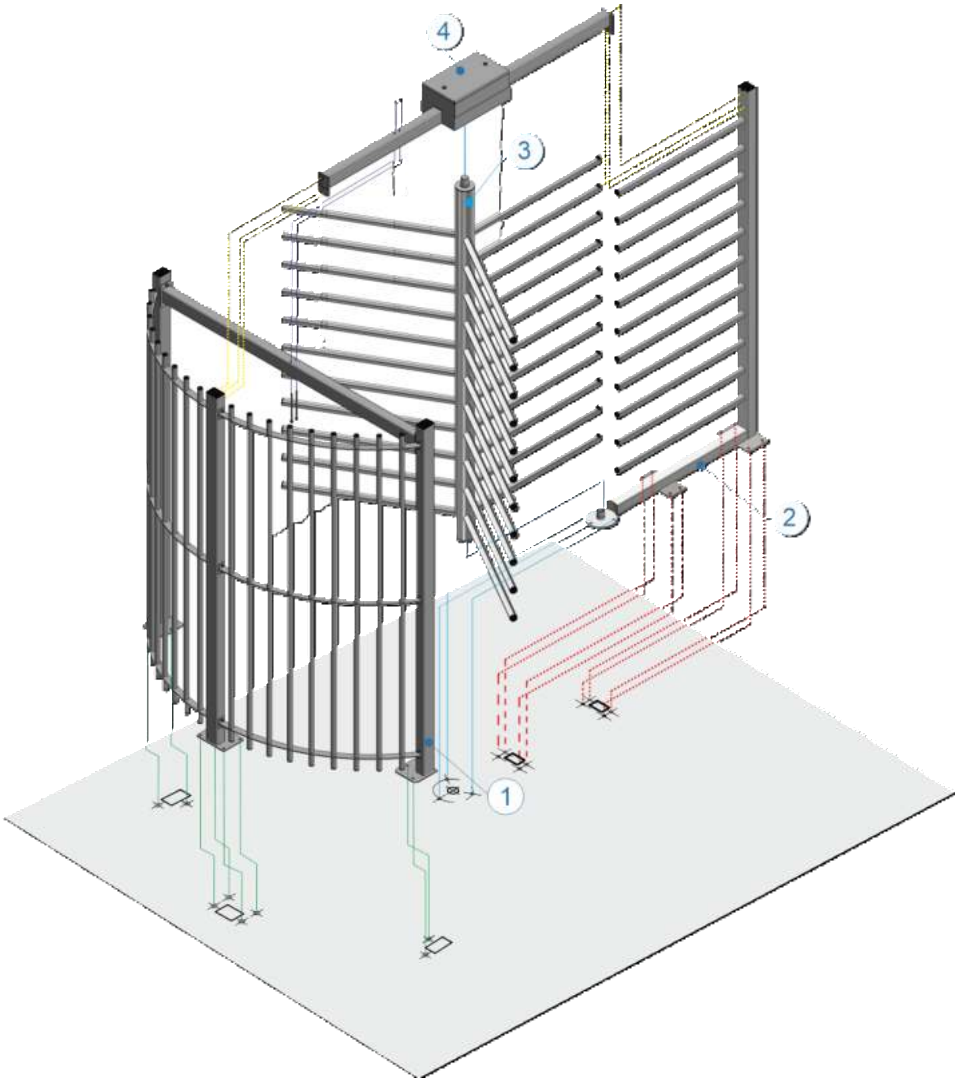
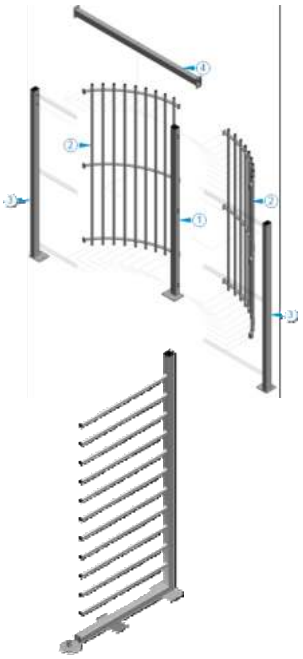


Fig. 5 - General view of installation of the turnstile "PUSH&GO" in the design position

2.2.4 The sequence of assembly of the major components of the full-height turnstile "PUSH&GO" when the turnstile is delivered by components (*See Figure 6*)*:*



