



## INSTRUCTION FOR USE

### Reaterra series treadmills



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These instructions for use apply to devices of the product series:

## Biofeedback Treadmills of the ReaTerra series

Serial number: \_\_\_\_\_

These instructions for use are part of the scope of supply. They must be kept ready close at hand and

also remain with the device in the event of resale.

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These instructions for use are not subject to an alteration service.

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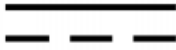
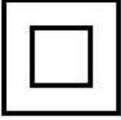






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## **Explanation of the symbols used**

Symbol	Standard reference	Purpose
	IEC 60417-5031	Direct current.
	IEC 60417-5072	Item of CLASS II
	IEC 60417-5333	Type BF applied part
	ISO 7000-0434A	Caution! Refer to operating documents
	ISO 7010-M001	General symbol of mandatory measures
	ISO 7010-M002	Refer to operations manual
	IEC 60417-5140	ME DEVICES and ME SYSTEMS incorporating RF transmitters
	GOST R ISO 15223-1	Date of manufacture

## 1. Preliminary comment

These instructions for use are intended to serve all users as a basis for action for the safe and danger-free use of the device. The instructions for use contain important information for the operation and care of the device and concerning how to proceed in the event of malfunctions.

Read the instructions for use, follow the stated instructions and always keep the instructions for use close to hand.



***Read the instructions for use before you carry out activities on the device!***

## **2. General information**

### **2.1 Applied directives and standards (selection)**

#### **List of main EC standards, which are applicable to the medical device (Biofeedback Treadmills of the ReaTerra series)**

- Regulation (EU) 2017/745 is a regulation of the European Union on the clinical investigation and sale of medical devices for human use, amending Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC.
- Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances.
- EN ISO 13485:2016/AC:2016 Medical devices – Quality management systems – Requirements for regulatory purposes.
- EN ISO 14971:2019 Medical devices – Application of risk management to medical devices.
- EN ISO 15223-1:2016 Medical devices. Symbols to be used with medical device labels, labelling, and information to be supplied. Part 1. General requirements (Corrected version 2017-03).
- EN 1041:2008+A1:2013 Information supplied by the manufacturer of medical devices.
- EN ISO 14155:2011/AC:2011 Clinical investigation of medical devices for human subjects – Good clinical practice.
- EN 60601-1:2006+A12:2014 Medical electrical equipment – Part 1: General requirements for basic safety and essential performance.
- EN 60601-1-2:2015 Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral Standard: Electromagnetic disturbances – Requirements and tests.

- EN 60601-1-6:2010+A1:2015 Medical electrical equipment – Part 1-6: General requirements for basic safety and essential performance – Collateral standard: Usability.
- EN 60601-1-8:2007/A11:2017 Medical electrical equipment – Part 1-8: General requirements for basic safety and essential performance – Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems.
- EN 60601-1-11:2015 Medical electrical equipment – Part 1-11: General requirements for basic safety and essential performance – Collateral standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment
- EN 60601-2-10:2015+A1:2016 Medical electrical equipment – Part 2-10: Particular requirements for the safety of nerve and muscle stimulators.
- EN 62366:2008+A1:2015 Medical devices – Application of usability engineering to medical devices.
- EN 62304:2006+A1:2015 Medical device software – Software life-cycle processes.
- EN 12182:2005 Assistive products for persons with disability - General requirements and test methods.
- DS/EN 55011-2020 Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement.

## **2.2 Structure and principle of operation**

This operation manual is intended for familiarization with the device, design, principle of operation, operation and method of application of treadmills of the ReaTerra series of 14 km/h, 22 km/h speed modifications, modifications without and with body weight support system, sizes of running belt (1500/900 mm, 1500/590 mm) (hereinafter referred to as treadmills).

Treadmills are manufactured in accordance with the specifications TU 9444-009-68709709-2016.

The treadmills are intended for treatment and rehabilitation of patients with neurological and cardiac pathologies, for functional diagnostics and ergometric testing. Also, the treadmills can be used in sports and fitness.

Treadmills of the ReaTerra series are the structures with a moving running belt made of dense sheet material, with a controlled speed and motion direction, an adjustable ascent angle of the entire structure to the horizon. The treadmills have a biofeedback in terms of the heart rate (pulse). The treadmills of modification with body weight support system include an body weight support system, which is a structure consisting of a knock-down framework and an electrically driven hoist that unloads the user / patient.

Potential consumers of the treadmills are medical professionals, physicians. The treadmills are intended for use in medical and healthcare, rehabilitation institutions, sanatoriums, sanatoriums-preventoriums, medical exercises dispensaries.

Features and benefits of ReaTerra series treadmills:

- an AC asynchronous motor of high reliability and durability is used as a treadmill drive;
- the presence of biofeedback via heart rate (hereinafter referred to as HR) allows for an individual approach to the patient;
- ease of use and operability of the HR sensor;
- availability of several control options for treadmills (touch panel, tablet PC, handheld control unit);
- various types of handrails are available for ordering;
- ability of storing the information of the undergone procedures and their parameters for each patient;
- safety operation of the treadmills.

## **2.3 Directions on use, contraindications, and operation risks**

The treadmills are intended for treatment and rehabilitation of patients with neurological and cardiac pathologies, for functional diagnostics and ergometric testing.

The treadmills can be used in healthcare, sports institutions only by qualified personnel who have studied the documentation for treadmills, methods and techniques of working with them.

The correct intensity of the user/patient loading is determined by his/her responding physician. Treadmill manufacturer provides no such recommendations.

### **2.3.1 Contraindications to the use of treadmills**

All contraindications to the use of treadmills should be identified for the user / patient before using the treadmills.

There are absolute and relative contraindications. In case if the user / patient has relative contraindications, the use of the treadmills is possible if the suggested benefits of their using exceeds the risks of using the treadmills. Decision on the use of the treadmills in this case should be made by physician. In case of using the treadmills by a user / patient with absolute contraindications, the procedures should be carried out under the constant super-vision of qualified medical personnel.

Absolute contraindications:

- Acute myocardial infarction.
- Unstable angina.
- Cardiac arrhythmia and /or limited hemodynamics.
- Pronounced aortic stenosis.

- Uncompensated / uncontrolled heart failure.
- Acute pulmonary embolism or pulmonary infarction.
- Acute endocarditis, myocarditis, pericarditis.
- Acute lower limb thrombophlebitis.
- Feverish infections.
- Pregnancy.
- Acute thrombosis.
- Unclosed wounds (for example, after surgeries, etc.).
- Traumatic spine diseases.
- Epilepsy.
- Various inflammations.
- Acute migraine.

**Relative contraindications:**

- Valvular insufficiency of intermediate severity.
- Known electrolytic imbalance.
- Arterial hypertension (systolic (upper) blood pressure RR > 200 mm Hg, diastolic (lower) blood pressure RR > 110 mm Hg).
- Tachyarrhythmia and bradyarrhythmia.
- Hypertrophic cardiomyopathy and other forms of outflow tract obstruction.
- Atrioventricular (AV) block type 2-3
- Anemia.
- Physical and / or mental deficiencies leading to the impossibility of performing the procedures.

User/patient may also have other contraindications not listed above. Decision on the use of the treadmills in this case should be made by physician.

**Risks when using treadmills**

In case of user / patient overload due to incorrect application or misinterpretation of documentation and / or to any other reasons, the risks may arise during the operation of the treadmills, which are listed in Table 1.

Table 1 – Risks when using treadmills



Description of risks when using treadmills	Risk prevention measures
<p>Resulting from overloads and falls:</p> <ul style="list-style-type: none"> <li>– bruises;</li> <li>– tension of ligaments;</li> <li>– scratches;</li> <li>– injuries to the musculoskeletal system (joints, tendons, ligaments, muscles, bones);</li> <li>– fractures, which in the worst case (for example, a neck fracture) lead to death.</li> </ul>	<ul style="list-style-type: none"> <li>– the treadmills should only be used under the supervision of qualified personnel;</li> <li>– the user / patient should be prescribed the correct amount of physical load by the doctor;</li> <li>– when using the treadmills, it is recommended the application of such protection features as the protection against crossing the edge of the running belt, the emergency shutdown function when pushing the “Emergency stop” button.</li> </ul>
<p>Overloading of the cardiovascular system may lead to the cardiac arrest and death in the worst case.</p>	<ul style="list-style-type: none"> <li>– the user / patient should be prescribed the correct amount of physical load by the doctor;</li> <li>– when conducting the treadmill procedures, a defibrillator should be available for quick resuscitation;</li> <li>– the use of HR biofeedback allows for working in a mode where the treadmills automatically reduce the user / patient loading if his / her heart rate exceeds the predetermined maximum level and stop the procedure in case of user / patient overloading.</li> </ul>

## 2.4 Biofeedback Treadmills of the ReaTerra series structure

The appearance of the ReaTerra series treadmill is provided in the Figure **Ошибка!**  
**Источник ссылки не найден.** (modification without body weight support system).

The appearance of the ReaTerra series treadmill is provided in the Figure **Ошибка!**  
**Источник ссылки не найден.** (modification with body weight support system).

The description of the component parts of the structure of the ReaTerra series treadmills is provided in Table 2.

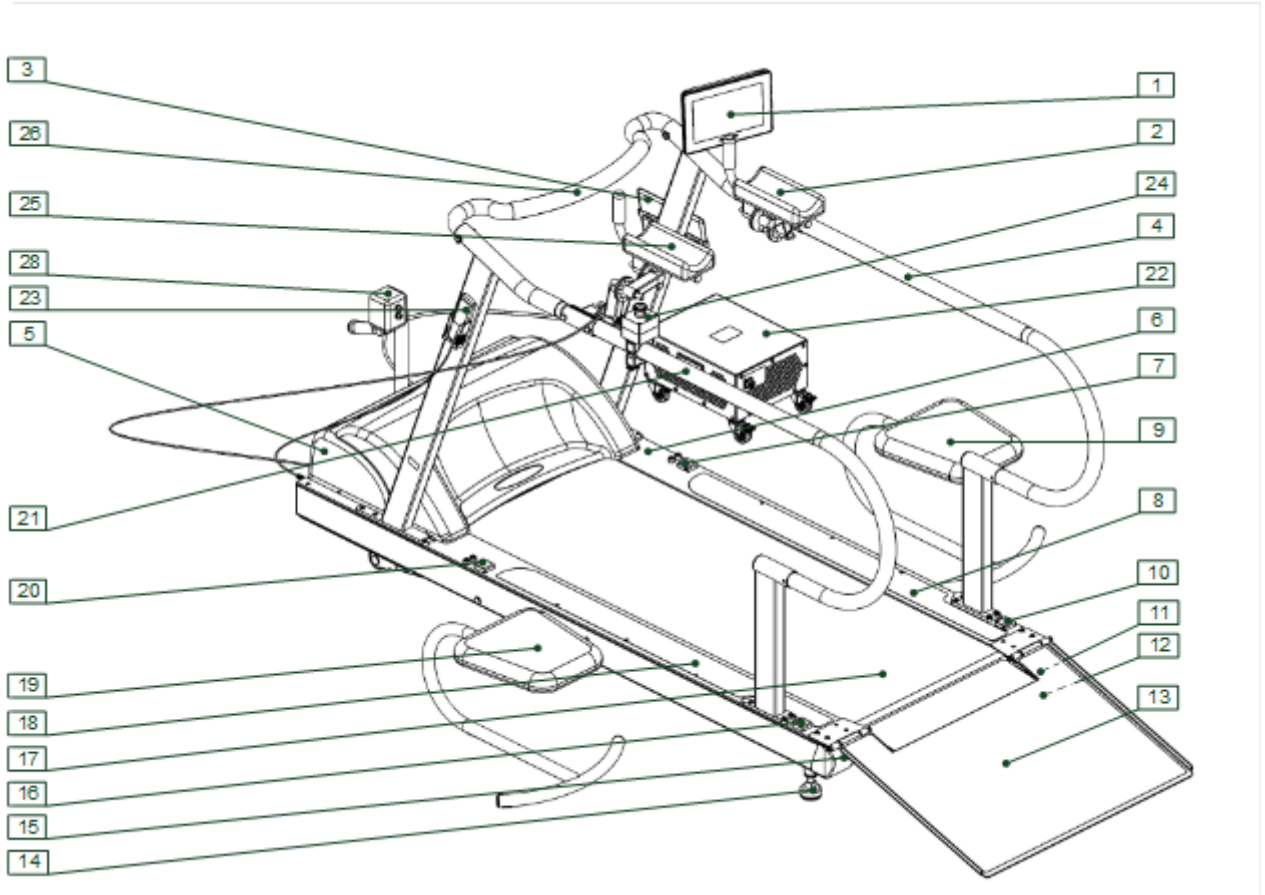


Fig. 1 ReaTerra series treadmill modification without body weight support system

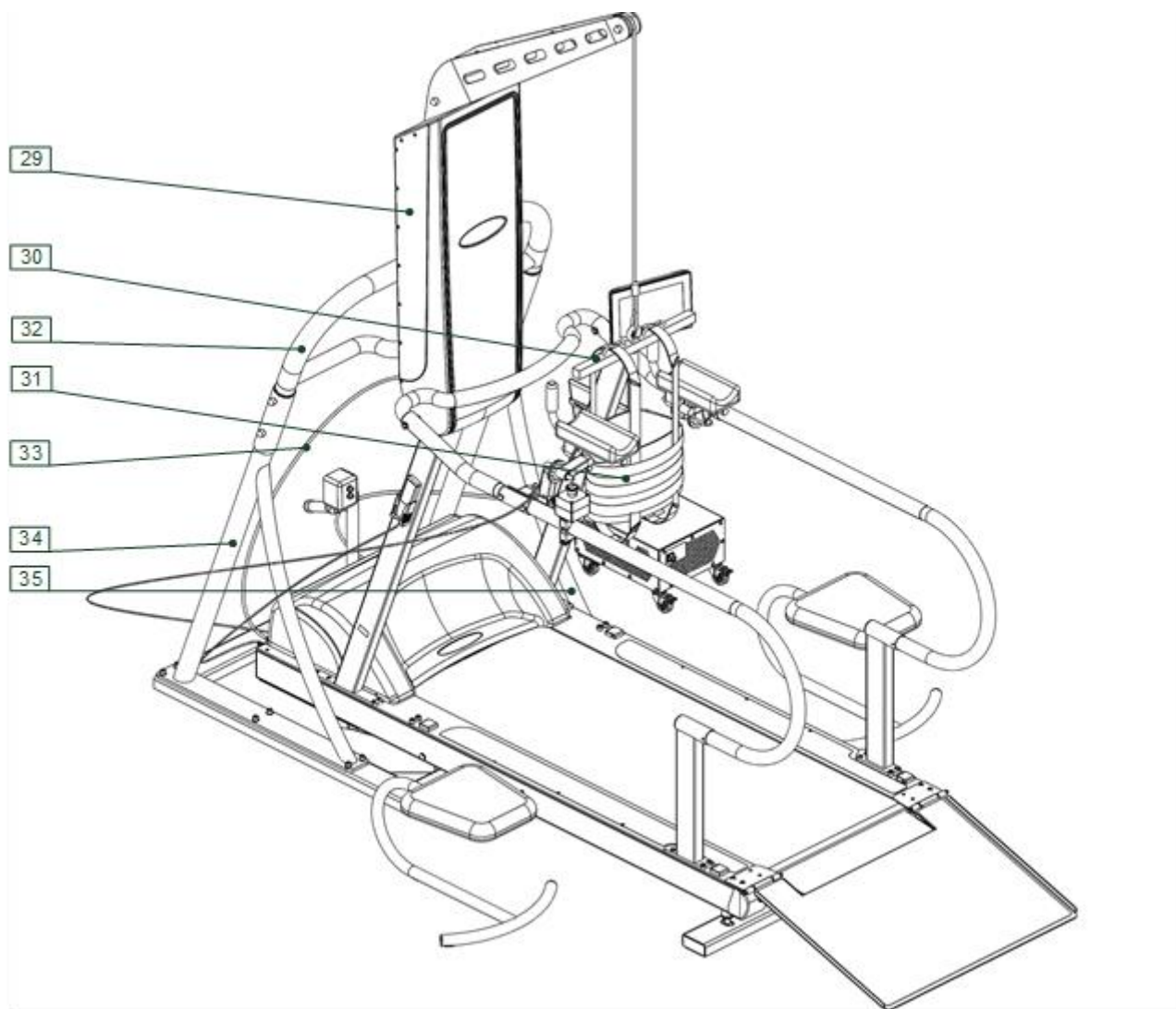


Figure 2 ReaTerra series treadmill modification with body weight support system

Table 1 – Description of the component parts of the structure of the ReaTerra series treadmills

Item number according to figures	Name	Description
[1]	Built-in control unit.	Color graphic touch control panel, intended to control the treadmill, display information to the user.
[2], [25]	Additional adjustable hand rests.	Adjustable hand rests are intended to fix the position of the user / patient on the treadmill.
[3]	Portable control unit.	Tablet PC is intended for convenient and prompt control of the complex.

Item number according to figures	Name	Description
[4], [21]	Right, left handrail from the set of fixed large handrails, respectively.	Metal handrail, intended to support the user / patient when operating the treadmill and to hold the built-in control unit, if available.
[4A], [21A]	Right, left handrail from the set of fixed small handrails, respectively.	Metal handrail, intended to support the user / patient when operating the treadmill and to hold the built-in control unit, if available.
[4B], [21B]	Right, left handrail from the set of adjustable handrails, respectively.	Metal handrail, intended to support the user / patient when operating the treadmill and to hold the built-in control unit, if available.
[5]	Running belt drive casing.	Plastic casing, intended for protection of the running belt drive and the electronic devices of the treadmill from external mechanical exposure.
[6]	Treadmill.	The treadmill is intended for treatment and rehabilitation of patients with neurological and cardiac pathology, for functional diagnostics and ergometric testing.
[7], [20]	Front receiver, optical signal transmitter, respectively.	The infrared optical signal receiver, together with the optical signal transmitter is intended for protection against crossing the edge of the running belt at the front part of the treadmill.
[8], [18]	Right, left lateral surface of the treadmills, respectively.	The treadmill stationary surface, covered with anti-slip material, is intended for provision of support the user / patient in case of emergency.
[9], [19]	Seat for medical personnel.	Metal seat is intended for the medical personnel when operating the treadmill.
[10], [16]	Rear receiver, optical signal transmitter, respectively.	The infrared optical signal receiver, together with the optical signal transmitter is intended for protection against crossing the edge of the

Item number according to figures	Name	Description
		running belt at the rear part of the treadmill.
[11], [15]	Right, left adjusting bolt of the rear shaft of the running belt, respectively.	Bolts are intended for adjustment of tension of the running belt and its alignment.
[12], [14]	Rear adjustable legs.	Metal legs, intended for holding the treadmill on a hard surface.
[13]	Wheelchair access ramp.	Metal ramp with anti-slip coating, intended for the entry of wheelchairs, etc. on the running belt.
[17]	Running belt.	Running belt made of dens sheet material, intended for running / walking.
[22]	Isolating transformer.	The isolating transformer, intended for galvanic separation of treadmill circuits from the supply mains to ensure safety requirements.
[23]	Handheld control unit.	Plastic control unit with a twisted cable, intended for operational control of the main functions of the treadmill.
[24]	“Emergency stop” button.	The external button, intended for an emergency stop of the treadmill's motor activity (motion of the running belt, lifting / lowering the treadmill).
[26]	Front safety bar.	Metallic bar, intended to provide additional support of the hands of patient / user at the front part of the treadmill.
[28]	Laser level.	The level is intended for applying the laser markings onto the running belt, which is used to display the user's / patient's movement area.
[29]	Casing of the hoist drive of body weight support system.	Plastic casing, intended for protection of the hoist drive and the electronic devices of the body weight support system from external mechanical exposure.

Item number according to figures	Name	Description
[30]	Suspension of the patient support vest.	Intended to secure the patient support vest on the hoist of the body weight support system.
[31]	Vest for patient support.	Indented for securing the patient on the hoist of the body weight support system.
[32]	Main framework of the body weight support system.	
[33]	Cable for connecting the body weight support system to the treadmill.	
[34], [35]	Body weight support system rack.	

## 2.5 Scope of supply

The scope of delivery of the treadmills, depending on the modification, corresponds to the list below.

### **I 14 km/h speed modification (running belt 1500/590 mm), without body weight support system:**

- treadmill of the ReaTerra series of 14 km/h modification (running belt 1500/590 mm),, without body weight support system (MMTsM.941146.101) - 1 pc.;
- a set of fixed large handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.002, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.003, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.004, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed large handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.005, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.006, the set includes two handrails: left and right) - 1 pc.;

- a set of adjustable handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.007, the set includes two handrails: left and right) - 1 pc.;
- front safety bar for fixed handrails<sup>2</sup> (MMTsM.305111.001) – 1 pc.;
- front safety bar for adjustable handrails<sup>2</sup> (MMTsM.305111.008) – 1 pc.;
- wheelchair access ramp<sup>6</sup> (MMTsM.305165.001) – 1 pc.;
- a set of additional adjustable hand rests<sup>6</sup> (MMTsM.301319.001, the set includes two hand rests: left and right) - 1 pc.;
- laser level with a stand<sup>5,6</sup> Condtrol EFX Set – 1 pc.;
- seat for medical personnel<sup>6</sup> (MMTsM.942819.001) – 2 pcs.;
- lubricating fluid for running belt<sup>5</sup> (silicone lubricant for running belts REMARENA.RU, supplied with a tube and a syringe for lubrication) - 100 ml;
- heart rate sensor Polar H7<sup>3,6</sup> – 1 pc.;
- handle for removing the fuse links PC-1<sup>5</sup>- 1 pc.;
- stationary socket-outlet IEC SSI-123<sup>4,5</sup> - 1 pc .;
- stationary socket-outlet for flush wiring IEC SSI-423<sup>4,5</sup> – 1 pc .;
- portable control unit (tablet PC DNS Airtab MF1011<sup>5,6</sup>) – 1 pc.;
- built-in control unit (color graphic touch control panel Weintek cMT-iV5<sup>5,6,7</sup>) – 1 pc.;
- isolating transformer 6.3 kVA (MMTsM.436228.001) - 1 pc .;
- data sheet MMTsM.941146.001 PS - 1 pc.;
- operation manual MMTsM.941146.001 RE - 1 pc.