1) Assembly of access way wall:

- Structural component of access way wall to be joined and installed in the design position to mark holes;
- The holes to be drilled according to the surface marking in compliance with diameter of the enclosed anchors for attachment of the "Push&Go" turnstile access way wall;
- The turnstile access way wall to be attached with anchors;

2) Installation of enclosure wall *1* with hackle:

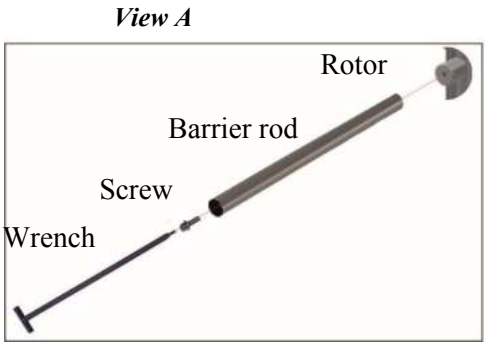
- Structural component of enclosure wall to be joined and installed in the design position to mark holes;
- The holes to be drilled according to the surface marking in compliance with diameter of the enclosed anchors for attachment of the "Push&Go" turnstile enclosure wall;
- The turnstile enclosure wall to be attached with anchors;

3) Assembly of the turnstile rotor *3*:

- A row of the rotor barrier rods (when rotor is delivered in disassembled state) using long Allen wrench and to be fixed with screws;

- The turnstile rotor to be installed by aligning enclosure walls ***1*** on the axis ***2***;

For proper installation rotor to be revolved so that a row of barrier rods bars the turnstile access.



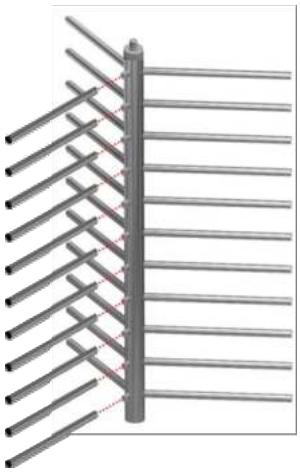


Fig.6 – Assembly of the turnstile major components and installation of barrier rods

4) Installation of the turnstile container on the frame assembly:

Fasten the container on the frame assembly to the enclosure wall and the access way wall with the help of bolts (see Figure 7):

a) remove the plugs on the racks of the access way wall and the enclosure wall;

b) install the frame with the container assembly in the grooves of the walls and secure it with a nut (1 pcs.) in the racks;

c) fasten the ends of the frame and the container together with two screws (2 pcs.) to the access way wall and the enclosure wall;

d) attach the container to the access way wall using screws (2 pcs.);

e) place plugs on the racks of the turnstile walls.

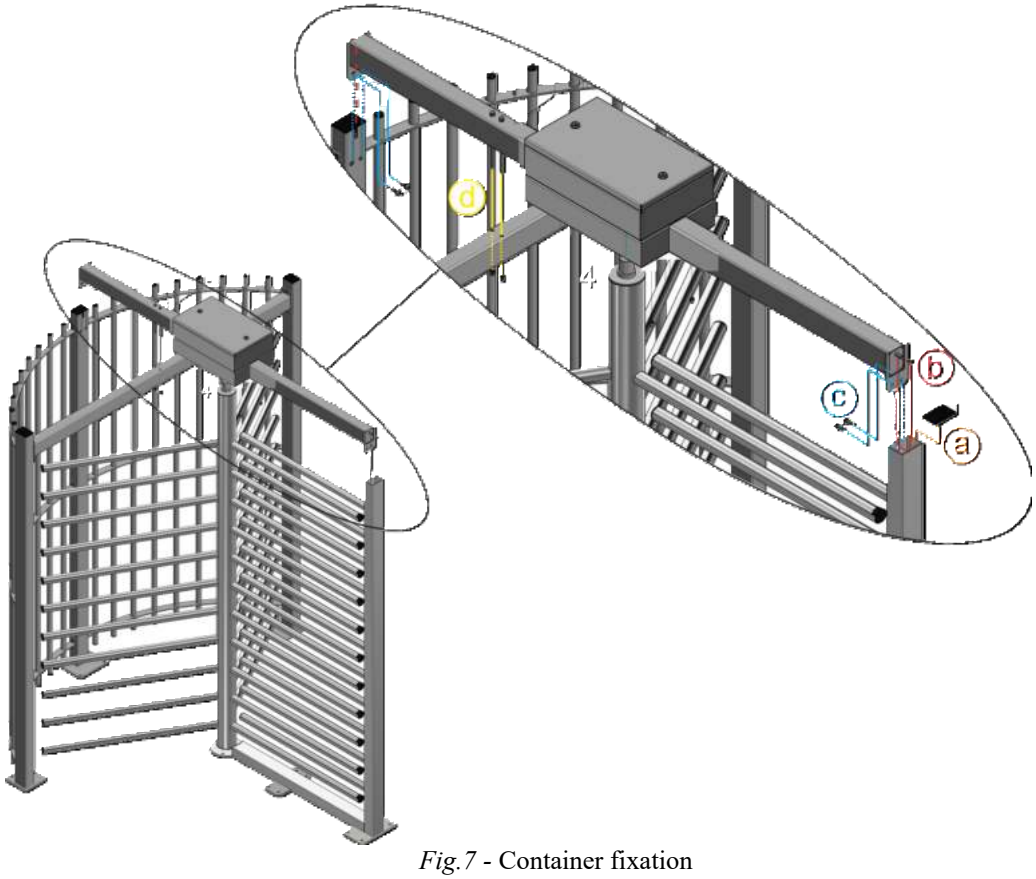


Fig.7 - Container fixation

For secure fixation the turnstile base to be tightly retained against the foundation with the entire plane.

The structure to be checked for vertical and horizontal position.

3. MAINTENANCE

3.1. General guidelines

The turnstile commissioning and subsequent maintenance to be performed only by the staff to be in charge of the turnstile.

The turnstile to be installed and operated only by the qualified and instructed in safety staff, being aware of this OM, the turnstile design and principle of operation.

3.2. Safety Measures

During maintenance of the turnstile the relevant safety measures according to p. 2.2.1 to be observed.

When instrumentations are prepared for operation it is necessary to strictly comply with the safety requirements specified in instrumentation instruction manuals.

3.3 Cleaning the turnstile

IT IS FORBIDDEN:

- **Do not wash the turnstile in direct sunlight.**
- **Do not wash the turnstile with water under pressure.**
- **Do not use hot water, detergents, highly alkaline or caustic cleaning ingredients or solvents, specifically those containing hydroxide. Avoid exposure to soaps and chemicals above pH 13. Damage caused by improper washing is not covered by the warranty..**
- **Avoid using tight-napped or rough cloths. A high-quality microfiber cleaning cloth is recommended**
- **Before washing the turnstile, make sure that the voltage is turned off.**
- **Do not allow water, cleaning agents or a damp cloth to pass onto the electrical control mechanism and parts of the turnstile.**
- **Polishes, abrasive cleaners, alcohol-based gel products (such as hand sanitizer) and harsh cloths can damage the finish on metal surfaces.**

1) MINIMUM WEEKLY CLEANING OF THE TURNSTILE

It is recommended that a minimum weekly cleaning of the turnstile be performed to assure proper operation and optimal function.

a. Clean exterior finish with a damp cotton cloth. Do not spray directly on the turnstile
b. Dry the surface of the turnstile with a dry, cotton cloth.
c. Clean the floor around the turnstile with a vacuum to remove any debris and dust

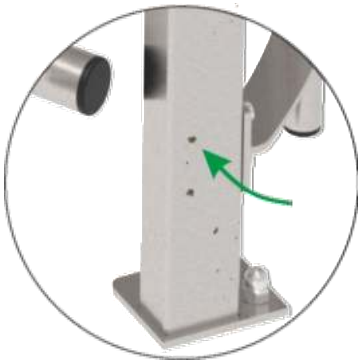
2) REMOVING SURFACE CONTAMINATION ON THE STAINLESS STEEL TURNSTILE

The means recommended for cleaning stainless steel products are given in *Table 5*

Table 5

Name of means	*Manufacturer Company*	*Manufacturer country*
Spray for cleaning stainless steel products Stainless steel cleaner Polich	3M	Group of European companies
Cleaning fluid WellDone	Well Done	Hungary
Emulsion SANO MULTI METAL	SANO	China
Foam Dr.BECKMANN	Dr.Beckmann	Germany
Emulsion Reinex Edelstahlreiniger	Reinex	Germany
Spray for cleaning Stainless steel cleaner	Onish	United Kingdom

CAUTION:
During operation of the turnstile, you may notice contamination on the surface of the stainless-steel body panels. These spots may appear as orange or brown rust. However, it is important to note that the turnstile is not rusting.
These spots are surface contamination caused by iron-containing environmental debris.
If you want to remove this surface contamination we recommend spot-cleaning the panels with Isopropyl Alcohol (IPA) wipes.