**II 14 km/h speed modification (running belt 1500/900 mm), without body weight support system:**

- treadmill of the ReaTerra series of 14 km/h modification (running belt 1500/900 mm),, without body weight support system (MMTsM.941146.101) - 1 pc.;
- a set of fixed large handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.002, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.003, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.004, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed large handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.005, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.006, the set includes two handrails: left and right) - 1 pc.;

- a set of adjustable handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.007, the set includes two handrails: left and right) - 1 pc.;
- front safety bar for fixed handrails<sup>2</sup> (MMTsM.305111.001) – 1 pc.;
- front safety bar for adjustable handrails<sup>2</sup> (MMTsM.305111.008) – 1 pc.;
- wheelchair access ramp<sup>6</sup> (MMTsM.305165.001) – 1 pc.;
- a set of additional adjustable hand rests<sup>6</sup> (MMTsM.301319.001, the set includes two hand rests: left and right) - 1 pc.;
- laser level with a stand<sup>5,6</sup> Condrol EFX Set – 1 pc.;
- seat for medical personnel<sup>6</sup> (MMTsM.942819.001) – 2 pcs.;
- lubricating fluid for running belt<sup>5</sup> (silicone lubricant for running belts REMARENA.RU, supplied with a tube and a syringe for lubrication) - 100 ml;
- heart rate sensor Polar H7<sup>3,6</sup> – 1 pc.;
- handle for removing the fuse links PC-1<sup>5</sup>- 1 pc.;
- stationary socket-outlet IEC SSI-123<sup>4,5</sup> - 1 pc .;
- stationary socket-outlet for flush wiring IEC SSI-423<sup>4,5</sup> – 1 pc .;
- portable control unit (tablet PC DNS Airtab MF1011<sup>5,6</sup>) – 1 pc.;
- built-in control unit (color graphic touch control panel Weintek cMT-iV5<sup>5,6,7</sup>) – 1 pc.;
- isolating transformer 6.3 kVA (MMTsM.436228.001) - 1 pc .;
- data sheet MMTsM.941146.001 PS - 1 pc.;
- operation manual MMTsM.941146.001 RE - 1 pc.

### **III 14 km/h speed modification (running belt 1500/590 mm), with body weight support system**

- treadmill of the ReaTerra series of 14 km/h modification (running belt 1500/900 mm), with body weight support system (MMTsM.941146.301) - 1 pc.;
- a set of fixed large handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.002, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.003, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.004, the set includes two handrails: left and right) - 1 pc.;



- a set of fixed large handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.005, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.006, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.007, the set includes two handrails: left and right) - 1 pc.;
- front safety bar for fixed handrails<sup>2</sup> (MMTsM.305111.001) – 1 pc.;
- front safety bar for adjustable handrails<sup>2</sup> (MMTsM.305111.008) – 1 pc.;
- wheelchair access ramp<sup>6</sup> (MMTsM.305165.001) – 1 pc.;
- a set of additional adjustable hand rests<sup>6</sup> (MMTsM.301319.001, the set includes two hand rests: left and right) - 1 pc.;
- laser level with a stand<sup>5,6</sup> Condrol EFX Set – 1 pc.;
- seat for medical personnel<sup>6</sup> (MMTsM.942819.001) – 2 pcs.;
- lubricating fluid for running belt<sup>5</sup> (silicone lubricant for running belts REMARENA.RU, supplied with a tube and a syringe for lubrication) - 100 ml;
- heart rate sensor Polar H7<sup>3,6</sup> – 1 pc.;
- handle for removing the fuse links PC-1<sup>5</sup>- 1 pc.;
- stationary socket-outlet IEC SSI-123<sup>4,5</sup> - 1 pc.;
- stationary socket-outlet for flush wiring IEC SSI-423<sup>4,5</sup> – 1 pc.;
- portable control unit (tablet PC DNS Airtab MF1011<sup>5,6</sup>) – 1 pc.;
- built-in control unit (color graphic touch control panel Weintek cMT-iV5<sup>5,6,7</sup>) – 1 pc.;
- isolating transformer 6.3 kVA (MMTsM.436228.001) - 1 pc.;
- body weight support system (MMTsM.303359.001) – 1 pc.;
- vest for patient support (pediatric size)<sup>8</sup> (MMTsM.301525.001-01) – 1 pcs.;
- vest for patient support (teenage size)<sup>8</sup> (MMTsM.301525.001-02) – 1 pcs.;
- vest for patient support (adult size 1)<sup>8</sup> (MMTsM.301525.001-03) – 1 pcs.;
- vest for patient support (adult size 2)<sup>8</sup> (MMTsM.301525.001-04) – 1 pcs.;
- data sheet MMTsM.941146.001 PS - 1 pc.;
- operation manual MMTsM.941146.001 RE - 1 pc.

#### **IV 14 km/h speed modification (running belt 1500/900 mm), with body weight support system**

- treadmill of the ReaTerra series of 14 km/h modification (running belt 1500/900 mm) , with body weight support system (MMTsM.941146.401) - 1 pc.;
- a set of fixed large handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.002, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.003, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.004, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed large handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.005, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.006, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.007, the set includes two handrails: left and right) - 1 pc.;
- front safety bar for fixed handrails<sup>2</sup> (MMTsM.305111.001) – 1 pc.;
- front safety bar for adjustable handrails<sup>2</sup> (MMTsM.305111.008) – 1 pc.;
- wheelchair access ramp<sup>6</sup> (MMTsM.305165.001) – 1 pc.;
- a set of additional adjustable hand rests<sup>6</sup> (MMTsM.301319.001, the set includes two hand rests: left and right) - 1 pc.;
- laser level with a stand<sup>5,6</sup> Condrol EFX Set – 1 pc.;
- seat for medical personnel<sup>6</sup> (MMTsM.942819.001) – 2 pcs.;
- lubricating fluid for running belt<sup>5</sup> (silicone lubricant for running belts REMARENA.RU, supplied with a tube and a syringe for lubrication) - 100 ml;
- heart rate sensor Polar H7<sup>3,6</sup> – 1 pc.;
- handle for removing the fuse links PC-1<sup>5</sup>- 1 pc.;
- stationary socket-outlet IEC SSI-115<sup>4,5</sup> - 1 pc.;
- stationary socket-outlet for flush wiring IEC SSI-415<sup>4,5</sup> – 1 pc.;
- portable control unit (tablet PC DNS Airtab MF1011<sup>5,6</sup>) – 1 pc.;
- built-in control unit (color graphic touch control panel Weintek cMT-iV5<sup>5,6,7</sup>) – 1 pc.;
- isolating transformer 10.0 kVA (MMTsM.436228.201) - 1 pc. ;

- body weight support system (MMTsM.303359.001) – 1 pc.;
- vest for patient support (pediatric size)<sup>8</sup> (MMTsM.301525.001-01) – 1 pcs.;
- vest for patient support (teenage size)<sup>8</sup> (MMTsM.301525.001-02) – 1 pcs.;
- vest for patient support (adult size 1)<sup>8</sup> (MMTsM.301525.001-03) – 1 pcs.;
- vest for patient support (adult size 2)<sup>8</sup> (MMTsM.301525.001-04) – 1 pcs.;
- data sheet MMTsM.941146.001 PS - 1 pc.;
- operation manual MMTsM.941146.001 RE - 1 pc.

**V 22 km/h speed modification (running belt 1500/590 mm), with body weight support system**

- treadmill of the ReaTerra series of 22 km/h modification (running belt 1500/590 mm) , with body weight support system (MMTsM.941146.401) - 1 pc.;
- a set of fixed large handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.002, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.003, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.004, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed large handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.005, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.006, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.007, the set includes two handrails: left and right) - 1 pc.;
- front safety bar for fixed handrails<sup>2</sup> (MMTsM.305111.001) – 1 pc.;
- front safety bar for adjustable handrails<sup>2</sup> (MMTsM.305111.008) – 1 pc.;
- wheelchair access ramp<sup>6</sup> (MMTsM.305165.001) – 1 pc.;
- a set of additional adjustable hand rests<sup>6</sup> (MMTsM.301319.001, the set includes two hand rests: left and right) - 1 pc.;
- laser level with a stand<sup>5,6</sup> Condrol EFX Set – 1 pc.;
- seat for medical personnel<sup>6</sup> (MMTsM.942819.001) – 2 pcs.;

- lubricating fluid for running belt<sup>5</sup> (silicone lubricant for running belts REMARENA.RU, supplied with a tube and a syringe for lubrication) - 100 ml;
- heart rate sensor Polar H7<sup>3,6</sup> – 1 pc.;
- handle for removing the fuse links PC-1<sup>5</sup>- 1 pc.;
- stationary socket-outlet IEC SSI-115<sup>4,5</sup> - 1 pc.;
- stationary socket-outlet for flush wiring IEC SSI-415<sup>4,5</sup> – 1 pc.;
- portable control unit (tablet PC DNS Airtab MF1011<sup>5,6</sup>) – 1 pc.;
- built-in control unit (color graphic touch control panel Weintek cMT-iV5<sup>5,6,7</sup>) – 1 pc.;
- isolating transformer 10.0 kVA (MMTsM.436228.201) - 1 pc. ;
- body weight support system (MMTsM.303359.001) – 1 pc.;
- vest for patient support (pediatric size)<sup>8</sup> (MMTsM.301525.001-01) – 1 pcs.;
- vest for patient support (teenage size)<sup>8</sup> (MMTsM.301525.001-02) – 1 pcs.;
- vest for patient support (adult size 1)<sup>8</sup> (MMTsM.301525.001-03) – 1 pcs.;
- vest for patient support (adult size 2)<sup>8</sup> (MMTsM.301525.001-04) – 1 pcs.;
- data sheet MMTsM.941146.001 PS - 1 pc.;
- operation manual MMTsM.941146.001 RE - 1 pc.

## **VI 22 km/h speed modification (running belt 1500/590 mm), without body weight support system**

- treadmill of the ReaTerra series of 22 km/h modification (running belt 1500/590 mm),, without body weight support system (MMTsM.941146.101) - 1 pc.;
- a set of fixed large handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.002, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.003, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill without a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.004, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed large handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.005, the set includes two handrails: left and right) - 1 pc.;
- a set of fixed small handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.006, the set includes two handrails: left and right) - 1 pc.;
- a set of adjustable handrails for the treadmill with a fastening bracket for built-in control unit<sup>1</sup> (MMTsM.305111.007, the set includes two handrails: left and right) - 1 pc.;
- front safety bar for fixed handrails<sup>2</sup> (MMTsM.305111.001) – 1 pc.;
- front safety bar for adjustable handrails<sup>2</sup> (MMTsM.305111.008) – 1 pc.;

- wheelchair access ramp<sup>6</sup> (MMTsM.305165.001) – 1 pc.;
- a set of additional adjustable hand rests<sup>6</sup> (MMTsM.301319.001, the set includes two hand rests: left and right) - 1 pc.;
- laser level with a stand<sup>5,6</sup> Condrol EFX Set – 1 pc.;
- seat for medical personnel<sup>6</sup> (MMTsM.942819.001) – 2 pcs.;
- lubricating fluid for running belt<sup>5</sup> (silicone lubricant for running belts REMARENA.RU, supplied with a tube and a syringe for lubrication) - 100 ml;
- heart rate sensor Polar H7<sup>3,6</sup> – 1 pc.;
- handle for removing the fuse links PC-1<sup>5</sup>- 1 pc.;
- stationary socket-outlet IEC SSI-123<sup>4,5</sup> - 1 pc .;
- stationary socket-outlet for flush wiring IEC SSI-423<sup>4,5</sup> – 1 pc .;
- portable control unit (tablet PC DNS Airtab MF1011<sup>5,6</sup>) – 1 pc.;
- built-in control unit (color graphic touch control panel Weintek cMT-iV5<sup>5,6,7</sup>) – 1 pc.;
- isolating transformer 6.3 kVA (MMTsM.436228.001) - 1 pc .;
- data sheet MMTsM.941146.001 PS - 1 pc.;
- operation manual MMTsM.941146.001 RE - 1 pc.

Notes:

<sup>1</sup> A set of handrails is supplied upon the customer's request.

<sup>2</sup> The safety bar is supplied depending on the customer's request, together with a corresponding set of handrails.

<sup>3</sup> When ordering this item, a wireless Bluetooth module is additionally supplied, which is required for receiving signals from a heart rate sensor.

<sup>4</sup> One version of the socket-outlet is supplied at the customer's request, depending on the method of the socket mounting.

<sup>5</sup> The model or the item name in the scope of delivery may differ from that specified, provided that this does not impair the performance of the treadmills.

<sup>6</sup> Available at the request.

<sup>7</sup> The built-in control unit is supplied together with the handrails with a bracket for fastening the built-in control unit.

<sup>8</sup> Supplied upon the customer's request. Four different vest sizes are available for ordering.

### 3. Safety precautions



#### 3.1 General precautions



##### **Attention!**

This symbol and text in this manual identify safety warnings and instructions, as well as information referenced by symbols on nameplates on the treadmills.



##### **Attention!**

**CAUTION!** To avoid the risk of electric shock, the treadmills should only be connected to a mains supply with protective earthing.

- This operating manual is an integral part of the treadmills and shall be freely available to every treadmill user.
- Strict adherence to the requirements of this operation manual is essential for correct operation of the treadmills.
- Before using the treadmills it is necessary to carefully read and study this operation manual, especially the sections on indications, contraindications, risks, safety precautions, preparation for operation and procedure for operating the treadmills.
- Only trained and instructed personnel is allowed to operate the treadmills with the requirement to instruct user / patient on safety precautions and risks when using the treadmills.
- Safety, reliability, functionality, and accuracy in the operation of treadmills can only be ensured if:
  - the treadmills are used in accordance with this operation manual, including consumables, sensors, etc.;
  - installation, commissioning, instruction, modification, recommended maintenance, safety checks and repairs are carried out by authorized qualified personnel.
- The use of the treadmills, except for the intended application specified in this operation manual, is forbidden.
- The use of treadmills in public places and / or their use by persons who do not have a specialized medical education is not allowed.
- Resting on handrails while performing the treadmill procedures may affect the results of the procedures (for example, heart rate, etc.). Under normal

conditions and for healthy users, it is recommended to rest against the handrails only in emergency situations or when necessary for safety.

- It is forbidden to place the clothes, towels, jewelry, etc. on the treadmills. Such objects could cause the user / patient to fall on the treadmill, and can also be wound on the running belt. During operation, it is necessary to watch out for such objects are at a safe distance from the treadmill and its parts (running belt, lifting mechanism).
- Before cleaning or disinfecting the treadmills, remove the plug from the mains.
- Special attention should be paid to all warnings that are given in the operation manuals for the components of the treadmill delivery package that are produced by a third-party manufacturer.
- Treadmill maintenance personnel should pay particular attention to warnings and precautions specified in section - Maintenance.
- Manufacturer in no way is responsible for any damage to health and property resulted from the fault of the user, service or medical personnel.
- Modification, change of structure of the treadmills or their connection to third-party equipment that is not compatible with the treadmill is forbidden.
- Users / patients with pacemakers and users / patients with any physical limitations should be examined by a physician before using the treadmills and should obtain a physician's permission to use them.
- It is forbidden to use the treadmills if there is at least one of the contraindications to use (see Section - Contraindications to the use of treadmills).
- It is forbidden to use the treadmills when using the wheelchairs, bicycles, roller skates, etc.
- Do not use shoes with spikes or sharp heels (stilettos) on treadmills. This may cause damage to the running belt.
- Do not use the treadmills in environments other than those specified in Section – Operation conditions.

- Do not jump on the moving running belt. Do not jump off / onto a moving running belt. Do not stop and turn around on the moving running belt. Do not run sideways or backwards. Do not perform any actions on the moving running belt that could disturb the balance of the user / patient. When using the treadmills, it is necessary to set the values of speed, acceleration, ascent angle that correspond the capabilities of the user / patient.



### **Attention!**

**3.2**

Disregard of the recommendations on the intended use of treadmills, contraindications, risks when using treadmills, safety precautions, recommendations for maintenance and safety checks can lead to injuries or deaths and / or may damage the treadmills.

### **Instructions on preparation for user/patient**

- It is highly recommended to consult a physician before using the treadmills.
- Users / patients with pacemakers or those who have any physical limitations should be examined by their physician and should obtain permission from him /her to use the treadmills.
- Do not use the treadmills under the influence of alcohol or drugs.
- The user / patient, when performing treadmill procedures, should wear comfortable sport or running shoes (without spikes) and in sport clothing that does not restrict movement. Do not perform the procedures without shoes.
- When operating the treadmills there are hazardous areas, when a person moves forward on the treadmill, these are the rear part of the treadmill, as well as the side parts of the treadmill. When a person moves backward on the treadmill, this is the front part of the treadmill and the running belt drive casing of the treadmill, as well as the side parts of the treadmill. When operating the treadmills, it is necessary to make sure that there is no people, clothes, towels, etc. in the listed hazardous areas.
- Users/ patients with long hair should style them to prevent their getting into the hazardous areas of the treadmills.
- Personal valuables, such as watches, mobile phones, etc. should be left in a safe place before using the treadmills.



### 3.3 Indication on preparation for treadmill operation.

- If the ascent angle of the treadmills is greater than zero before switching on, after turning them on, the treadmills automatically lower to the zero position (the angle of the treadmill inclination to the horizon is zero). Please, make sure that there are no any foreign objects and /or people under the treadmills before turning them on.
- Intervals between switching the treadmills on and off should be at least 2 minutes. Otherwise, this leads to possible loss of data, deactivates the protection against inrush currents in the treadmill's electronic modules, which can overload the mains overload protection elements (circuit breaker and fuse links).
- When operating the treadmills, it is necessary to provide a safety zone with a length of at least 2 m and a width equal to the width of the treadmill, behind the treadmill (in the case if the person is moving forward on the running belt) and in front of the treadmill of the same size (in the case if the person is moving backward on the running belt). For more detailed information regarding the safety zones, see Section **Ошибка!**  
**Источник ссылки не найден.** – General notes.
- When operating the treadmills, it is necessary to use software and additional equipment recommended by manufacturer as compatible with the treadmills. Use of other software or hardware may result in serious injury, equipment damage and void of warranty.

**Attention!**

Do not use the treadmills without supplied isolating transformer (see Section **Ошибка! Источник ссылки не найден.** – Completeness).

**Attention!**

The running belt of the treadmill is not equipped with a brake system. When the running belt is stopped at inclination angles relative to the horizon greater than zero degrees, it can start moving under the influence of the patient's weight, which can lead to injury. The use of handrails at the specified moments is mandatory.

**Attention!**

The HR sensor included into the scope of delivery (see Section **Ошибка! Источник ссылки не найден.** – Completeness) is a working part of BF type (GOST R IEC 60601-1).

- You can only step on or off the running belt if the treadmill is stopped. Stepping on the running belt is allowed only via the rear part of the treadmills. Use the handrails when stepping onto the running belt.
- Use of the treadmills and their auxiliary equipment is only allowed under the constant supervision of a physician or medical personnel.
- Use of the treadmills by children is only allowed under the constant supervision of a physician.
- It is forbidden to hit the screen of the built-in or portable control unit, to press them using the hard sharp objects. Press gently on the screen.
- Use of treadmills should start with low speed and acceleration values of the running belt. After a few minutes, the speed can be gradually increased to the required value.
- Never set too high loads (speed, acceleration, ascent angle, HR values) if the health and state of the user / patient does not correspond to these loads, and if the physician's permission for such loads has not been obtained. Ignoring this can lead to the serious health problems or, in the worst cases, death. When working with high values of loads on the user / patient, special attention should be paid to precautions and risks.
- It is forbidden to use the treadmills in automatic modes (running on profiles, procedures with biofeedback), if the user / patient is not allowed to the procedures for health reasons by the physician. Ignoring this can lead to the serious health complications for the user / patient or, in the worst cases, death.

- When working with treadmills in automatic modes, the user / patient and medical personnel should have the necessary knowledge about the loads on the user / patient in these modes and be aware of possible changes in these loads at any given time. When working in these modes, it is necessary to pay particular attention to safety precautions. In automatic modes, the running belt turns on automatically, and the speed and ascent angle of the treadmills change automatically. The user / patient should be aware of all the details and risks associated with these operation modes (for example, maximum speed, ascent angle).
- It is forbidden to use the treadmills in the HR biofeedback running mode in the conditions of poor data transmission (for example, due to external interferences) using the wireless communication (Bluetooth).
- User/patient shall discontinue the procedure immediately in case of pain, dizziness. In this case consult the doctor.
- Excessive loads, improper use, or use of the treadmills not in accordance with their intended purpose can result in serious injury or, in the worst cases, death.
- In case of poor data transmission from the HR sensor via wireless communication channel do not rely the correctness of these data. Possible sources of interference include TV sets, PC, printers, mobile phones and any radio transceiver devices, external magnetic fields, electric motors, transformers, high voltage power lines, etc.
- If the treadmill control unit displays the incorrect HR value, the user / patient's HR should be checked manually.  
If these data are different, the HR sensor battery may be low.
- The “Emergency stop” button should be fixed in a place accessible for the user / patient and medical personnel.
- The “Emergency stop” button should be used only to stop the motor activity of the treadmills in case of emergency. This button is not intended for normal stop of the treadmill running belt.
- In case of any emergency, for example, the risk of falling, it is necessary to immediately press the Emergency stop button, while the user / patient can use the handrails to prevent himself / herself from falling.
- If the treadmills are used in an ascent mode with the running belt drive disabled, the user / patient's body weight and gravity may cause the running belt to move. In this case, the user / patient should not get up or step from the running belt in the area of rear axis of the running belt, as this may lead to falling.

- In case of using the treadmills in the mode where a person moves backwards on the running belt, it is allowed to change the direction of running belt motion to the opposite only when the running belt is stopped.
- When operating the treadmills using the laser level, observe the safety precautions specified by the manufacturer of this level in the corresponding operating documentation.
- Do not operate treadmills with ramp fastening brackets installed when the ramp is removed.

**Attention!**

It is forbidden to install the front safety bar included in the scope of delivery (see Section **Ошибка! Источник ссылки не найден.** - Completeness) when operating the treadmill in the direction of a person's movement on the running belt backward. Ignoring this indication can lead to the serious injuries.

**Attention!**

Treadmills are the devices that intentionally perceive electromagnetic RF energy when operating with the following parameters:

- frequency band for receiving Bluetooth signals 4.0 (2.402 ... 2.480) GHz;
- Bluetooth 4.0 channel bandwidth 78 MHz;
- 802.11n Wi-Fi signals receiving frequency 2.4 GHz;
- 802.11n Wi-Fi channel bandwidth 40 MHz.

Normal functioning of the treadmills may be impaired by the influence of other equipment, even if it meets the EMC emission requirements established in CISPR standards.

**Attention!**

The treadmills include the following radio frequency transmitters\*:

- Bluetooth signals transmitter parameters (frequency or bandwidth of transmission, kind and frequency characteristics of the applied modulation) comply with the Bluetooth 4.0 standard;
- maximum effective radiated power of Bluetooth signal is 4 dBm;
- Wi-Fi transmitter parameters (transmission frequency or bandwidth, type and frequency characteristics of the applied modulation) comply with the 802.11n IEEE standard;
- equivalent isotropically radiated power of the Wi-Fi signal is less than 20 dBm.