If ineffective, perform the following procedure:

1. Remove loose dust and debris from the vehicle surface using water, and a mild detergent if necessary;
2. Dry the turnstile with a clean microfiber towel;
3. While wearing gloves, apply a mild, citric acid cleaner with a sponge or microfiber cloth to evenly saturate the entire area of the stainless-steel panel. The citric acid binds to and dissolves the iron oxide in the contamination, which can then be removed from the stainless-steel panel.
4. Apply enough cleaner to cover the surface completely while minimizing dripping or pooling
5. Let rest for approximately 3 minutes, then:
   - **for a polished stainless steel turnstile remove** the cleaner using a blue Scotch-Brite and remove the surface contamination. **Clean in the direction of the grinding lines!**
   - for a polished stainless steel turnstile **remove** the cleaner using only with **a non-abrasive cloth** and remove the surface contamination**!**
6. Remove any residual cleaning solution with water and dry the panel with a microfiber cloth.

WARNING
Follow the citric acid cleaner manufacturer's instructions for proper use.

3) REMOVING SURFACE CONTAMINATION ON THE PAINTED TURNSTILE

To clean the painted turnstile, you need to use a clean and soft cloth or napkin so that they do not scratch the surface, otherwise the paint will lose its original appearance.

WARNING
Do not use cleaning materials with abrasive surfaces.
It is necessary to avoid strong mechanical impact on the painted surface, as this can lead to the appearance of scratches or chips, which, in turn, can cause metal corrosion

You need to wash the turnstile with a slightly damp, but not wet, cloth.
Excess water on the cloth must be squeezed out immediately
To clean everything, it is necessary to carry it along the part from top to bottom.
At the same time, painted parts should not be rubbed in one place for a long time so that the paint does not wear off It is better to wash painted surfaces several times, but without excessive effort, than to try to wipe everything at once.
And after cleaning, be sure to wipe with a dry and clean cloth or paper towels to remove the remaining moisture and detergent.

CAUTION:
If there are visible signs of damage to the coating, such as cracks, chips or peeling paint, these defects should be corrected immediately by cleaning the damaged area, applying a primer and repainting.

4. STORAGE AND TRANSPORTATION

4.1 Do not subject the product to sudden shocks or impacts during storage. You need to use transport trolleys to lift or move the product. There should be no corrosive gases and vapors that cause corrosion of the metal in storage rooms. Also, turnstiles should be stored on wooden or painted steel pallets or rubber mats and placed separately from other steel materials to avoid corrosion of stainless steel surfaces by dust, oil and rust

The temperature of the air during storage should not exceed the limits below plus 5 and above plus 40 °C and relative air humidity not more than 80% at a temperature of 20 °C. The room should be well ventilated.

4.2 Transportation of the turnstile in assembled form in accordance with the rules of transportation operating on each mode of transport is carried out:

- in railway or special containers;
- in covered cars;
- by water transport (in ship holds).

It is allowed to transport on open platforms. In this case, the container with the product must be covered with tarpaulin.

The ambient temperature during transportation should not exceed the limits below minus 50° C and above plus 50 °C.

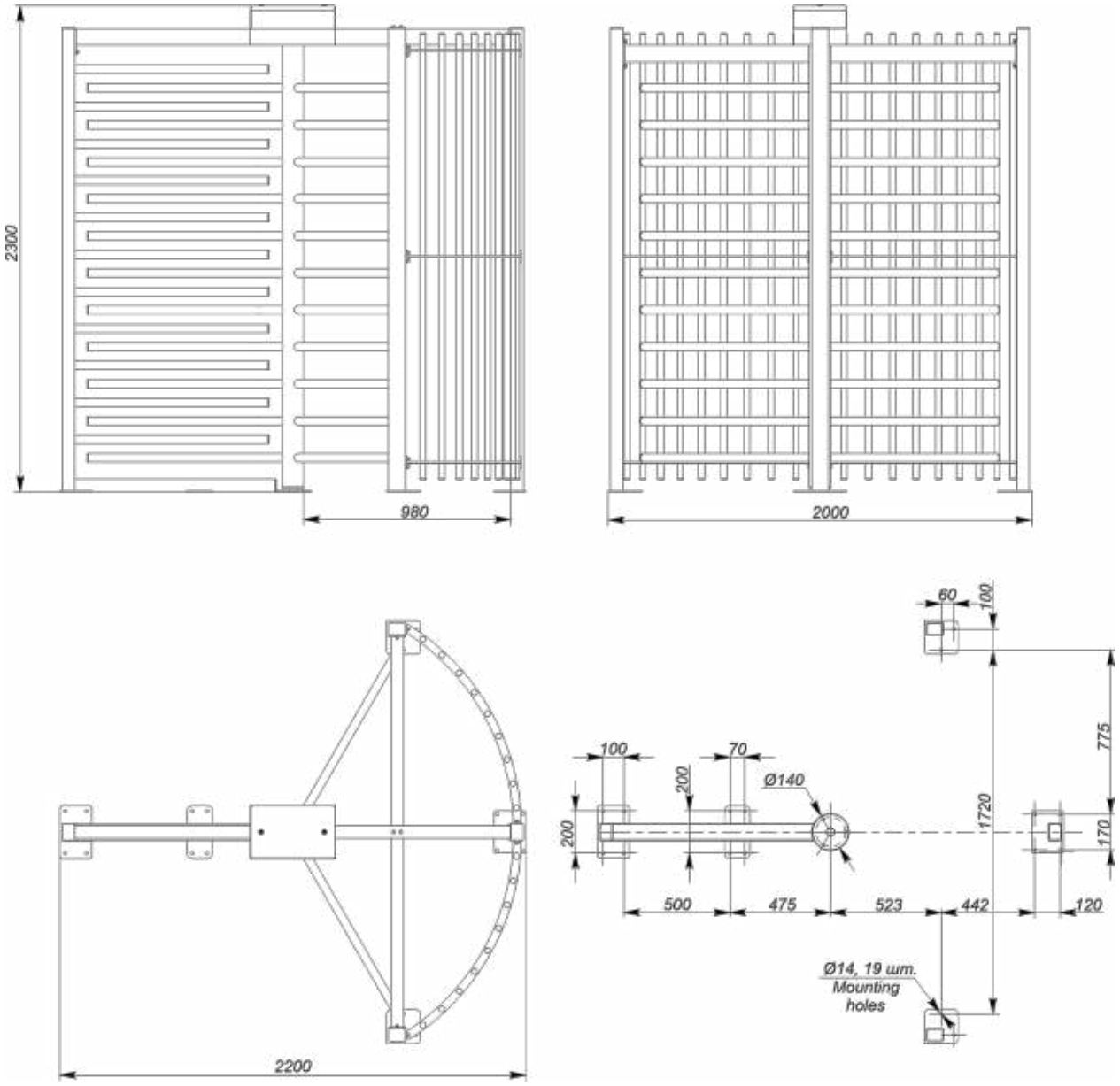
After transportation or storage of the turnstile at negative temperatures or high humidity of the air, the turnstile should be kept before startup without the original packaging for 12 hours in an enclosed space with normal climatic conditions:

1) ambient temperature - from plus 15 to plus 35 ° C;
2) relative humidity - from 45 to 80%;
3) atmospheric pressure - from 84.0 to 106.7 kPa (630-800 mm Hg).