\* The Wi-Fi signal transmitter is included in the design of the treadmills, if, according to the consumer's request, a portable control unit is supplied (see Section **Ошибка! Источник ссылки не найден.** - Completeness).

**Attention!**

The HR biofeedback system may not accurately track the heart rate.



### **Attention!**

If the treadmills have been kept for a long time under environmental conditions that do not correspond to Section **Ошибка! Источник ссылки не найден.** - Operation conditions (for example, during transportation, storage), it is necessary to keep them under conditions according to Section **Ошибка! Источник ссылки не найден.** for at least 2 hours before switching on.




### **Attention!**

In case of detection of any malfunctions and/or any suspicions for malfunctions and/or detection of any warning labels/plates with text faded and/or illegible, operation of the treadmills should be stopped immediately. Afterwards, immediately inform the manufacturer or authorized service center on the detected malfunctions in writing.

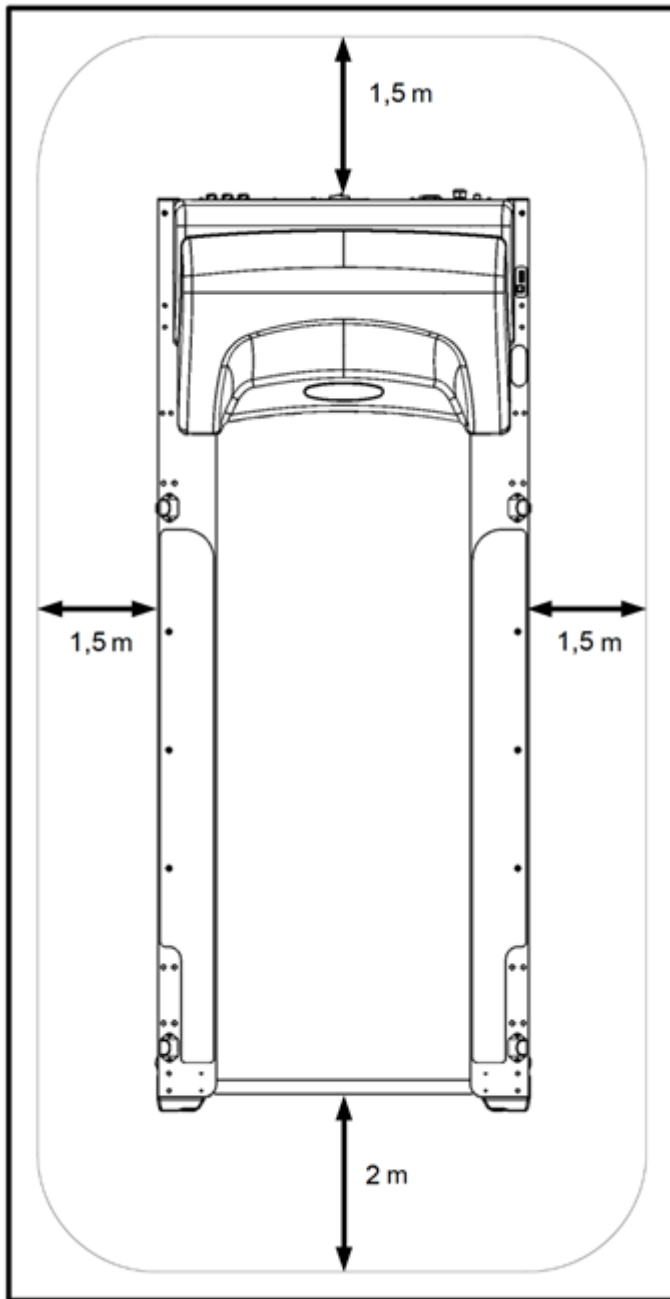
- Damaged cables, connectors, terminals should be replaced immediately by qualified service personnel.
- Immediately stop using the treadmills in case of liquid ingress inside the treadmill. Fluid must be removed by qualified service personnel, after which a complete safety check of the treadmills should be performed.
- If the power supply overload protection trips (tripping of the circuit breaker, blown fuse links, more details in Section **Ошибка! Источник ссылки не найден.** - Description of protection features), immediately stop using the treadmill. After that, qualified service personnel should identify the causes of mains overload protection trip and eliminate them.

#### 4. Treadmill installation process

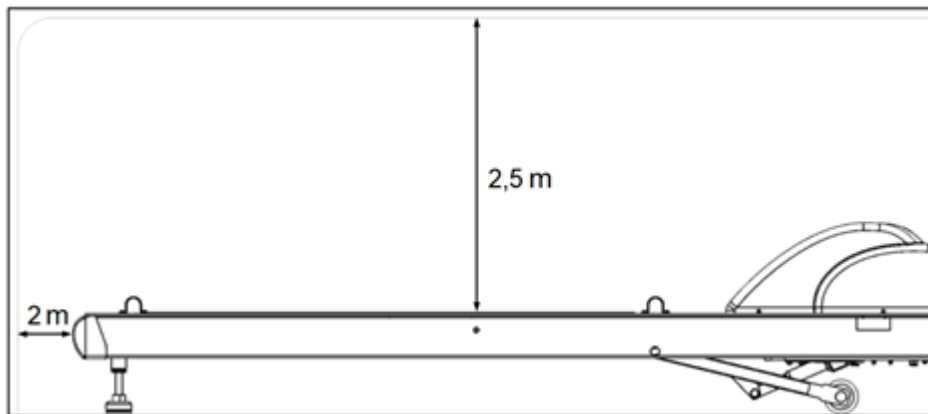
Table 2 Treadmill installation process without body weight support

No	Figure	Description
1		Before installing the treadmill in the room, a socket-outlet should be mounted in close proximity to the place of installation and connected to the mains voltage .
2		Before treadmill installation check the compliance of its scope of delivery with operational documentation and the integrity of components within scope of delivery.

3



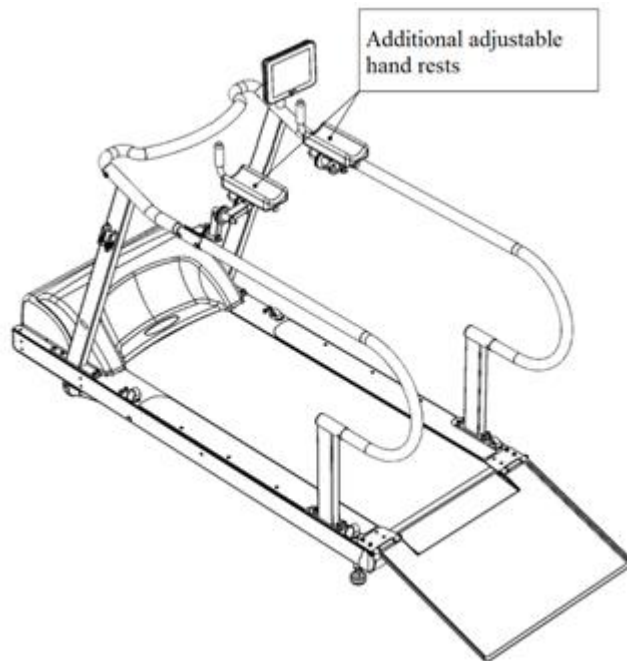
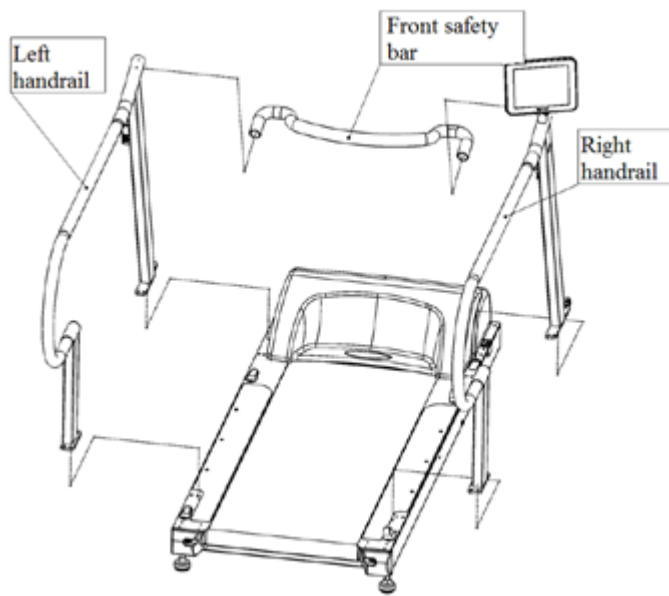
Install the treadmill on a flat hard surface, while maintaining the safety zones according to the requirements. Also, when installing, a free space of at least 1.5 m on the sides of the treadmill should be provided.



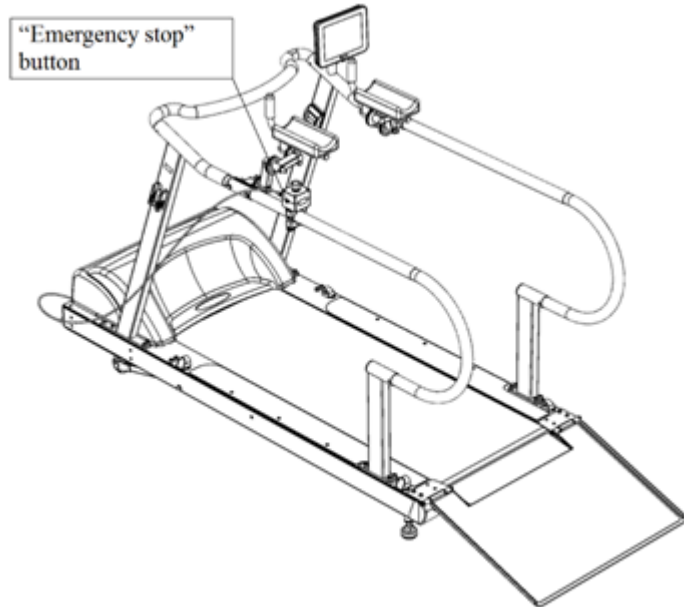
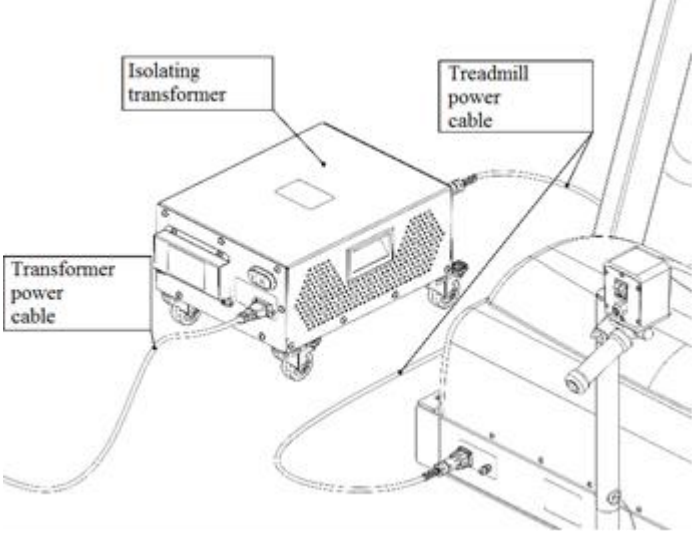
4

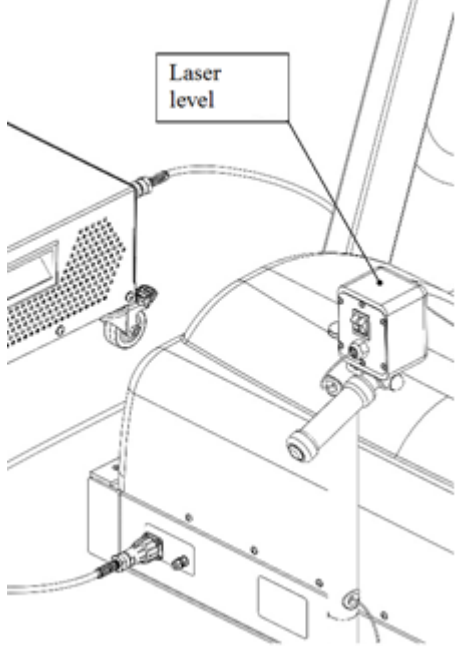

Install handrails

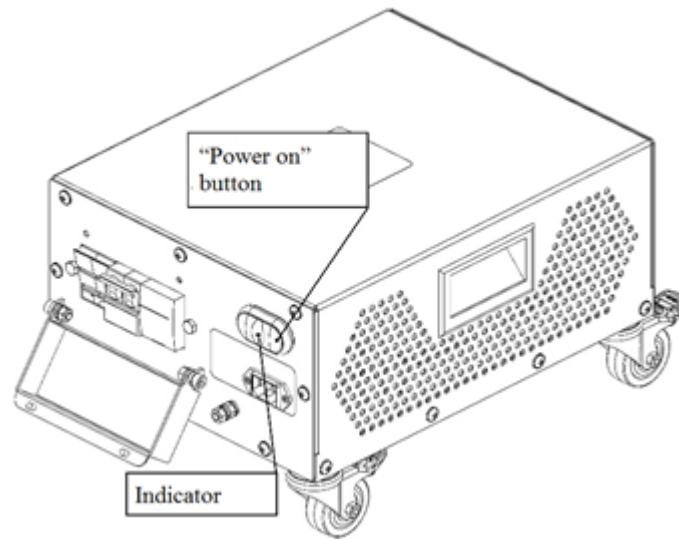




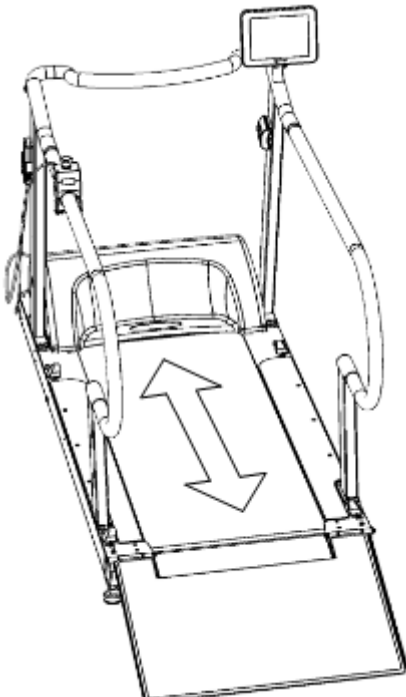
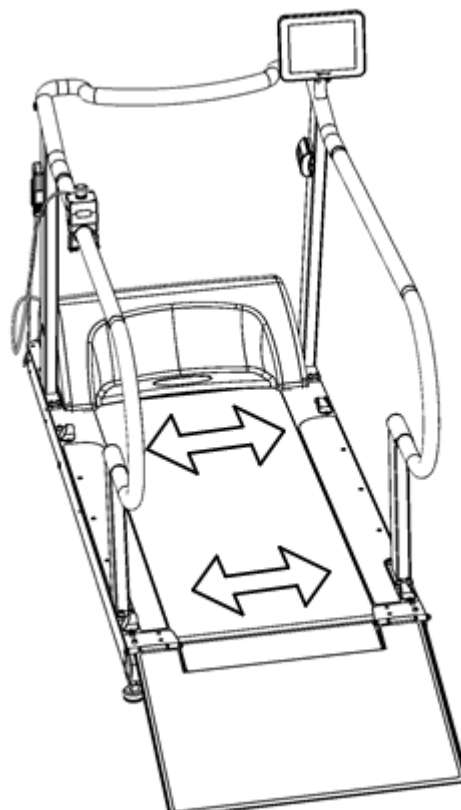
included into the delivery package. Install the front safety bar. The procedure for installing the handrails and safety bar


5	 <p>The diagram shows a treadmill from a side-rear perspective. A rectangular button is mounted on the right-hand side of the hand-rail. A callout box with a leader line points to this button and is labeled "Emergency stop" button. The treadmill's motor, deck, and hand-rails are clearly visible.</p>	<p>Place the "Emergency stop" button on the hand-rail in a convenient place .</p>
6	 <p>The diagram illustrates the electrical setup. On the left is a rectangular "Isolating transformer" with a power cord labeled "Transformer power cable" plugged into its side. On the right is the treadmill's motor assembly, with a "Treadmill power cable" plugged into its rear. The transformer is positioned on a flat surface, separate from the treadmill.</p>	<p>Install the isolation trans-former on a flat hard sur-face. The place of trans-former installation should be sufficiently remoted from the treadmill for provision of its safe oper-ation, but power cable of the treadmill should be long enough to connect to the transformer.</p>

7		Install the laser level with a stand.
8	Perform the lubrication of the running belt	
9	Connect the protective earth wires to the terminals marked with a symbol on the housing of the treadmill, isolating transformer and body weight support system, while a separate protective earth wire should be used for connection of each of the above devices.	
10		Plug the power cable of the isolating transformer into the appropriate socket-outlet of the supply mains

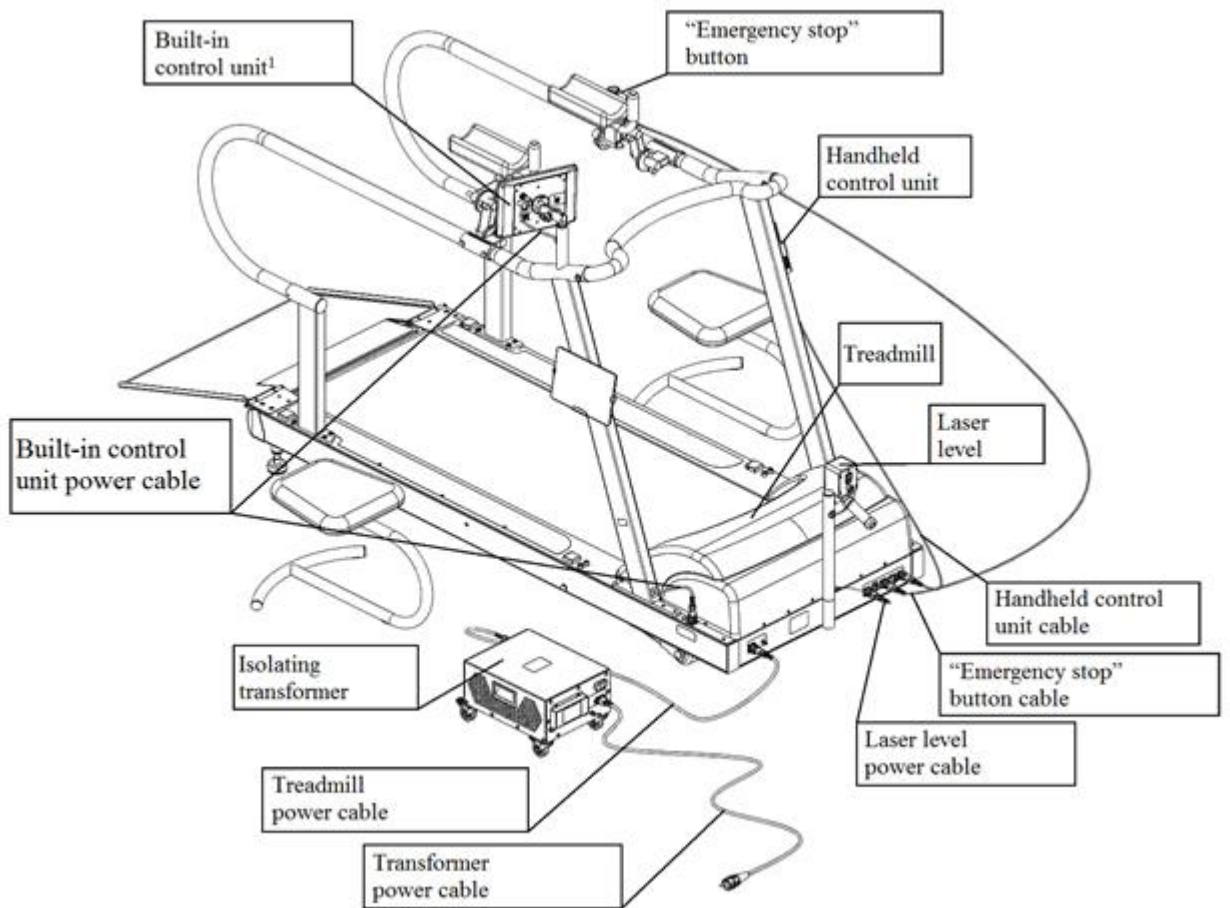


Push the green "On" button located on the front part of the transformer housing. The treadmill On indicator located next to the "On" button shall light up. If not, check that the treadmill is properly connected to the isolation transformer and that the isolating transformer is properly connected to the mains, make sure there is voltage in the supply mains and that the circuit breaker is in the "On" position.

12	 A line drawing of a treadmill from a three-quarter perspective. A single double-headed arrow is drawn on the running belt, pointing forward and backward. The treadmill has handrails and a control console at the front.	Check the tension of the running belt
13	 A line drawing of a treadmill from a three-quarter perspective, similar to the one in step 12. Two double-headed arrows are drawn on the running belt, one above the other, both pointing forward and backward.	Center the running belt

14		Perform the calibration of the treadmill position
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Cable connections present in the treadmills




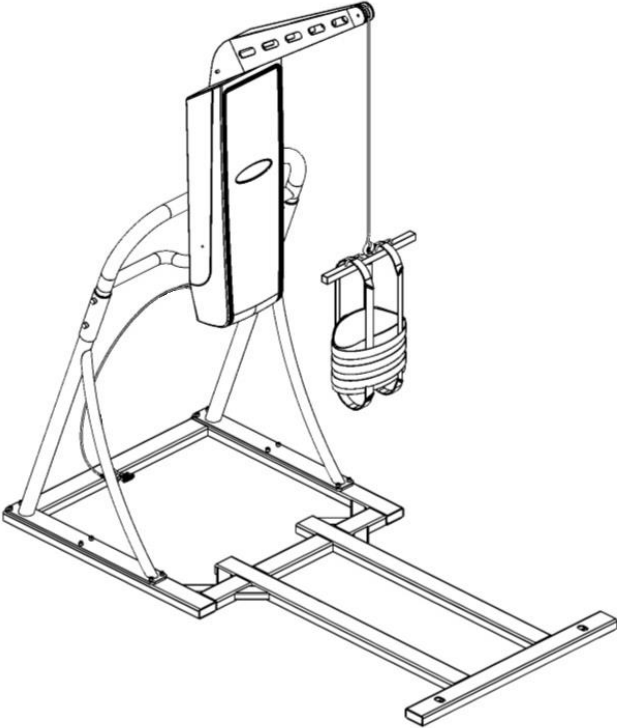
Description of connectors and connections

The Table below shows positional designations and descriptions of connectors. The connectors are marked on the appropriate plates, the appearance of which is shown in Appendix D.

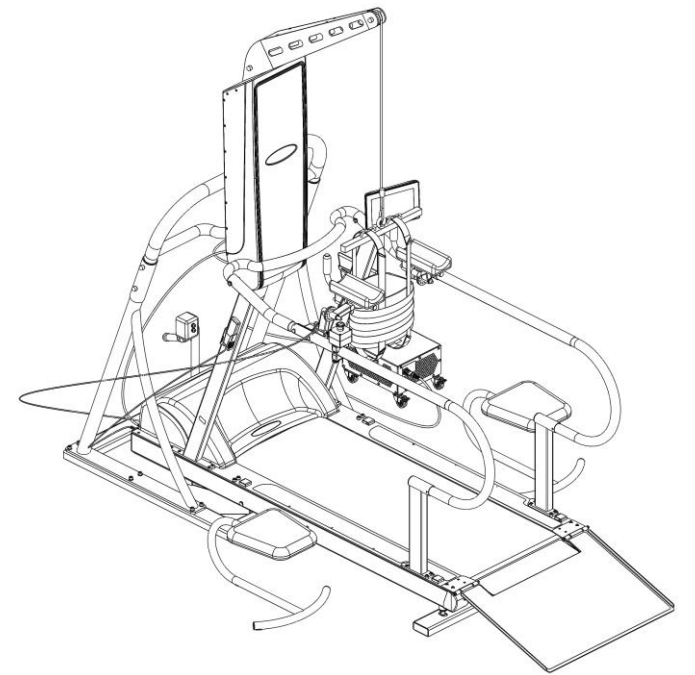
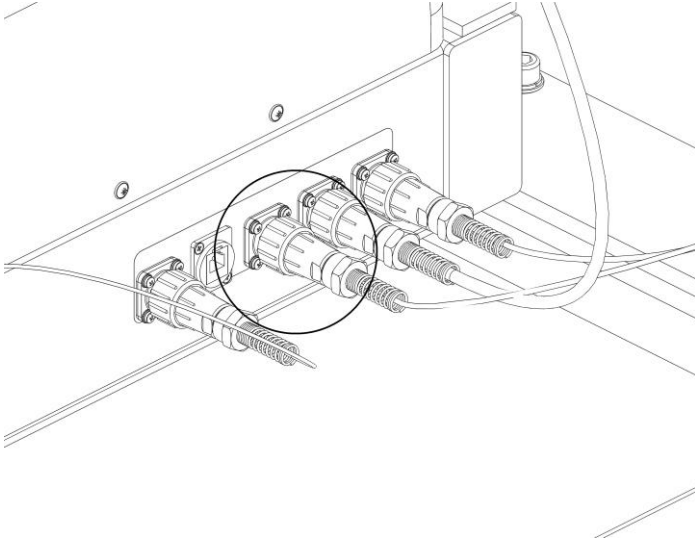
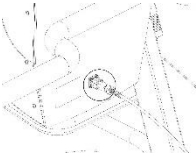
Connector designation	Description
X1	Connector for connecting the supply voltage to the transformer
X2	Connector for connecting the supply voltage to the treadmill
X3	Connector for connecting the supply voltage and earth to the treadmill
X4	Connector for connecting the supply voltage to the laser level
X5	Connector for connecting the signal cable of the external stress-system
X6	Connector for connecting the "Emergency stop" button
X7	Connector for connecting the power cable of the body weight support system
X8	Connector for connecting the handheld control unit
X9	Connector for connecting the built-in control unit
X10	Connector for connecting the built-in control unit

Table 3 Treadmill installation process with body weight support

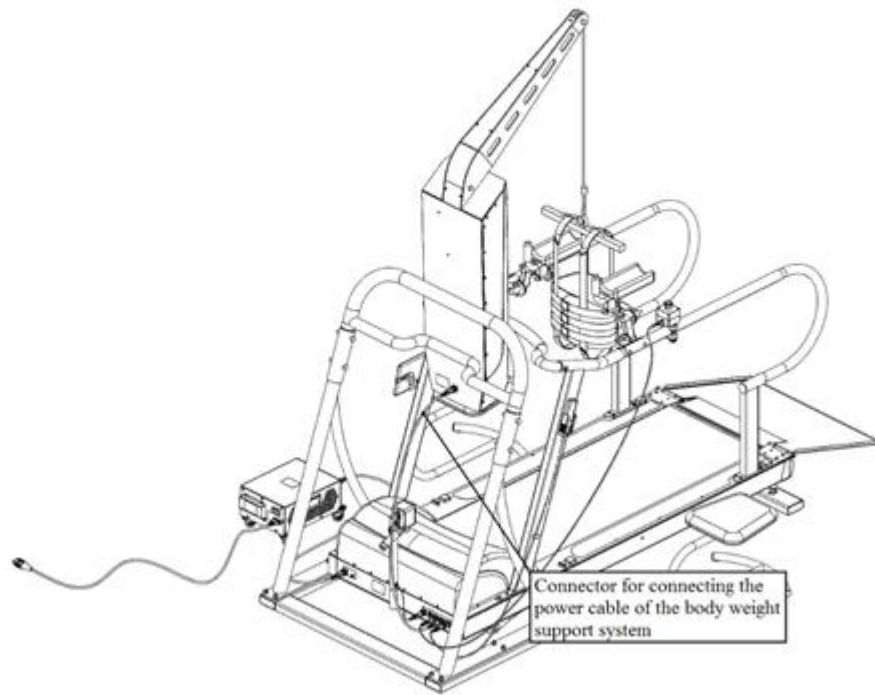
Item No.	Figure	Description
01		Before installing the treadmill in the room, a socket-outlet should be mounted in close proximity to the place of installation and connected to the mains voltage (for the mains parameters, see Section <b>Ошибка! Источник ссылки не найден.</b> - Specifications). The layout of the socket-outlet terminals should comply with the requirements of Section <b>Ошибка! Источник ссылки не найден.</b> - Description of

Item No.	Figure	Description
		connectors and connections.
02		<p>Before treadmill installation check the compliance of its scope of delivery with operational documentation and the integrity of components within scope of delivery.</p>
03		<p>Perform the assembly of the body weight support system – Procedure for assembling the body weight support system).</p>
04		<p>Perform the assembly of the treadmill of body weight support system modification (see steps in Table 2).</p>



Item No.	Figure	Description
05		<p>Install the treadmill of body weight support system modification in accordance with– Procedure for installation of the treadmill modification with a body weight support system.</p>
06		<p>Connect the power cable of the body weight support system into the corresponding connector of the treadmill</p>
07		<p>Connect the power cable of the body weight support system into the corresponding connector of the body weight support system.</p>
08	<p>Further preparation for operation is reduced to the steps given in Table 2.</p>	

Cable connections of the body weight support system to a treadmill



## 5. Operation procedure

### 5.1 Description of protection features

In case of emergency, for example, a threat of falling, it is necessary to stand on the side stationary parts of the treadmill using the handrails. You can also press the “Emergency Stop” button to stop of the treadmill’s motor activity (lifting / lowering the treadmill, motion of the running belt).

For a more detailed description of the protection features, see Table 3.

Table 3 – Description of protection features

Protection name	Description	Instructions for resetting the protection
Function of protection against crossing the edge of the running belt	This function is provided by the optical infrared crossing sensors located at the front and rear parts of the running belt. When the user / patient crosses the range of the optical sensor, the motion of the running belt stops, and a warning will be displayed on the control unit (built-in / portable). Depending on the running belt motion direction, one of the sensors is active (when the direction of movement of the person on the running belt is forward, the sensor located at the rear part of the running belt is active, when the direction of movement of the person on the running belt is backward, the sensor located in the front part of the running belt is active). The deceleration time of the running belt is case of this type of protection actuation corresponds to the values in Table <b>Ошибка! Источник ссылки не найден..</b>	To restore the normal operation of the treadmill, it is necessary to make sure that there is no obstacle between the receiver and the transmitter of the infrared optical signal, press the reset button in the warning window on the built-in / portable control unit.
Emergency stop function when pressing the “Emergency stop” button	This function is provided by the “Emergency stop” button, which is located on the handrails in an accessible place at the user’s discretion. Pressing this button stops all motor activity of the treadmill (lifting or lowering the treadmill, movement of the running belt, movement of the hoist of the body weight support system), a warning will be displayed on the control unit (built-in /portable).	To restore the normal operation of the treadmill, it is necessary to make sure that the emergency situation, due to which the button was pressed, has been eliminated, turn the “Emergency stop” button in the direction indicated by the arrows on its surface to release it from locking.

Protection name	Description	Instructions for resetting the protection
Running belt drive overload protection function	This protection function is provided by the frequency converter of the running belt drive. While attempting to start the running belt movement under an excessive loading of it (the values of the permissible loads on the running belt are given in Table <b>Ошибка! Источник ссылки не найден.</b> ), all motor activity of the treadmill stops (lifting or lowering the treadmill, movement of the running belt), a warning on the control unit (built-in / portable) will be displayed.	To restore the normal operation of the treadmill, it is necessary to perform the treadmill switching on /off procedure (see Section <b>Ошибка! Источник ссылки не найден.</b> – Preparation for operation).
Treadmill lift drive overload protection function	This function is provided by the treadmill actuator (lift) control unit. While attempting to start the treadmill lift under an excessive loading of the running belt (the values of the permissible loads on the running belt are given in Table <b>Ошибка! Источник ссылки не найден.</b> ), the lifting or lowering the treadmill is stopped.	This protection function monitors possible overloads of the treadmill lift drive with a certain frequency, and in the event of a return of the load on the running belt to the normal limits, it automatically restores the treadmill performance.
Supply mains overload protection function	The function of supply mains overload protection is provided by the built-in circuit breaker located at the front part of the treadmill base. In case of any internal treadmill malfunction, which leads to an increase in the current consumption from the supply mains, the circuit breaker disconnects the treadmill from the supply mains.	To restore the normal operation of the treadmill, it is necessary to make sure that the reason caused the actuation of the circuit breaker is found and eliminated <sup>1</sup> , after which you should turn on the circuit breaker.
Function of protecting the supply mains from overloads due to a short circuit in the internal circuits of the treadmills	The function of protecting the supply mains from overloads due to a short circuit in the internal circuits of the treadmills is provided by the built-in fuse links located at the lower front part of the treadmill. When this type of protection is actuated, the fuse links burn out, and the treadmill is disconnected from the supply mains.	To restore the normal operation of the treadmill, it is necessary to make sure that the reason caused the fuse links to blow out is found and eliminated <sup>1</sup> , after which the blown out fuse links should be replaced <sup>2</sup> (see Section <b>Ошибка!</b>

Protection name	Description	Instructions for resetting the protection
		<b>Источник ссылки не найден.</b> – Fuse links replacement).
Function of overload protection of the body weight support system hoist drive	This protection function is provided by the actuator control unit, which supplies power to the electric drive of the hoist. While attempting to start the hoist of the body weight support system under its excessive loading, the movement of the body weight support system hoist is stopped.	This protection function monitors possible overloads of the drive of body weight support system hoist with a certain frequency, and in the event of a return of the load on the latter to the normal limits, it automatically restores the hoist performance.

## 5.4 Description of controls

### 5.4.1 Built-in control unit

Built-in control unit (color graphic touch control panel) is supplied assembled with the right handrail at the customer's request (see Section – Completeness). Built-in control unit is connected to the treadmill via an interface cable and a power cable.



#### **Attention!**

Do not lean on the built-in control unit to avoid its malfunctions. Do not hit the screen of the built-in control unit nor press it using hard sharp objects.

The built-in control unit is installed on the bracket (see Figure) fastened on the right handrail of the treadmills. The bracket allows for rotation of the built-in control unit along two axes, which provides the required convenience in operation.

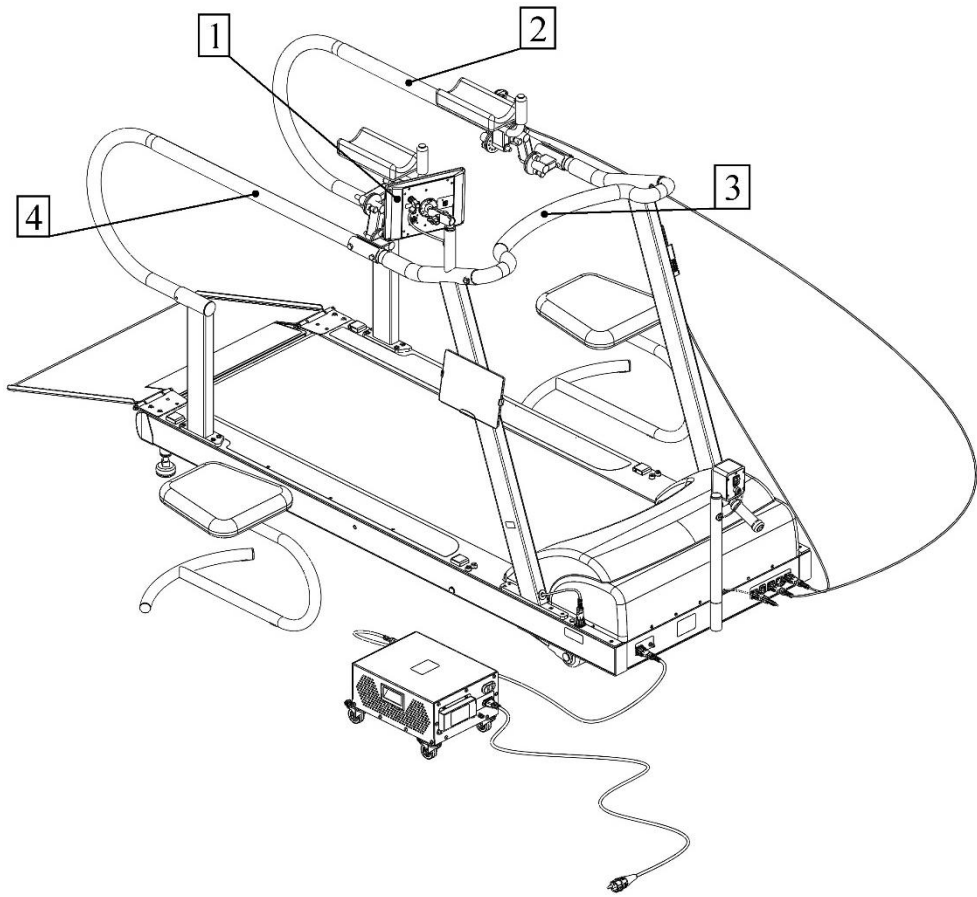


Figure – Built-in control unit and its location on the treadmill

Table - Explanations for Figure above.

<b>Item number according to figure</b> <b>Ошибка! Источник ссылки не найден..</b>	<b>Name</b>	<b>Intended use</b>
[1]	Built-in control unit	The built-in control unit is intended to control the treadmill operating modes
[2]	Treadmill left handrail	Metal handrail, intended to support the user /patient when operating the treadmills.
[3]	Front safety bar	Metallic bar, intended to provide additional support of the hands of patient / user at the front part of the treadmill.
[4]	Treadmill right handrail	Metal handrail, intended to support the user / patient when operating the treadmill and to hold the built-in control unit.

#### 5.4.2 Portable control unit

The portable control unit (tablet PC) is supplied at the customer's request (see Section **Ошибка! Источник ссылки не найден.** – Completeness). Portable control unit

connected to the treadmill via a wireless interface using Wi-Fi technology.

The portable control unit is a tablet PC with pre-installed treadmill control software.

For convenience of using the portable control unit, the design of the right handrail of the treadmills provides a control unit holder (see Figure below).

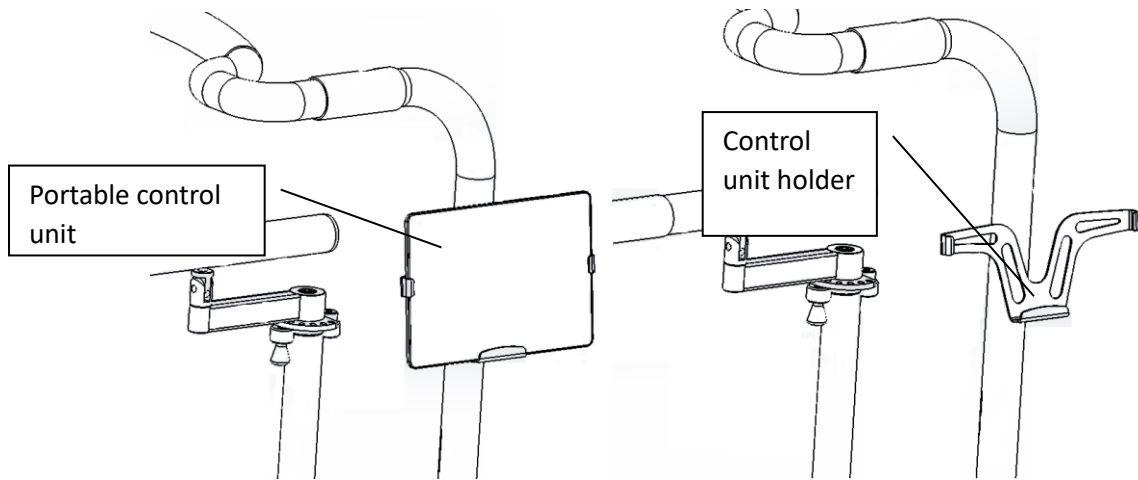


Figure – External view of the control unit installed in the holder.





**Attention!**

The portable control unit is supplied in the tablet PC manufacturer's modification. Simultaneous use of the built-in and portable control units of the treadmill is not allowed.

Observe safety precautions when operating the portable control unit according to the tablet PC operation manual. The manufacturer reserves the right to change the brand and model of the supplied portable control unit (tablet PC) without notifying the customer, provided that this does not impair the parameters and performance of the treadmills.

5.4.3 HR sensor

The HR sensor is supplied at the customer's request and is a wireless device that connects to the treadmill via a Bluetooth interface. The HR sensor is made in the form of a belt with electrodes, which is attached to the patient's chest.



**Attention!**

The HR sensor can track the heart rate of the user / patient with significant errors due to its improper use, the presence of external interference to the wireless data transmission channel. The procedure for using the HR sensor is according to its operation manual.

Possible sources of interference:

- TVs, personal computers, printers, mobile phones, and other radio-electronic devices;
- electric motors, transformers;
- high-voltage power lines.



### **Attention!**

The HR sensor is supplied in the sensor manufacturer's modification. Observe safety precautions when working the HR sensor according to its operation manual. The manufacturer reserves the right to change the brand and model of the supplied HR sensor without notifying the customer, provided that this does not impair the parameters and performance of the treadmills.

Together with the HR sensor, a built-in treadmill control unit is supplied required for receiving HR sensor signals.

#### 5.4.4 Handheld control unit

The handheld control unit is intended for prompt control of the main treadmill functions in the **free running** menu of the "Procedures" mode. The external view of the handheld control unit is shown in Figure (on the left is a manual control unit in modifications of treadmills without a body weight support system, on the right - with a body weight support system).

In the modifications of treadmills without a body weight support system, the buttons for controlling the hoist of the body weight support system function independently of the menu in which the treadmills are operating.

The handheld control unit is a plastic unit with a film buttons on the front side. The handheld control unit is connected to the treadmill via a twisted cable, which provides for its usability. The treadmill design includes a bracket for attaching the handheld control unit to the handrails. The bracket is located on the front rack of the left handrail of the treadmills.

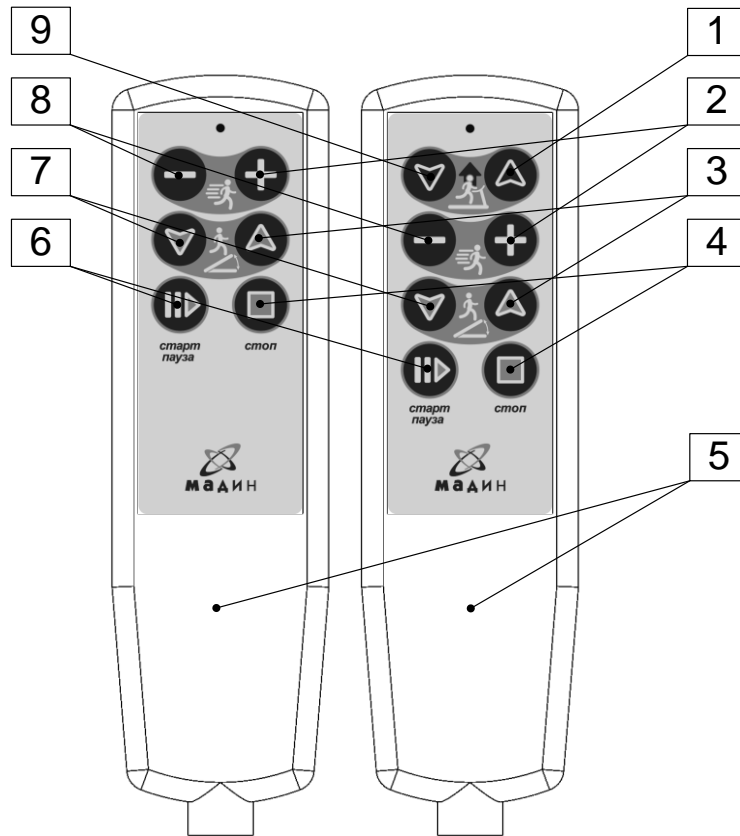


Figure – External view of the handheld control unit

Table 2 provides a description of the handheld control unit buttons.

Table 2 – Description of handheld control unit buttons

<b>Item number according to figure</b> <b>Ошибка!</b> <b>Источник ссылки не найден..</b>	<b>Name</b>	<b>Intended use</b>
[1]	“Up” button	For lifting the hoist of the body weight support system
[2]	“Increase speed” button	For increasing the running belt speed
[3]	“Treadmill lift” button	For lifting the treadmill.
[4]	“Stop” button	For stopping the movement of the running belt.
[5]	Handheld control unit	For prompt treadmill control

Item number according to figure Ошибка! Источник ссылки не найден..	Name	Intended use
[6]	“Start / Pause” button	For starting the running belt in motion and pausing during operation.
[7]	“Treadmill down” button	For lowering the treadmill.
[8]	“Decrease speed” button	For decreasing the running belt speed.
[9]	“Down” button	For lowering the hoist of the body weight support system

#### 5.4.5 “Emergency stop” button

The "Emergency Stop" button is intended to control the function of emergency stop of the motor activity of the treadmills (lifting / lowering the treadmills, stopping the movement of the running belt, stopping the movement of the hoist of the body weight support system). The external view of the “Emergency stop” button is shown in Figure 1.