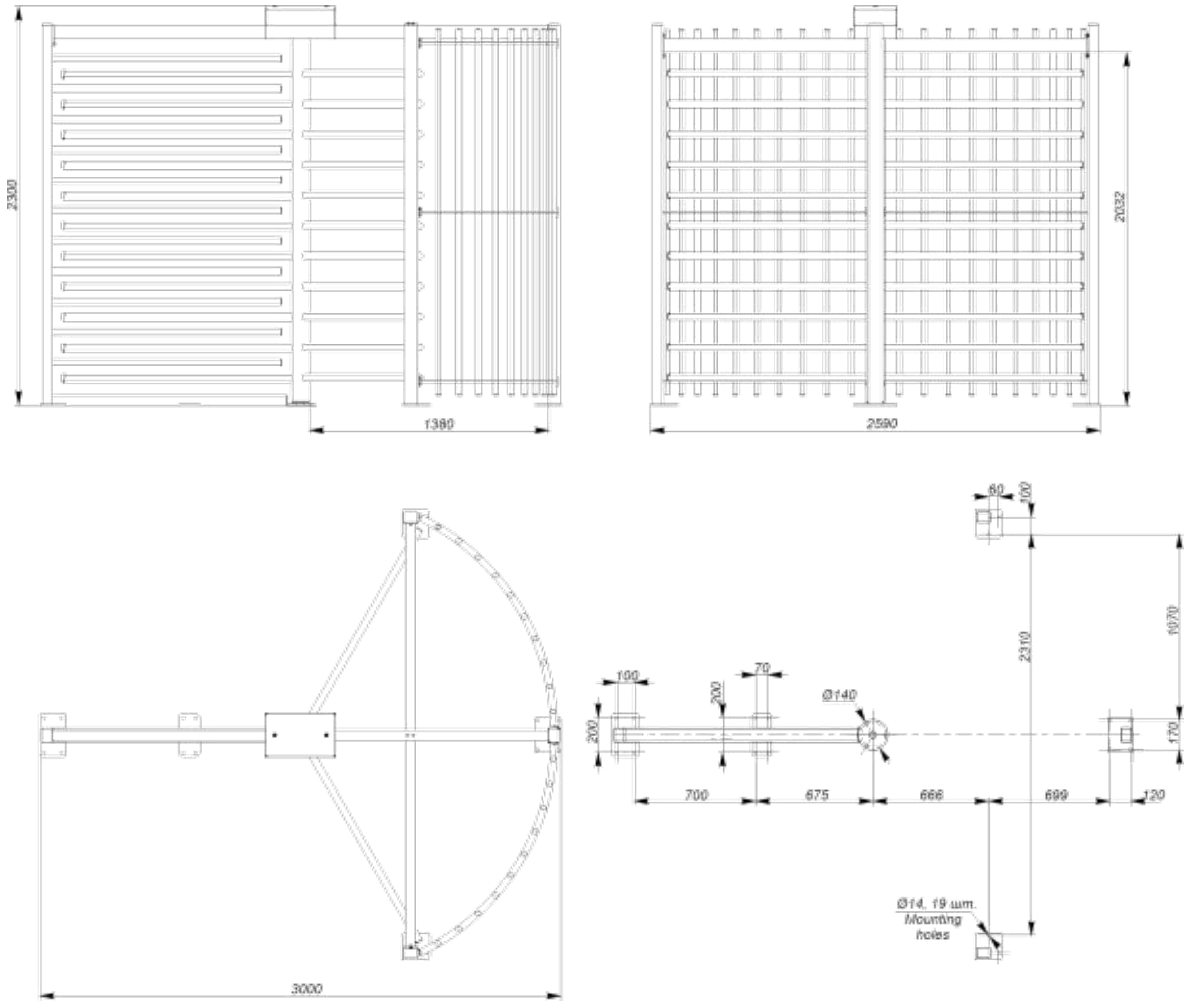
5. DISPOSAL CONSIDERATIONS

The turnstile does not contain in its structure materials that are hazardous to the environment and human health, and does not require special measures for its disposal.

Annex A.1. Overall and installation dimensions of the Single Full-Height Turnstile "PUSH&GO" (Y–rotor) AUIA.456



Annex A.2. Overall and installation dimensions of the Single Full-Height Turnstile "PUSH&GO" (Y–rotor) AUIA.456-01



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SERVICE CENTER
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Our equipment meets the requirements of European standards:
EN ISO 12100:2010, EN ISO 14118:2018, EN 60204-1:2018,
EN ISO 13857:2019,
EN 61000-6-1:2007, EN 61000-6-3:2007/A1:2011/AC:2012
and meets the requirements of the following EU Directives: 2014/30/EC; 2014/35/EC; 2006/42/EC

The manufacturer's quality management system is certified according to the international standard ISO 9001:2015 - Certificate № UA 18 / 819942484.

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