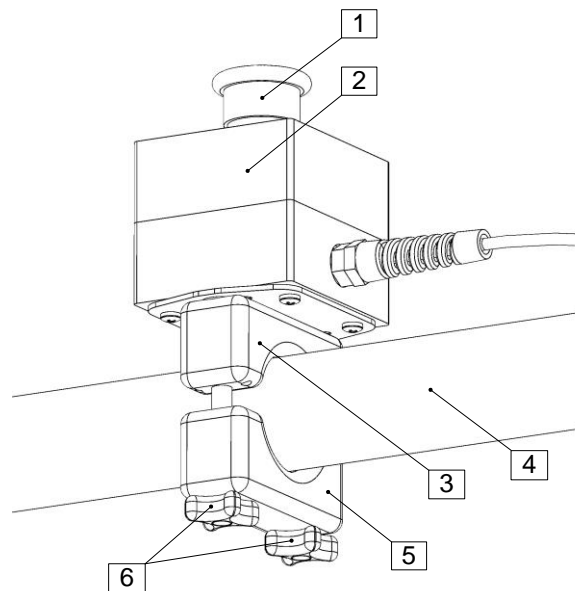


Figure 1 – External view and components of the “Emergency stop” button

The “Emergency stop” button is a latching button enclosed in a plastic housing. This housing has a bracket intended for securing the “Emergency stop” button on the handrails of the treadmill in a place convenient for the user. The “Emergency stop” button is

connected to the treadmill via a twisted cable, which provides for its usability. Description of the components of the “Emergency stop” button is provided in Table 3.

Table 3 – Description of the “Emergency stop” button components

Item number according to figure 1.	Name	Intended use
[1]	“Emergency stop” button	For emergency stopping the treadmill's motor activity
[2]	“Emergency stop” button housing	For protection against conductive parts of the “Emergency stop” button
[3]	Upper part of the bracket for attaching the “Emergency stop” button	For attaching the “Emergency stop” button in a place convenient for the user
[4]	Treadmill handrail	For supporting the user /patient when operating the treadmills and securing the “Emergency stop” button.
[5]	Lower part of the bracket for attaching the “Emergency stop” button	For attaching the “Emergency stop” button in a place convenient for the user
[6]	Cross-shaped screw for securing the bracket	For securing the bracket to the handrail of the treadmill.

#### Procedure for “Emergency stop” button installation

- Remove the lower part of the bracket for attaching the “Emergency stop” button by unscrewing the cross-shaped screw to manually secure the bracket (see Figure 2, item numbers correspond to table 3).
- Secure the bracket in any convenient place on the handrail of the treadmill. To do this, place the bracket with the “Emergency stop” button into chosen place on the handrail, install the lower part of the bracket to secure the "Emergency Stop" button in the reverse order, without tightening the screws. Set the required angle of the bracket rotation on the handrail (it is recommended to place the “Emergency stop” button so that it is convenient to press it with your hand from above), then tighten the cross-shaped screws until the bracket is fully secured on the handrail so that the upper and lower parts of the bracket are parallel to each other.

- In the future, it is possible to change the position of the "Emergency stop" button on the handrail, for this it is necessary to loosen the cross-shaped screws for securing the bracket.

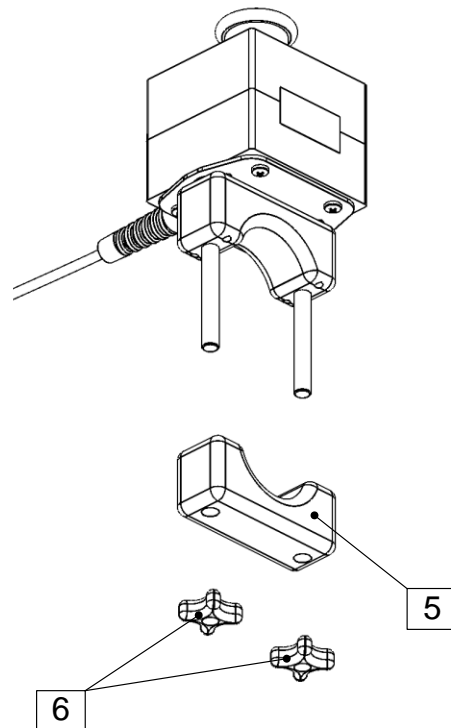


Figure 2 – Procedure for removing the bracket of the "Emergency stop" button

#### 5.4.6 Laser level with a stand

The laser level is intended for marking the surface of the running belt during the operation of the treadmill. The stand is intended for installation and positioning of the laser level. The external view of the laser level with a stand is shown in Figure 3.

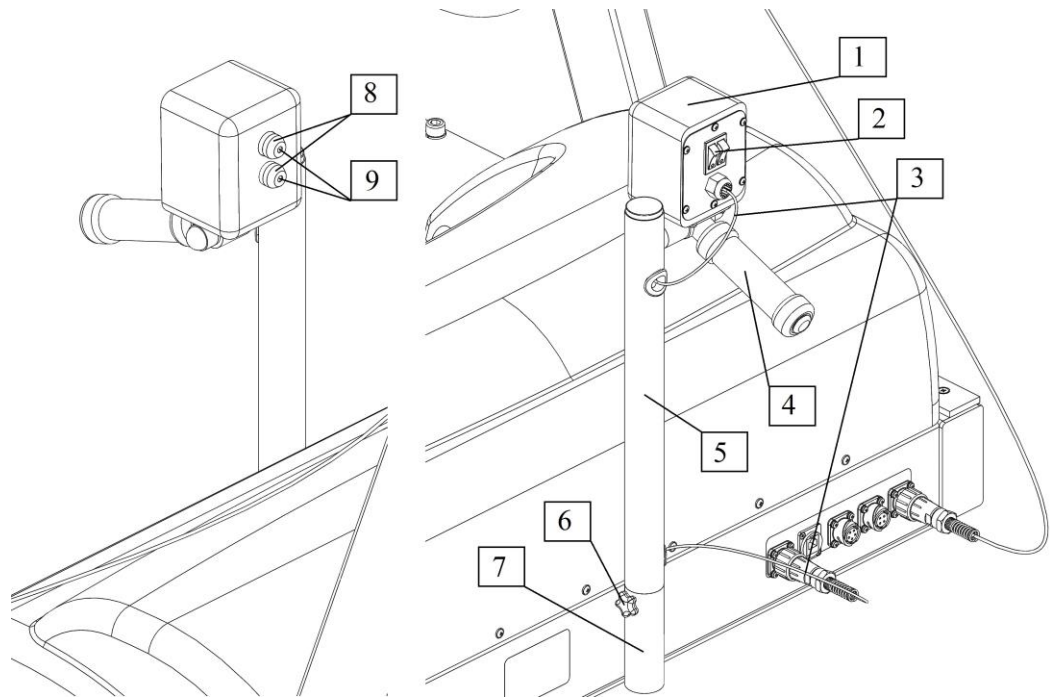


Figure 3 – External view and components of the laser level with a stand

The laser level consists of two laser radiation sources placed in a plastic housing. This housing is secured on the stand, which provides convenient adjustment of the position of lines projected on the treadmill running belt. The laser level is connected to the treadmill through a cable hidden inside the stand housing, which provides its usability. Description of the components of the laser level with a stand is provided in Table 4.

Table 4 – Description of the components of the laser level with a stand.

Item number according to figure 3.	Name	Intended use
[1]	Laser level housing	For protection against conductive parts of the laser level.
[2]	Laser level switches	For turning the laser level on / off.
[3]	Power cable of the laser level	For the power supply of the laser level.
[4]	Adjustment knob	For convenient adjustment of the position of lines projected onto the running belt.
[5]	Laser level stand	For fastening the housing of the laser level and securing it in a position convenient for the user

Item number according to figure 3.	Name	Intended use
[6]	Cross-shaped screw for securing the stand	For securing the stand in the treadmill bracket.
[7]	Stand fastening bracket	For fastening the stand and rotating its body in the plane of the running belt.
[8]	Laser source housing / lens	For adjusting the angle of projection of lines onto the plane of the running belt.
[9]	Hole	For the passage of laser radiation.

Procedure for laser level installation:

- Place the stand with a laser level secured on it into the bracket provided for it on the treadmill after loosening the cross-shaped screw for securing the stand. Connect the power cable connector of the laser level to the appropriate connector on the treadmill . Set the required angle of rotation of the stand in the bracket after turning on the laser level. It is recommended to locate the projected lines in the center of the running belt Then tighten the cross-shaped screw until the stand is fully secured in the bracket.
- In the future, it is possible to change the position of the laser level in the vertical plane using the adjustment knob, as well as in the plane of the running belt, for this it is necessary to loosen the cross-shaped screw for securing the stand.

### Isolating transformer

Depending on the speed modification of the treadmills, transformers of various capacities are supplied (see Section **Ошибка! Источник ссылки не найден.** – Completeness). This isolating transformer is intended for galvanic separation of treadmills circuits from the supply mains to ensure safety requirements. The external view of the 6.3 kVA and 10.0 kVA isolation transformers is shown in Figures 4 and 5, respectively. Description of the components of the isolation transformer is provided in Table 5.



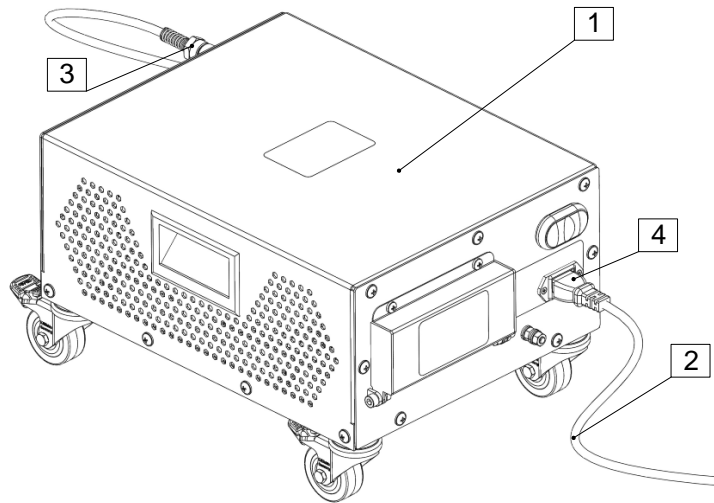


Figure 4 - External view of a 6.3 kVA isolating transformer

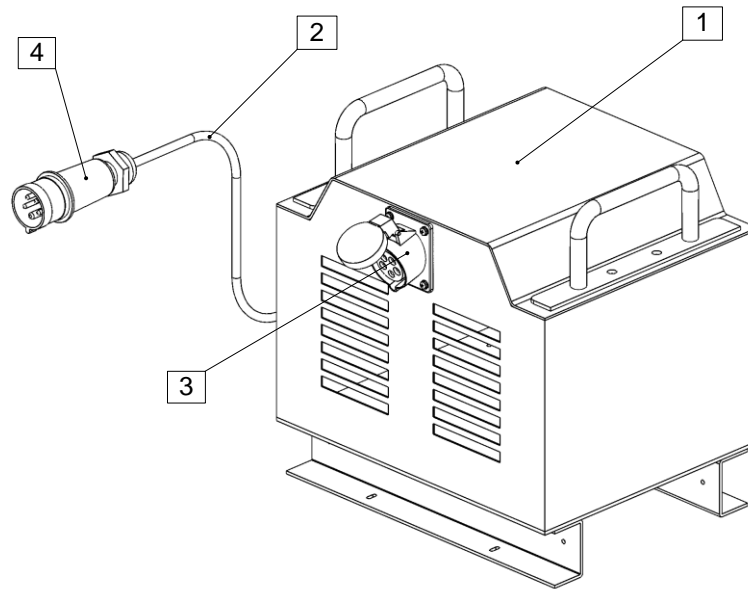


Figure 5 - External view of a 10.0 kVA isolating transformer

Table 5 – Description of the isolation transformer components

Item number according to figures 4, 5.	Name	Intended use
[1]	Isolating transformer housing	For protection against conductive parts of the isolation transformer
[2]	Isolation transformer power cable	For connecting the isolation transformer to the supply mains.
[3]	Socket-outlet for connecting the supply voltage to the treadmill	For connecting the treadmill to the isolation transformer.

Item number according to figures 4, 5.	Name	Intended use
[4]	Isolation transformer supply mains cable plug	For connecting the isolation transformer to the supply mains.



**Attention!**

During the operation of the isolation transformer, the intervals between connecting and disconnecting it to/from mains supply should not be less than 10 minutes. Otherwise it will deactivate the isolating transformer's built-in inrush current protection.

### Handrails and front safety bar

Handrails are used for auxiliary functions when the user / patient enters the running belt, they are necessary to support the user / patient in case of loss of balance and additional support during procedures. At the request of the customer, the supplied treadmill may be completed with various types of handrails (see Section **Ошибка! Источник ссылки не найден.** – Completeness).

Each set of handrails has two versions: without a bracket for the built-in control unit, with a bracket for the built-in control unit. For more detailed information on the sets of handrails for treadmills of the ReaTerra series, see Section **Ошибка! Источник ссылки не найден.** – Completeness).

Adjustable handrails allow for changing their height and width (see Section 0 – Installation of adjustable handrails).

### Installation of fixed large handrails

Installation of fixed large handrails onto the treadmill is carried out by means of screw connections.

The composition of the set of fasteners for attaching the fixed large handrails is given in Table **Ошибка! Источник ссылки не найден.**, item numbers [**Ошибка! Источник ссылки не найден..1**] – [**Ошибка! Источник ссылки не найден..4**]. Figure 6 shows the method of attaching the fixed large handrails.

Procedure for installation of fixed large handrails:

- Place the handrail onto the side profile of the treadmill

- Align the mounting holes of the handrail and the treadmill profile.
- Secure the handrail with the use of 4 screws, item [**Ошибка! Источник ссылки не найден..2**] and washers [**Ошибка! Источник ссылки не найден. .4**] at the front part of the treadmill with a 6mm hex wrench.
- Secure the handrail with the use of 4 screws, item [**Ошибка! Источник ссылки не найден..1**] and washers [**Ошибка! Источник ссылки не найден..3**] at the rear part of the treadmill with a 8mm hex wrench.
- If the scope of delivery includes the built-in control panel or HR sensor, it necessary to connect the power cable and the right handrail interface cable to the corresponding connectors on the treadmill (see Section **Ошибка! Источник ссылки не найден.**
  - Description of connectors and connections).

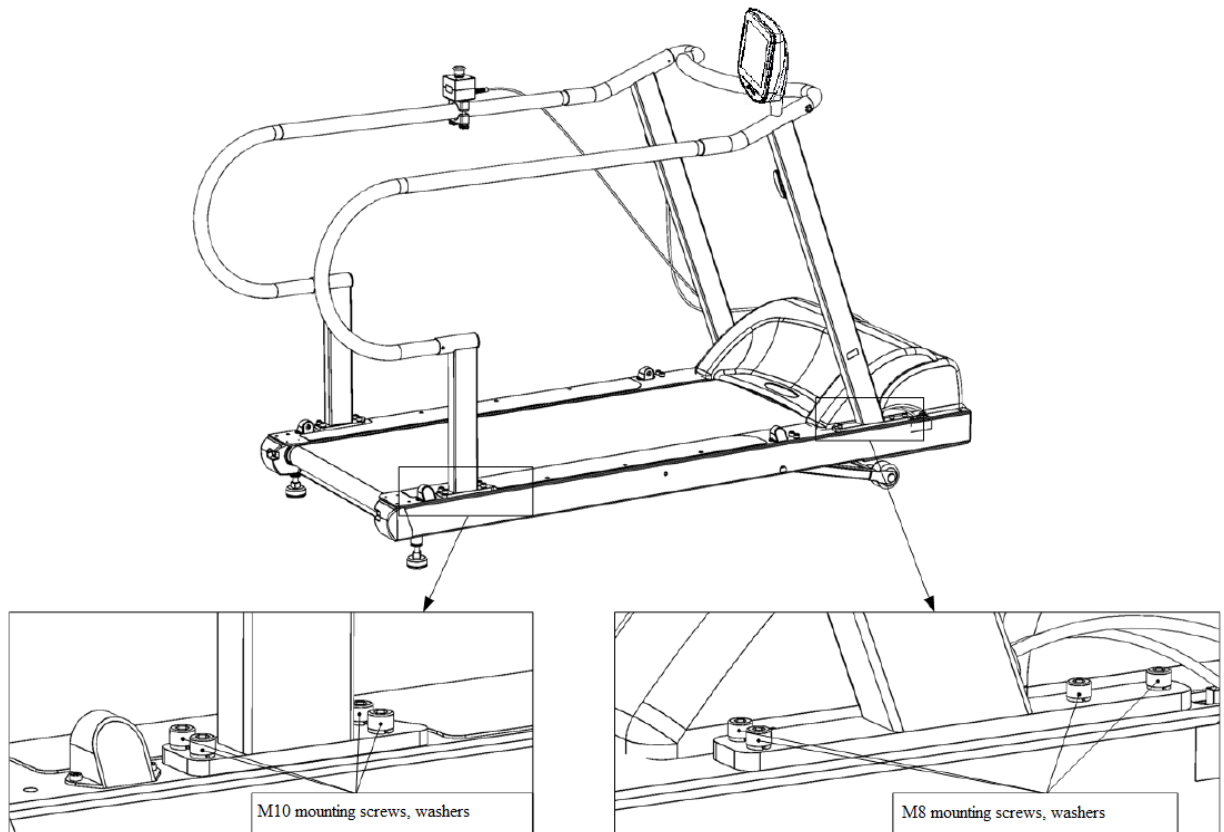


Figure 6 - Installation of fixed large handrails

#### Installation of fixed small handrails

Installation of fixed small handrails onto the treadmill is carried out by means of screw connections.

The composition of the set of fasteners for attaching the fixed small handrails is given in Table **Ошибка! Источник ссылки не найден.**, item numbers [**Ошибка! Источник ссылки не найден..5**] – [**Ошибка! Источник ссылки не найден..6**]. Figure 7 shows the method of attaching the fixed small handrails.

Procedure for installation of fixed small handrails:

- Place the handrail onto the side profile of the treadmill.
- Align the mounting holes of the handrail and the treadmill profile.
- Secure the handrail with the use of 4 screws, item [**Ошибка! Источник ссылки не найден..5**] and washers [**Ошибка! Источник ссылки не найден..6**] at the front part of the treadmill with a 6 mm hex wrench.
- If the scope of delivery includes the built-in control panel or HR sensor, it necessary to connect the power cable and the right handrail interface cable to the corresponding connectors on the treadmill (see Section **Ошибка! Источник ссылки не найден.** – Description of connectors and connections).

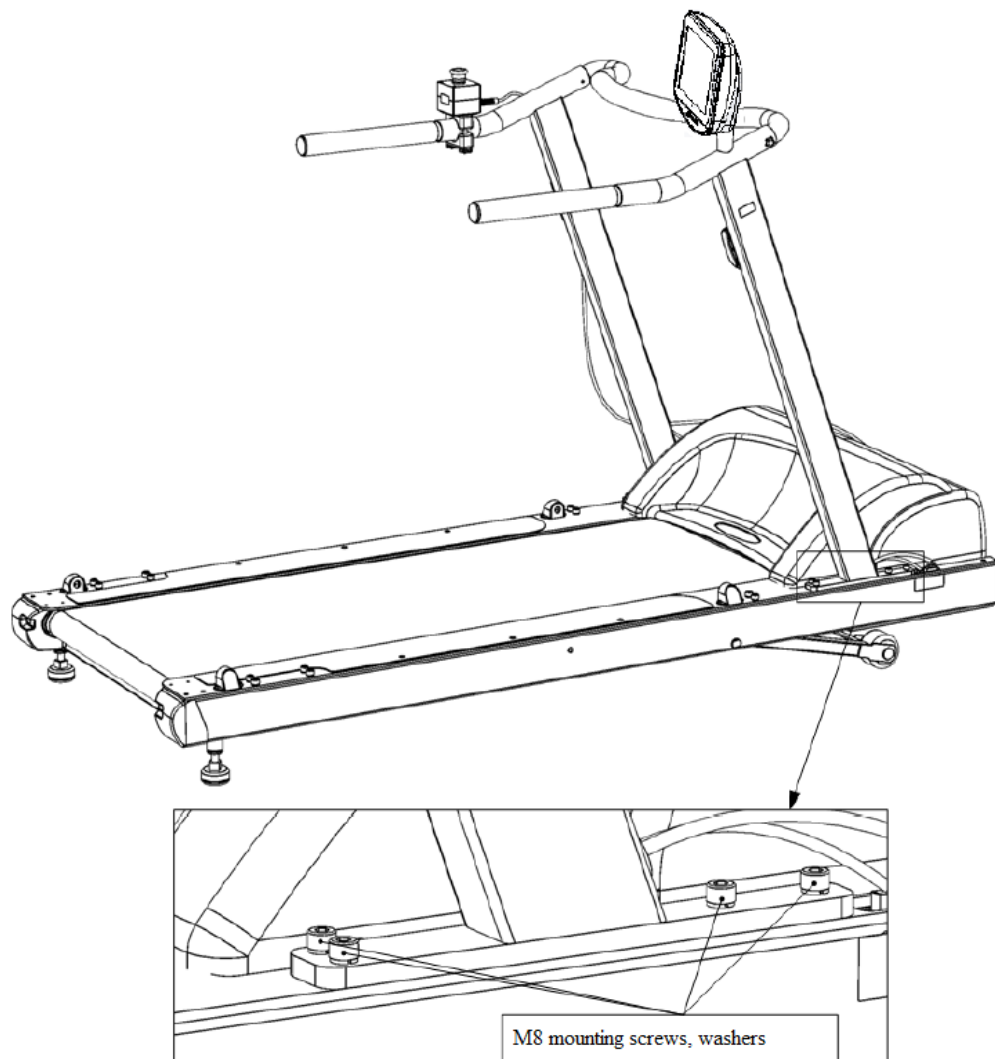


Figure 7 - Installation of fixed small handrails

#### Installation of adjustable handrails

Installation of adjustable handrails onto the treadmill is carried out by means of screw connections.

The composition of the set of fasteners for attaching the adjustable handrails is given in Table **Ошибка! Источник ссылки не найден.**, item numbers [**Ошибка! Источник ссылки не найден..7**] – [**Ошибка! Источник ссылки не найден..10**]. Figure 8 shows the method of attaching the adjustable handrails.

Procedure for installation of adjustable handrails:

- Place the handrail onto the side profile of the treadmill.
- Align the mounting holes of the handrail and the treadmill profile.
- Secure the handrail with the use of 2 screws, item [**Ошибка! Источник ссылки не найден..7**] and washers [**Ошибка! Источник ссылки не найден..9**] with a 8 mm hex wrench and with at the use of 4 screws [**Ошибка! Источник ссылки не**

найден..8] and washers [Ошибка! Источник ссылки не найден..10] at the front part of the treadmill with a 6 mm hex wrench.

- Secure the handrail with the use of 4 screws, item [Ошибка! Источник ссылки не найден..7] and washers [Ошибка! Источник ссылки не найден..9] at the rear part of the treadmill with a 8 mm hex wrench.
- If the scope of delivery includes the built-in control panel or HR sensor, it necessary to connect the power cable and the right handrail interface cable to the corresponding connectors on the treadmill (see Section Ошибка! Источник ссылки не найден. – Description of connectors and connections).

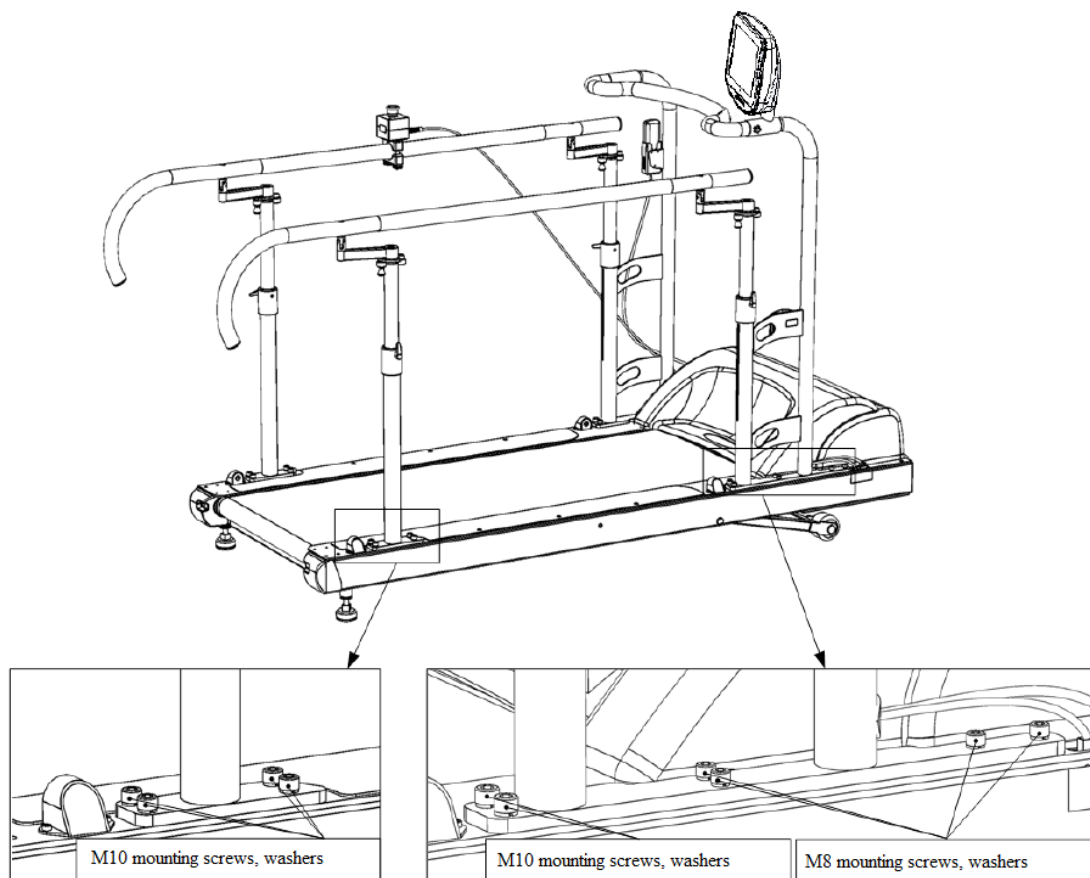


Figure 8 - Installation of adjustable handrails

Procedure for handrail height adjustment:

- Unscrew the handles of fasteners that hold the handrail (see Figure 9).
- Set the handrail to the desired height position.
- Screw the handles to secure the handrail.

Procedure for adjusting the handrails in width:

- Release the handrail by pulling down the pins located at the front and rear parts of the handrail (see Figure 10).
- Set the handrail to the desired width position.

- Secure the handrail by returning the pins to their original position.

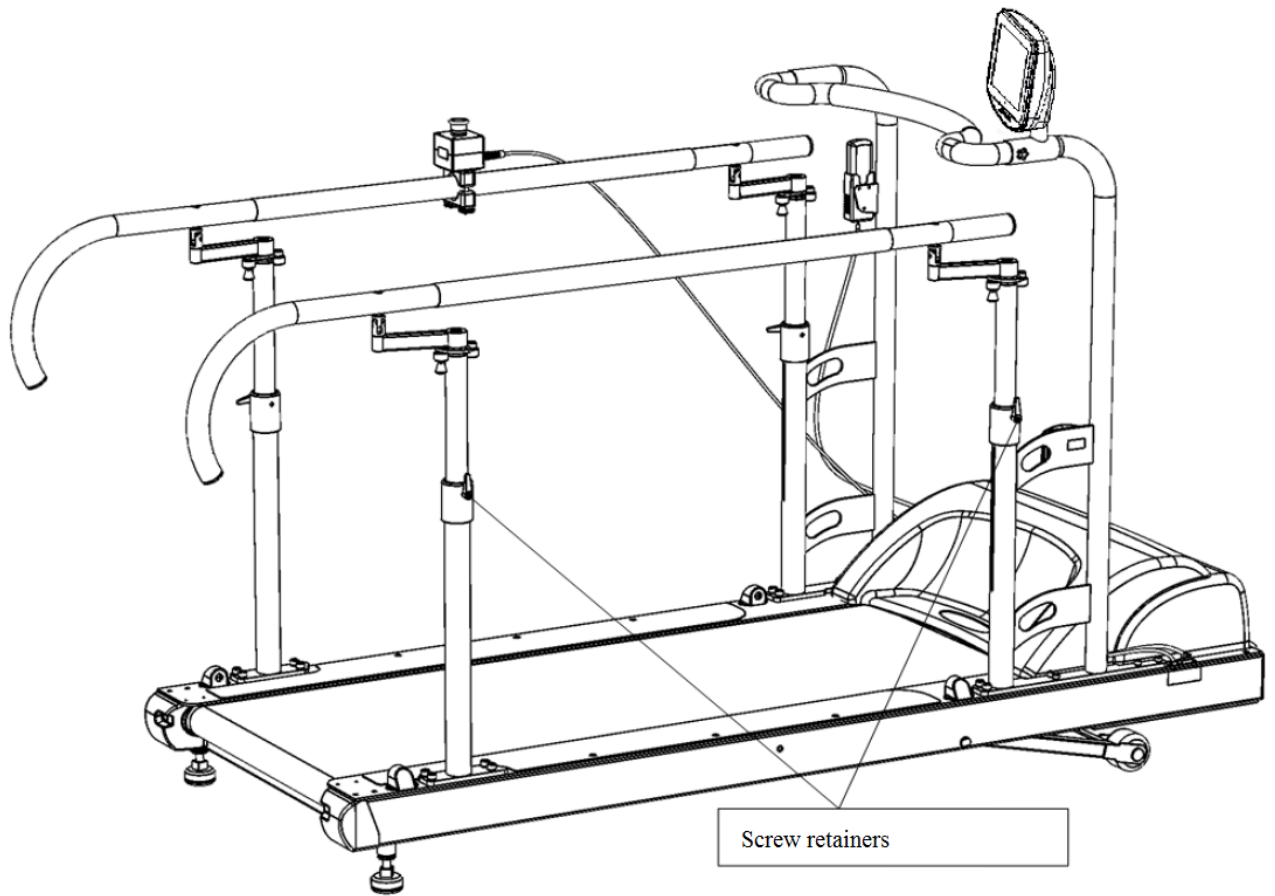


Figure 9 – Location of adjustable handrail fasteners for height adjustment

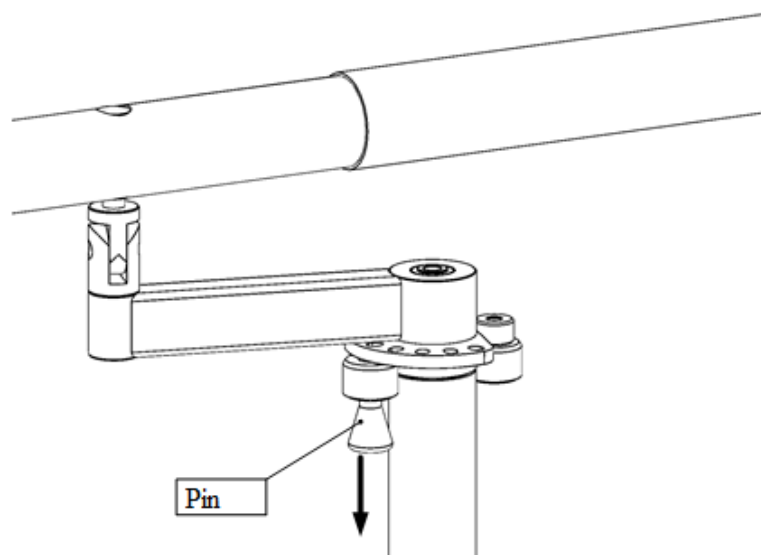


Figure 10 – Location of adjustable handrail fasteners for width adjustment

## Front safety bar



### Attention!

It is forbidden to install the front safety bar when operating the treadmill in the direction of a person's movement on the running belt backward. Ignoring this indication can lead to the serious injuries.

The front safety bar is intended for provision of additional support of the user / patient during the treadmill operation.

The front safety bar is installed after installing the handrails onto the treadmill (see above).

Procedure for front safety bar installation:

- Place the safety bar into the corresponding holes of the fixed handrails (see Figure 11) or adjustable handrails (see Figure 12) by aligning the threaded holes in the front safety bar and the holes in the handrail.
- Secure the front safety using a star-shaped handle, item [Ошибка! Источник ссылки не найден..11] (see Table **Ошибка! Источник ссылки не найден.**) into the corresponding holes on the sides of the handrails.

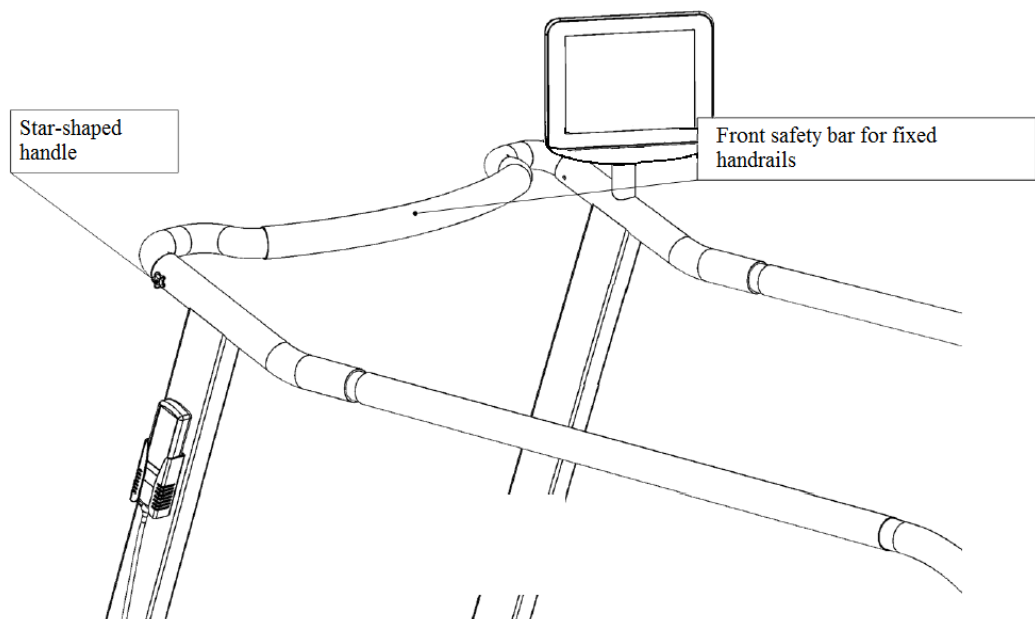


Figure 11 – Installation of front safety bar for fixed handrails



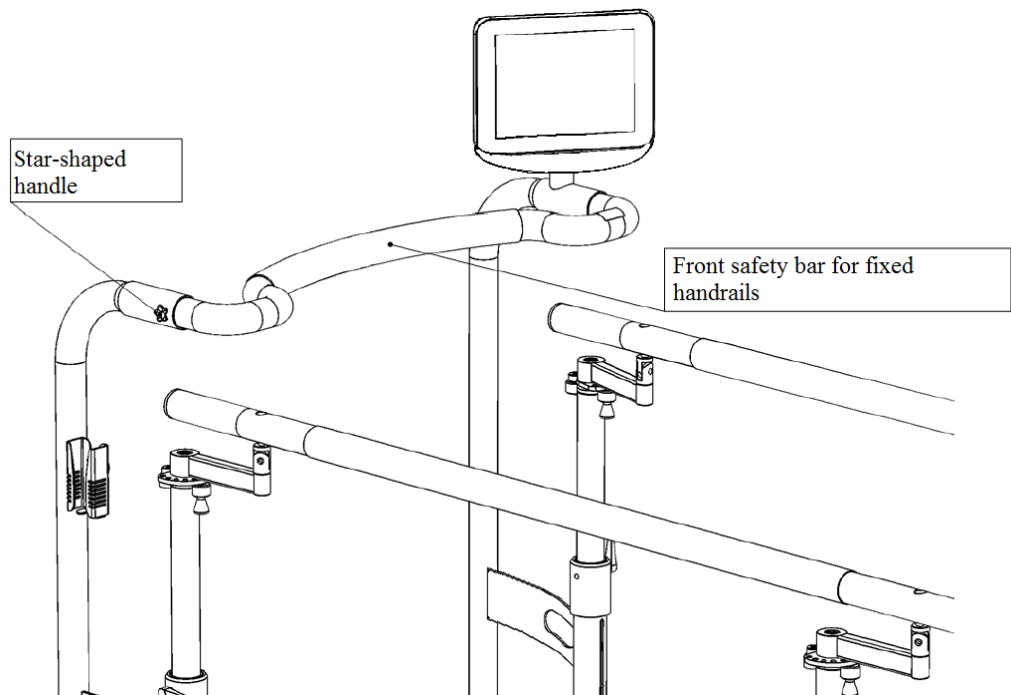


Figure 12 – Installation of front safety bar for adjustable handrails

#### Wheelchair access ramp

The wheelchair access ramp is a metal structure intended to make the treadmill operation more comfortable and convenient for users / patients in wheelchairs.

Installation of the wheelchair access ramp onto the treadmill is carried out by means of screw connections.

Procedure for wheelchair access ramp installation:

- Place the ramp next to the treadmill (Figure 13).
- Align the mounting holes of the ramp brackets and treadmill profiles.
- Secure the ramp with the use of 4 screws, item [Ошибка! Источник ссылки не найден..12] with a 6 mm hex wrench and with 4 screws, item [Ошибка! Источник ссылки не найден..13] using a cross-point screwdriver (Figure 14).

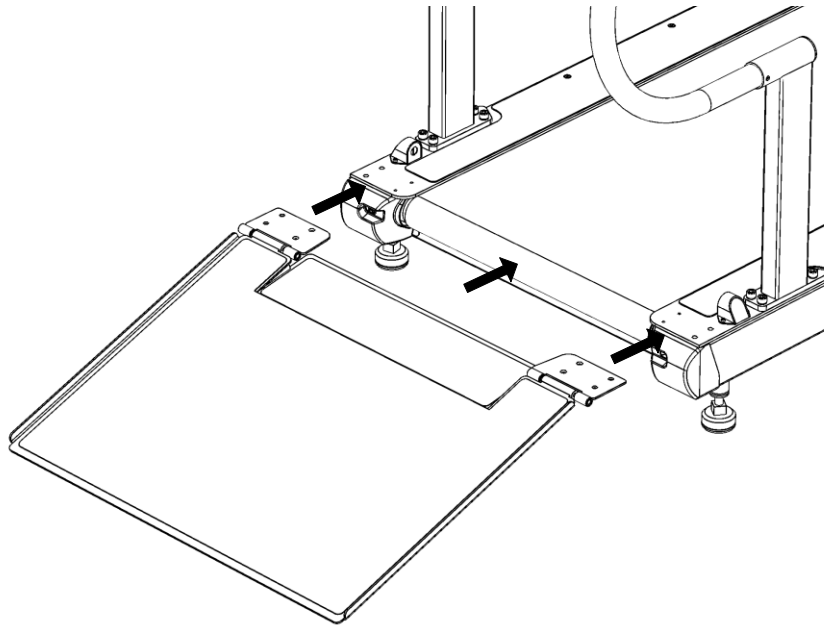


Figure 13 - Step 1 of installing the ramp on the treadmill

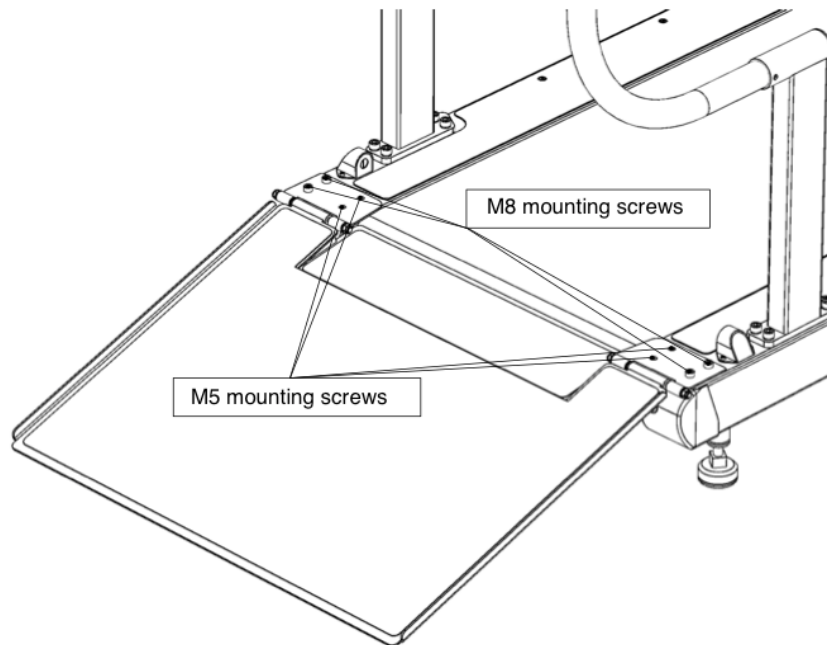


Figure 14 - Step 2 of installing the ramp on the treadmill

## 5.5 Additional adjustable hand rests

The additional adjustable hand rests are a metal adjustable structure including soft handles and cushions for comfortable use. These rests serve as additional support points for the user / patient when performing procedures on the treadmill. The rests make it possible to adjust the distance between them, as well as the angle of inclination.

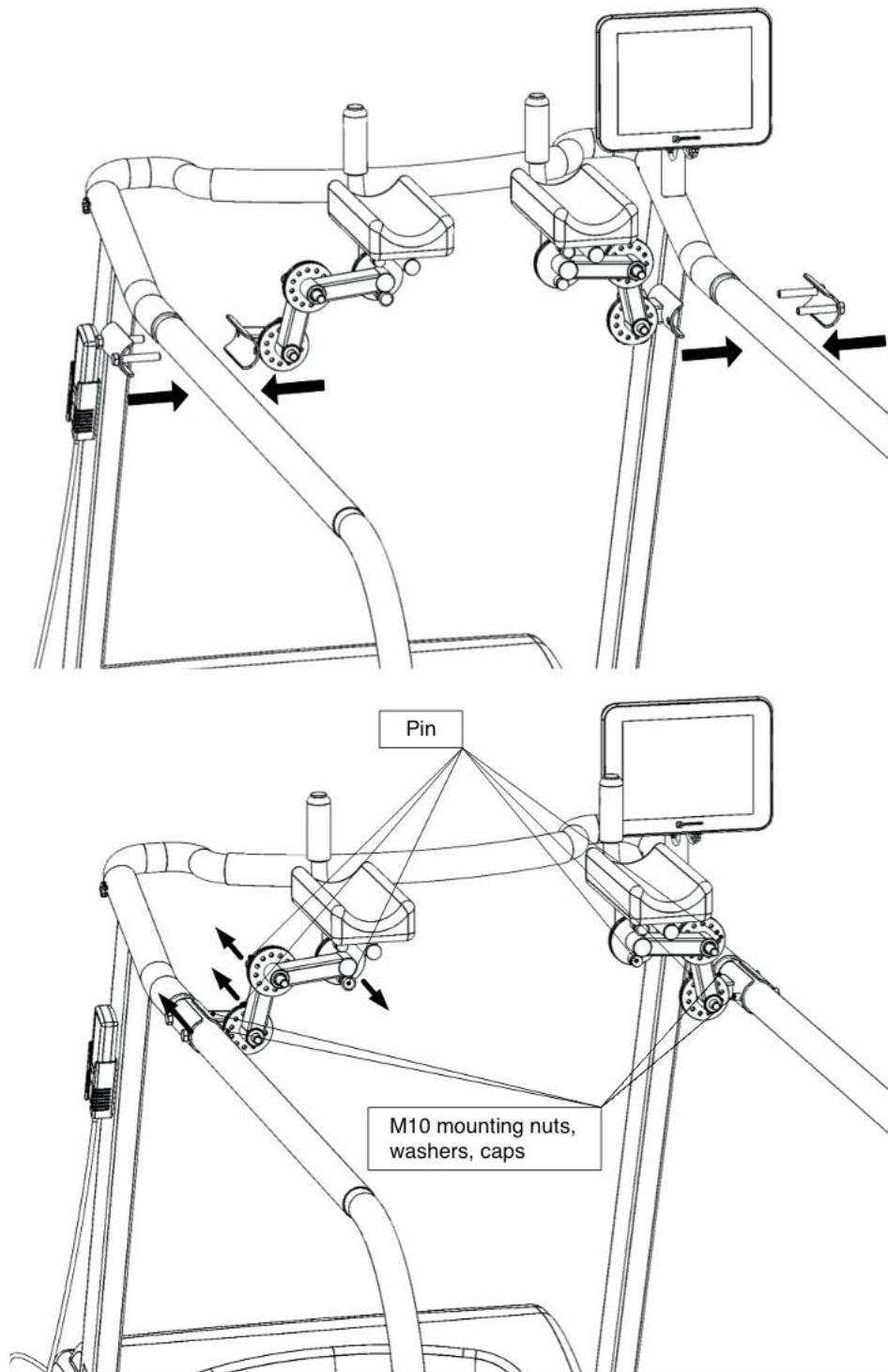


Figure 15 - Installation of additional adjustable hand rests

Procedure for installation of additional adjustable hand rests:

- Place the mounting bracket into the holes on the outside of the handrail.
- Align the holes in the hand rests with the mounting bracket bolts on the inside of the handrail (see Figure 15).

- Secure the hand rests with washers, item [Ошибка! Источник ссылки не найден..16] and nuts, item [Ошибка! Источник ссылки не найден..17] with a 17 mm wrench (see Table **Ошибка! Источник ссылки не найден.**).
- Place the plastic caps, item [Ошибка! Источник ссылки не найден..18] on the nuts.  
Procedure for adjusting the distance between hand rests:
  - Release the hand rest from locking by pulling the pins of the required rotary mechanism in the direction indicated by the arrow (see Figure 15).
  - Set the hand rest to the desired position.
  - Secure the hand rest by returning the pin to its original position.
  - Repeat the above steps for the remaining rotary mechanisms until the required distance between them, as well as the angle of inclination, is achieved.

## 5.6 Laser level with a stand

The laser level is intended for marking the surface of the running belt during the operation of the treadmill. The stand is intended for installation and positioning of the laser level. The procedure for installing and working with the laser level and stand is described in Section 5.4.6 - Laser level with a stand. Figure 16 shows the method for installing the level and marking the running belt.

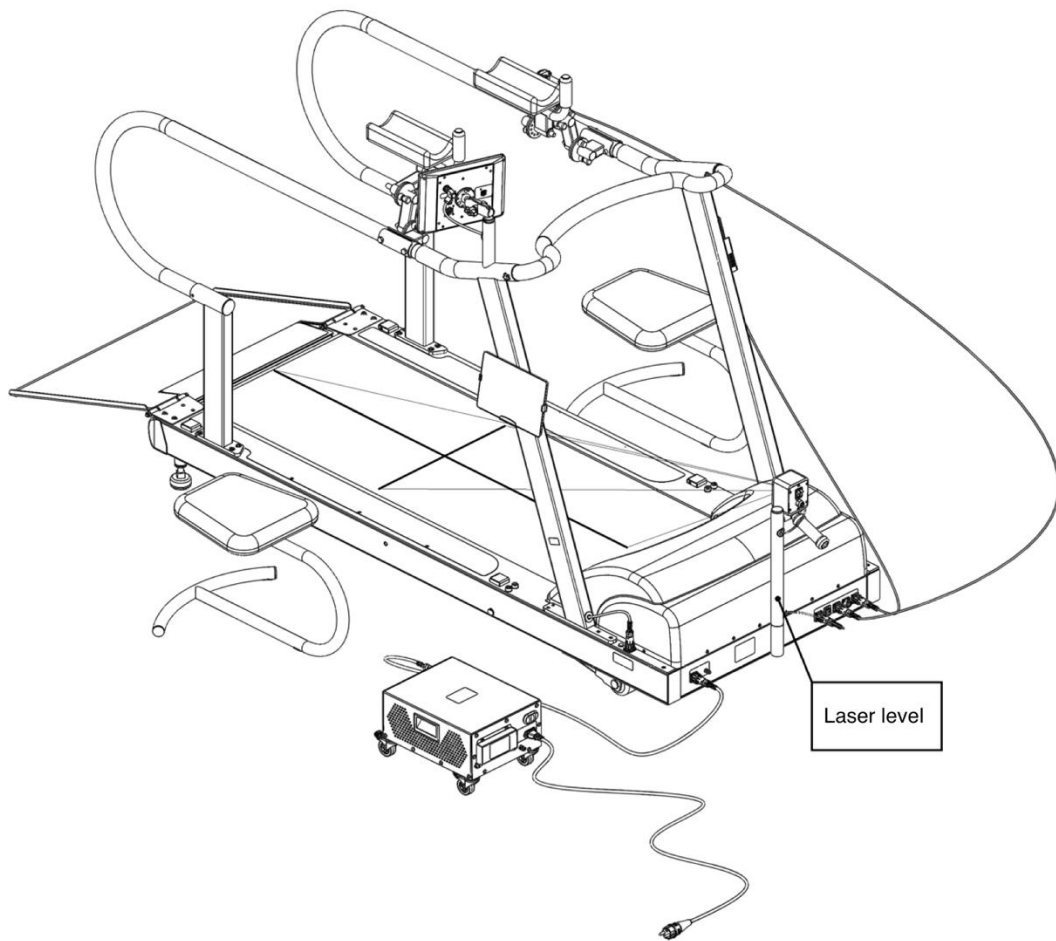


Figure 16 - Laser level installation method

**Attention!**

The laser level and the stand are supplied in the manufacturer's modification. The manufacturer reserves the right to change the brand and model of the supplied laser level and stand without notifying the customer, provided that this does not impair the parameters and performance of the treadmills.

**Attention!**

Observe safety precautions when working the laser level and stand. Lasers used in the laser level belong to the II safety class according to GOST R IEC 60825-1-2009, have a total visible laser radiation power of 200 MW and a wavelength of 650 nm.

**Attention!**

When operating the treadmills in conjunction with a laser level, it is necessary to prevent laser radiation from entering the eyes of the user / patient and medical and maintenance personnel.

## 5.7 Seats for medical personnel

The seats for medical personnel are the metal structure intended for use by medical personnel during procedures. When conducting the treadmill procedures, the seats are located next to the latter as shown in Figure 17.

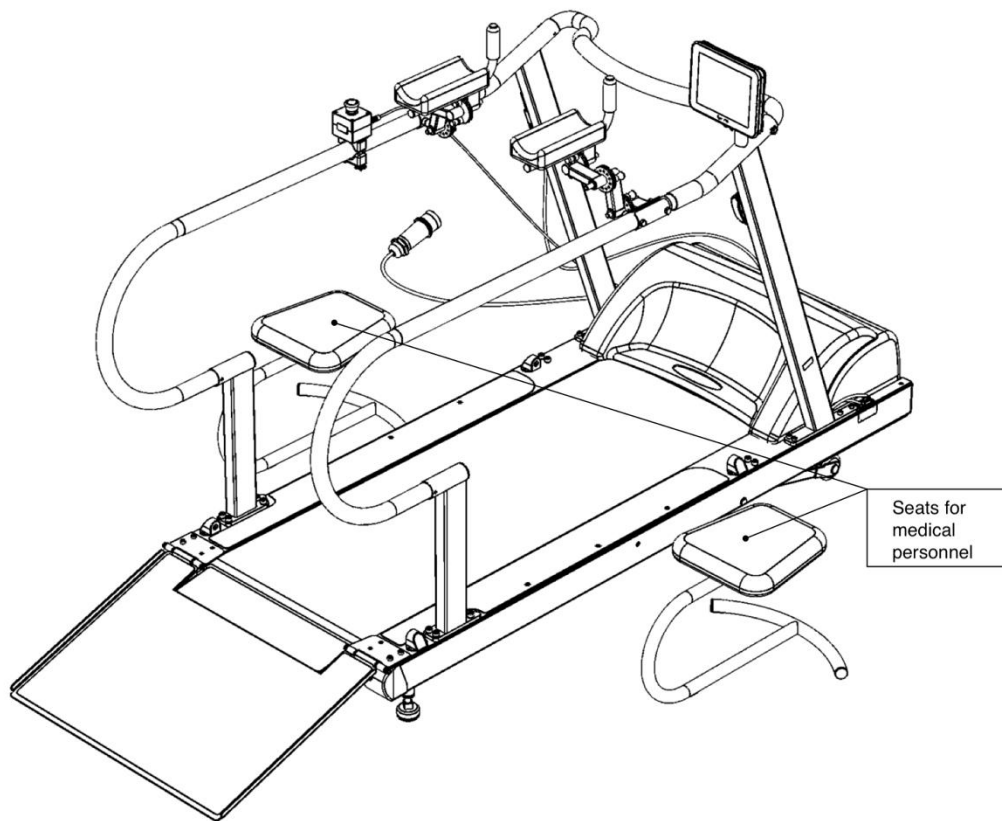


Figure 17 - Location of the medical personnel seats when operating the treadmills

## 5.8 Body weight support system

### 5.8.1 Body weight support system assembly procedure

Assembly of the body weight support system is carried out using screw and bolt connections.

The list of structural elements of the body weight support system is provided in Table **Ошибка! Источник ссылки не найден..**

The composition of the set of fasteners for attaching the structural elements of the body weight support system is given in Table **Ошибка! Источник ссылки не найден..**, item numbers [**Ошибка! Источник ссылки не найден..21**] – [**Ошибка! Источник ссылки не найден..26**].

Body weight support system disassembly procedure:

- Place the base of the body weight support system, item [**Ошибка! Источник ссылки не найден..3**] onto the flat, hard surface, providing free areas similar to those shown in Table **Ошибка! Источник ссылки не найден.** step 03.



### Attention!

To increase the structural stiffness and reduce the vibrations during training, it is recommended to secure the base of the body weight support system on the floor surface by means of two anchors [Ошибка! Источник ссылки не найден..31], Figure 20, to do this, you need to perform the following actions.

- Mark the floor according to the holes in the base of the body weight support system, drill holes in the floor with a diameter of 12 mm (2 pcs.) to install anchors [Ошибка! Источник ссылки не найден..31].

- Clean the resulting holes from dust.

- Install the anchors into the holes (Figure 20) and tighten (fix) the anchor bolts with a wrench.

- Set the plastic caps [Ошибка! Источник ссылки не найден..32] on the M8 bolts.

- Secure the racks of the body weight support system, item [Ошибка! Источник ссылки не найден..2] by aligning the threaded holes in the base of the body weight support with the holes in the racks and by fastening them with the screws, item [Ошибка! Источник ссылки не найден..25] with washers, item [Ошибка! Источник ссылки не найден..26], as shown in the Figure 18, by means of a 8 mm hex wrench.
- Install the main framework of the body weight support system, item [Ошибка! Источник ссылки не найден..1] onto the body weight support system racks, item [Ошибка! Источник ссылки не найден..2], fastened on the base, item [Ошибка! Источник ссылки не найден..3] by placing the main framework in the corresponding holes in the racks, while aligning the mounting holes in the main framework and the racks, as shown in Figure 19. Secure the main framework using the bolts, item [Ошибка! Источник ссылки не найден..21] with washers, item [Ошибка! Источник ссылки не найден..22] and nuts, item [Ошибка! Источник ссылки не найден..23] by means of 17 mm wrench.
- Set the protective caps, item [Ошибка! Источник ссылки не найден..24] onto the bolt heads, item [Ошибка! Источник ссылки не найден..21], [Ошибка! Источник ссылки не найден..29], and nuts, item [Ошибка! Источник ссылки не найден..23].
- Secure the patient support vest on the suspender of the body weight support system hoist by inserting the vest straps into the special suspension hooks, as shown in Figure 20.



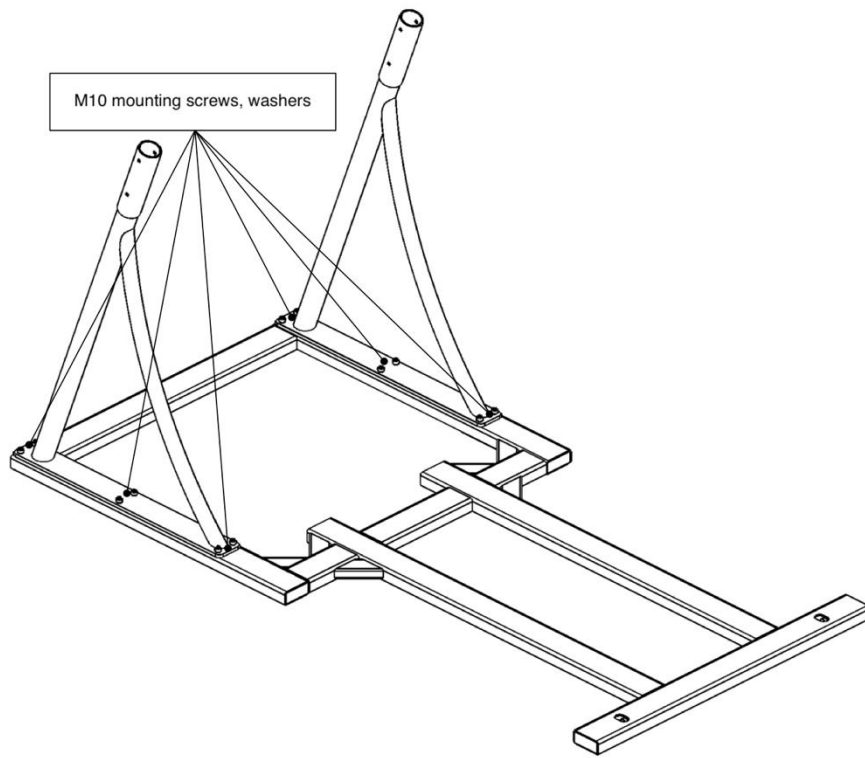


Figure 18 – Stage 1 of the body weight support system disassembly

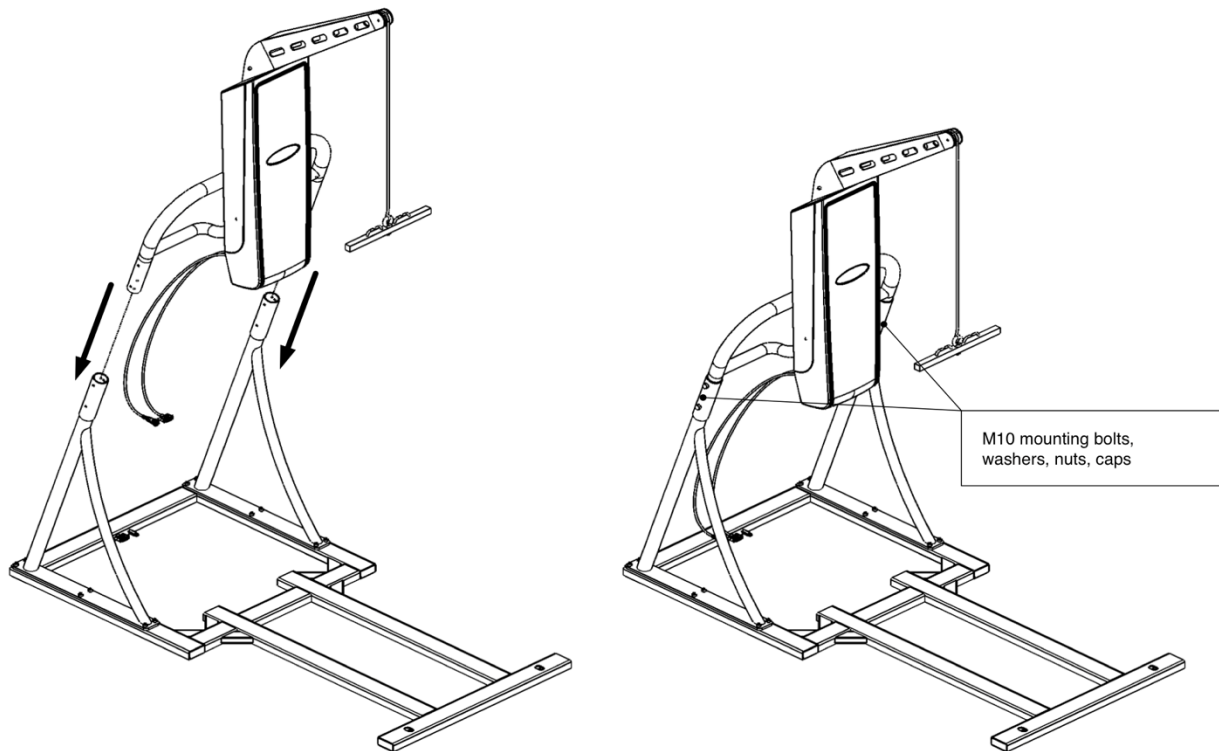


Figure 19 – Stage 2 of the body weight support system disassembly

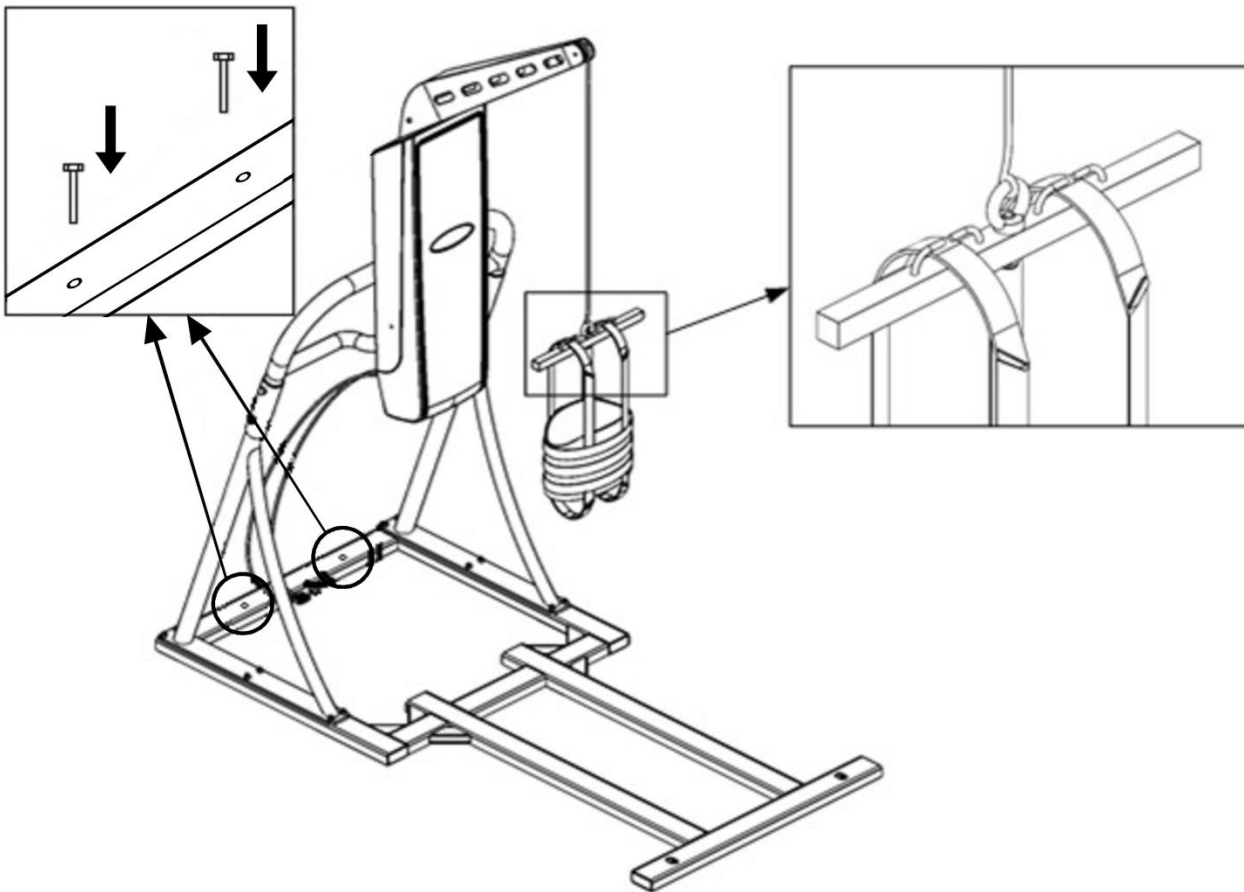


Figure 20 – Stage 3 of the body weight support system disassembly

### 5.8.2 Procedure for installation of the treadmill with a body weight support system

Installation and connection of the treadmill to the body weight support system is carried out after assembling the body weight support system (see Section 5.8.1 – Body weight support system assembly procedure) and its installing in the room.

Procedure for installing and connecting the treadmill to the body weight support system:

- Perform the assembly of the treadmill of body weight support system modification (see steps 03...09 in Table **Ошибка! Источник ссылки не найден.**).
- Install the rear legs of the treadmill completed with the body weight support system using a 22 mm wrench.
- Install the assembled treadmill of the body weight support system on the body weight support system, as shown in Figure 21, while the rear legs should be installed in the holes on the body weight support system.
- If necessary, install a wheelchair access ramp (see Section 0 – Wheelchair access ramp"), seats for medical personnel (see Section 5.7 – Seats for medical personnel).

- Connect the power cable and signal cable of the body weight support system into the corresponding treadmill connectors (see Section **Ошибка! Источник ссылки не найден.** – Cable connections in the treadmill modifications with a body weight support system and **Ошибка! Источник ссылки не найден.** – Description of connectors and connection of the treadmill modification with a body weight support system).

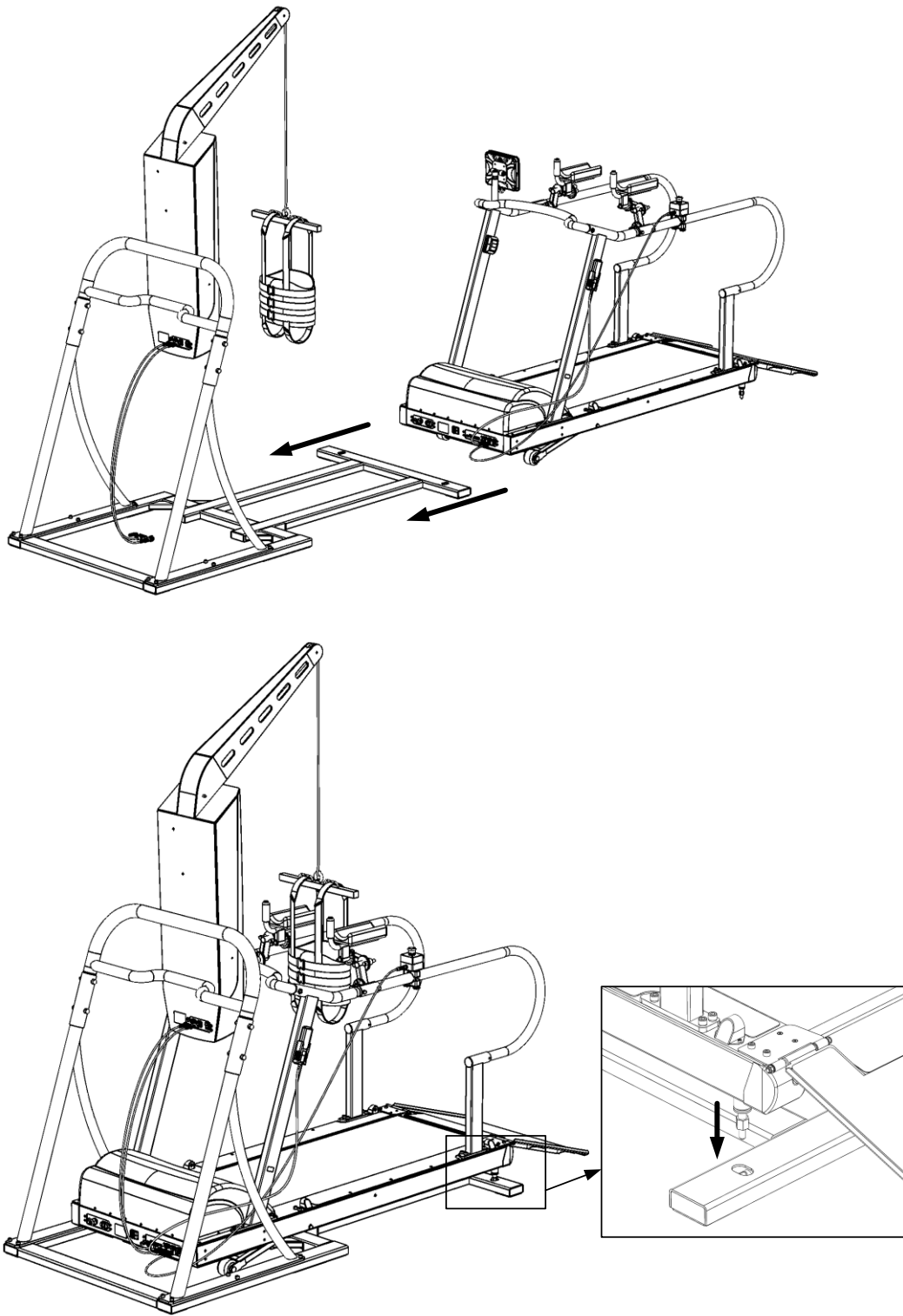


Figure 21 - Body weight support system installation

### 5.8.3 Using a patient support vest

The patient support vest is intended for safe holding of the user / patient on the hoist of body weight support system during its operation. Before using the vest, it must be removed from the suspender of hoist of the body weight support system.

Procedure for using the patient support vest:

- Wrap the vest around the torso of the user / patient, around the abdomen and lower chest, and then secure it with locks (fastexes) in the abdominal area. Beforehand, it is necessary to give moderate tension to straps 1, 2 and 3 with locks (fastexes) (see Figure 22) so that when these locks are fixed, the vest tightly wraps around the patient's torso and does not cause discomfort.
- Pass the straps 4 and 5 in the groin area of the user / patient around the inside of the leg, so that the soft pads 6 and 7 (see Figure 22) are in the area indicated in this figure.
- Fasten the straps 4 and 5 by means of carabiners to the rings located on the back of the vest (see Figure 23).
- Pass the straps 1 and 2 (see Figure 24) through the special hooks-holders on the suspender of the body weight support system hoist and insert them into the brackets 3 and 4 (see Figure 24), having previously adjusted these straps for the patient's height, by moving strap buckles.



Figure 22 - Procedure for using the patient support vest



Figure 23 - Procedure for using the patient support vest



Figure 24 - Procedure for using the patient support vest

## 5.9 Procedure for operating the treadmills

### 5.9.1 Procedure for operating the treadmills equipped with the built-in control unit

Procedure for operating a treadmill consists of the following steps:


- Turn on the treadmill according to Section **Ошибка! Источник ссылки не найден.** – Procedure for switching the treadmills on or Section **Ошибка! Источник ссылки не найден.** – The procedure for turning on treadmill modifications with a body weight support system.
- After downloading the software, the **main menu** of the treadmill will be displayed on the screen of the built-in control unit. User can operate the treadmill in various modes accessed by selecting the appropriate one from **main menu**. For more detailed information on operation modes of the treadmills, see Section 0 - Treadmill operation modes.
- When working with the treadmills, it is necessary to observe safety precautions (see Section 0 – Safety precautions).
- Emergency stop of lifting / lowering the treadmill, motion of the running belt, motion of hoist of the body weight support system should be performed by means of “Emergency stop” button (see Section **Ошибка! Источник ссылки не найден.** – Description of protection features).
- When working in the **free running** menu of the "Procedures" mode, the main functions of the treadmill (in addition to the built-in control unit) can be controlled using the handheld control unit (see Section 5.4.4 – Handheld control unit).
- After finishing the operation of a treadmill, turn it off according to Section **Ошибка! Источник ссылки не найден.** – Procedure for switching the treadmills off or Section **Ошибка! Источник ссылки не найден.** – Procedure for turning off treadmill modifications with a body weight support system.

## 5.9.2 Procedure for operating the treadmills equipped with the portable control unit

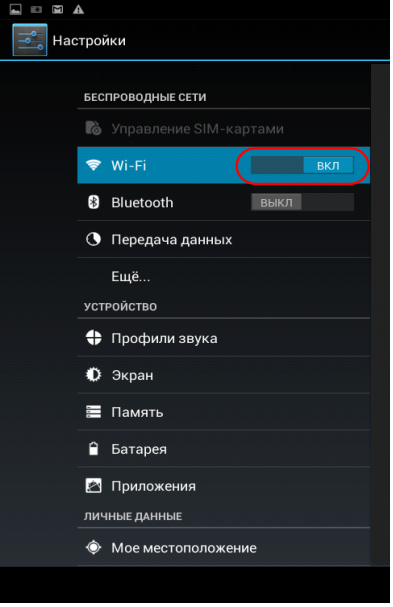
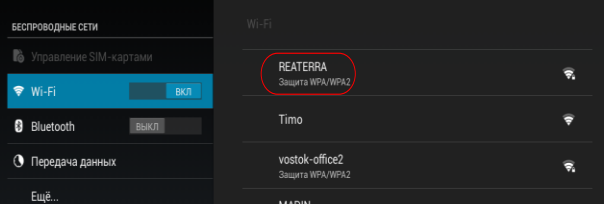
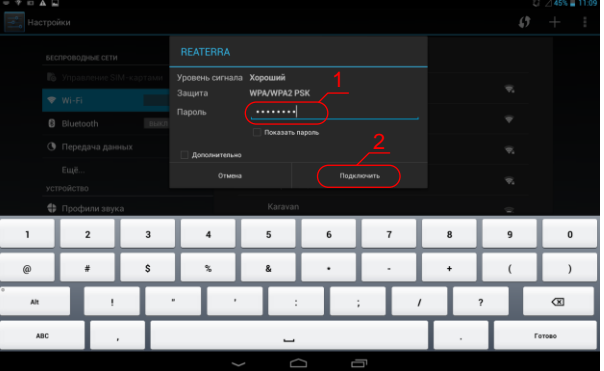
Procedure for operating a treadmill consists of the following steps:

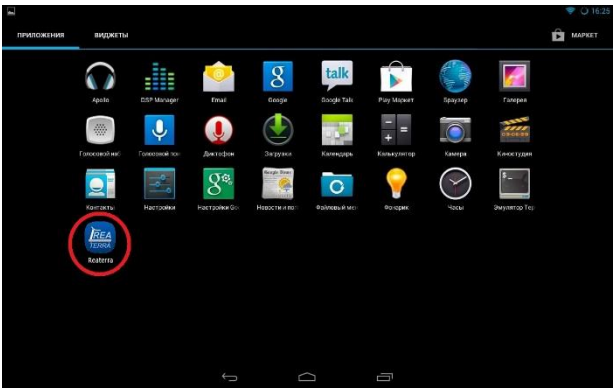
- Turn on the treadmill according to Section **Ошибка! Источник ссылки не найден.** – Procedure for switching the treadmills on or Section **Ошибка! Источник ссылки не найден.** – The procedure for turning on treadmill modifications with a body weight support system.
- Connect the portable control unit (tablet PC) to the treadmill according to the step-by-step instructions provided in Table 6. The tablet PC feature management should be carried out in accordance with its operation manual (the images in Table 6 may differ from the actual ones, depending on the model of the supplied tablet PC).
- After downloading the software, the **main menu** of the treadmill will be displayed on the screen of the portable control unit.
- After the main menu is displayed, the procedure for operating the treadmill is similar to the procedure described in Section 5.9.1 – Procedure for operating the treadmills equipped with the built-in control unit.

Table 6 – Instructions for connecting the portable control unit to the treadmill

Item No.	Figure	Description
01		Turn on the portable control unit (tablet PC) in accordance with the operation manual of the tablet PC manufacturer (the power button is highlighted in the image).



Item No.	Figure	Description
02	 <p>The screenshot shows the 'Настройки' (Settings) app in Russian. Under the 'БЕСПРОВОДНЫЕ СЕТИ' (Wireless Networks) section, the 'Wi-Fi' toggle switch is turned on and highlighted with a red circle. Other options like Bluetooth and Data Transfer are visible but not highlighted.</p>	<p>In the tablet PC settings, enable the Wi-Fi wireless interface (highlighted in the image).</p>
03	 <p>The screenshot shows the Wi-Fi search results screen. The network name 'REATERRA' is highlighted with a red circle. Below it, the security type 'Защита WPA/WPA2' is visible. Other networks like 'Timo' and 'vostok-office2' are also listed.</p>	<p>Perform the search of Wi-Fi devices. Upon the completion of the search process, the screen should display the name of the Wi-Fi transmitter (highlighted in the image) installed inside the treadmill – REATERRA.</p>
04	 <p>The screenshot shows the connection screen for the 'REATERRA' network. The signal strength is 'Хороший' (Good). The security type is 'WPA/WPA2 PSK'. The password field is highlighted with a red circle and labeled '1'. The 'Подключиться' (Connect) button is highlighted with a red circle and labeled '2'. A virtual keyboard is visible at the bottom.</p>	<p>To connect the tablet PC to the treadmill, tap on the name of the Wi-Fi transmitter you found (REATERRA). To confirm the download action, enter the password <b>12345678</b> (highlighted in the image, item 1) and click <b>Connect</b> (highlighted in the image, item 2).</p>

Item No.	Figure	Description
05		<p>In the <b>Applications</b> section, start the <b>Reaterra</b> program by clicking on the corresponding icon (highlighted in the image).</p>

### 5.9.3 Procedure for operating the body weight support system

The body weight support system is intended to lighten the weight of the user / patient (unloading the user / patient) when performing the treadmill procedures.

Procedure for operating the body weight support system:

- To use the body weight support system, secure the user / patient on the hoist of the body weight support system using the patient support vest before performing treadmill procedures (see Section 5.8.3 - Using a patient support vest).
- Turn the treadmill on according to Section **Ошибка! Источник ссылки не найден.** – The procedure for turning on treadmill modifications with a body weight support system, perform the lifting of the user / patient using a handheld control unit (see Section 5.4.4 – Handheld control unit), thereby ensuring the required unloading level.
- After that, perform the necessary procedure on the treadmill according to the steps above.
- The design of the body weight support system provides for a backup power system, which ensures the operability of the body weight support system hoist in the event of a power failure.
- When working with the treadmills, it is necessary to observe safety precautions (see Section 0 – Safety precautions).
- Emergency stop of lifting / lowering the treadmill, motion of the running belt, motion of hoist of the body weight support system should be performed by means of “Emergency stop” button (see Section **Ошибка! Источник ссылки не найден.** – Description of protection features).

### 5.3 Treadmill operation modes

The treadmills allow for operation in three modes, which are selected in the **main menu** using built-in / portable control unit:

- “Patients” mode;
- “Procedures” mode;
- “Settings” mode.

The block diagram of the treadmill control menu in the “Patients” mode is shown in the Figure 25, a description of this mode is provided in the Section 5.9.4.

The block diagram of the treadmill control menu in the “Procedures” mode is shown in the Figure 26 (only for treadmills of 10 km/h speed modification), Figure 27 (only for treadmills of 22 km/h and 30 km/h speed modifications), a description of this mode is provided in the Section 5.9.5.

The block diagram of the treadmill control menu in the “Settings” mode is shown in the Figure 28, a description of this mode is provided in the Section 5.9.6.

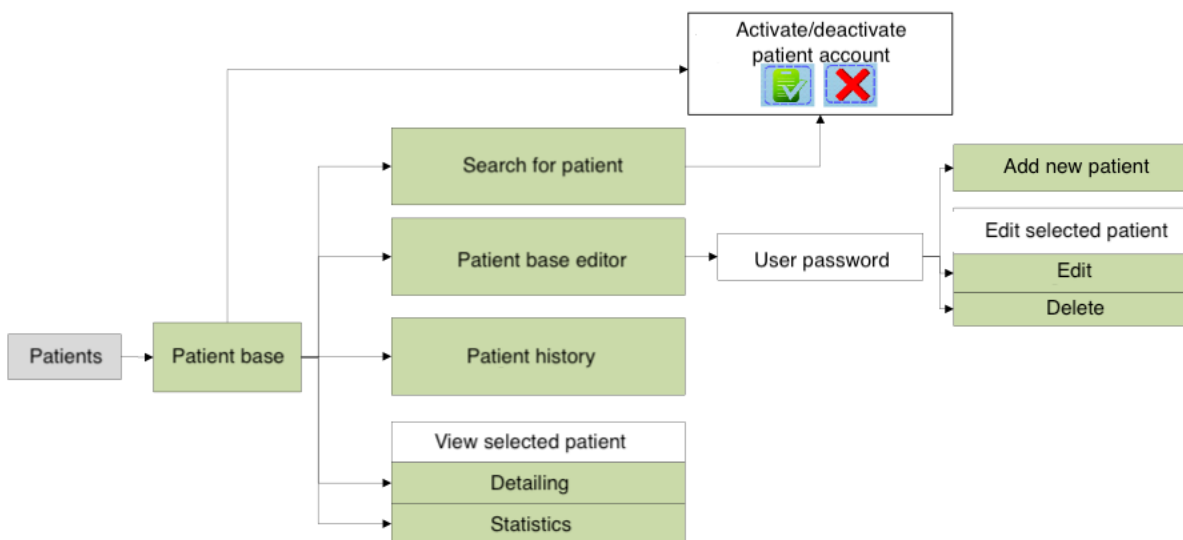


Figure 25 – Block diagram of the treadmill control menu in the “Patients” mode

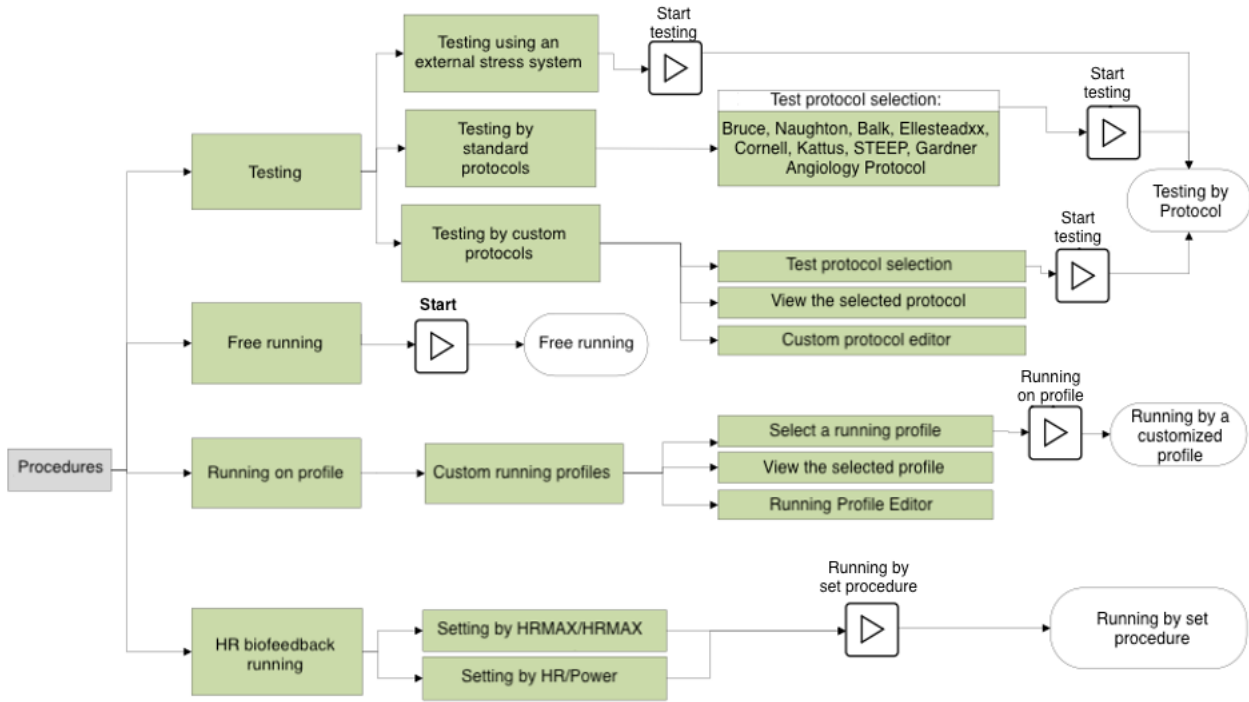


Figure 26 –

Block diagram of the treadmill control menu in the “Procedures” mode (only for treadmills of 10 km/h speed modification)

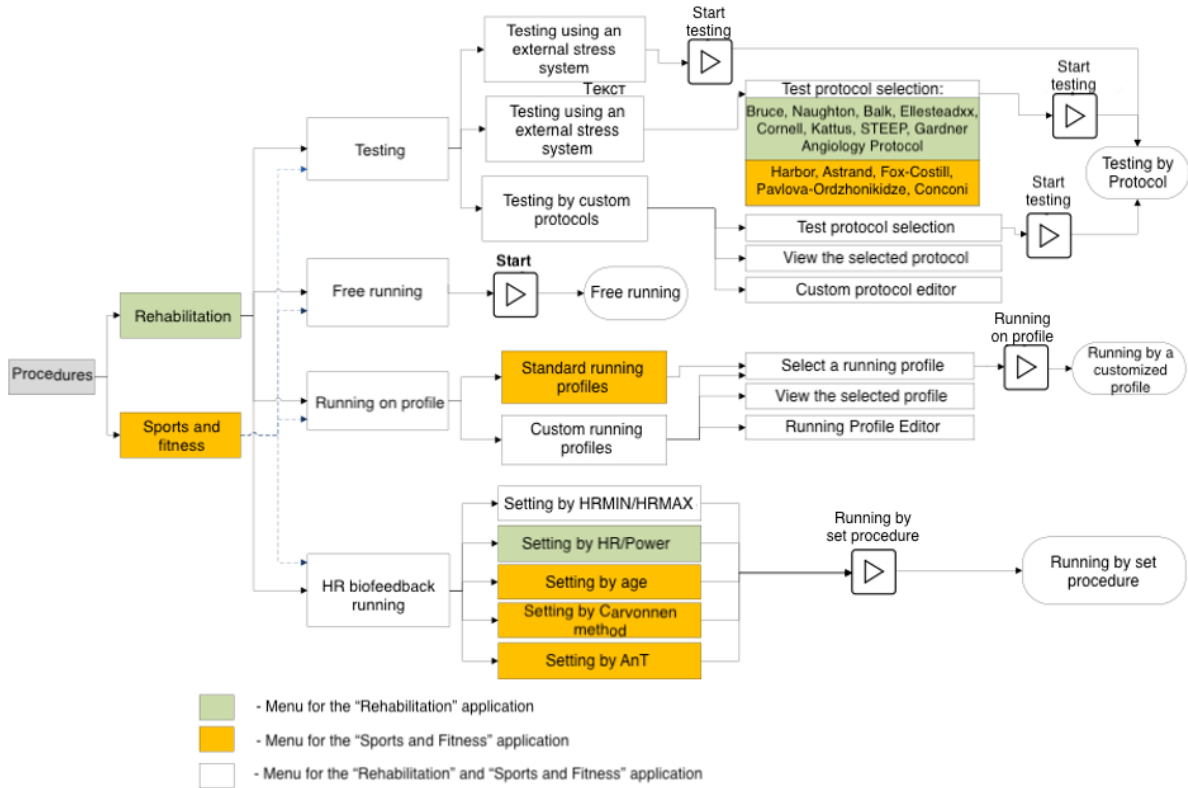


Figure 27 – Block diagram of the treadmill control menu in the “Procedures” mode (only for treadmills of 22 km/h and 30 km/h speed modifications)

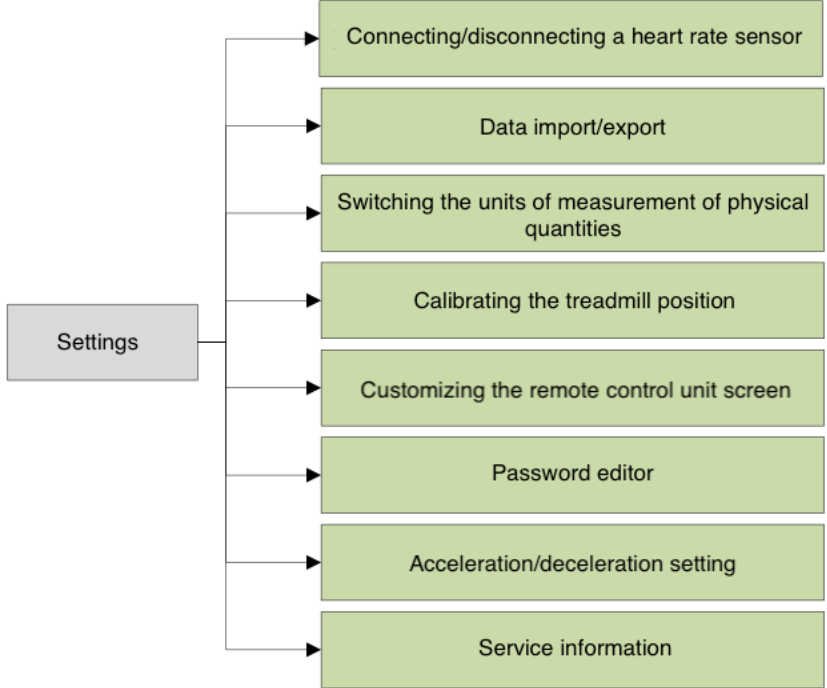


Figure 28 – Block diagram of the treadmill control menu in the Settings mode

**Attention!**

When starting the treadmill in automatic modes (running on profiles, biofeedback procedures, testing), the lifting / lowering the treadmill, and the motion of the running belt will be performed automatically.

**Attention!**

It is forbidden to use the treadmills in automatic modes if the user / patient is not allowed to the procedures for health reasons by the physician. Ignoring this can lead to the serious health complications for the user / patient or, in the worst cases, death.

**Attention!**

When working with a treadmill in automatic modes, the user / patient and medical personnel should have the necessary knowledge about the loads on the user / patient in these modes and be aware of possible changes in these loads at any given time. When working in these modes, it is necessary to pay particular attention to safety precautions.

**Attention!**

Never set too high loads (speed, acceleration, ascent angle, HR values) if the health and state of the user / patient does not correspond to these loads, and if the physician's permission for such loads has not been obtained. Ignoring this can lead to the serious health problems or, in the worst cases, death. When working with high values of loads on the user / patient, special attention should be paid to safety precautions.

#### 5.9.4 "Patients" mode

The transition to the "Patients" mode is carried out from the **main menu** by pressing the corresponding button. The "Patients" mode is intended for keeping records of users/patients, tracking progress in treatment and rehabilitation, analyzing statistical data for the entire period of treadmill operation.

To account for users / patients, select the **Patient database** menu on the control unit screen. In this menu, in tabular form, the patient accounts are provided. A patient account is a set of individual user / patient data (Table 7).

Table 7 – Individual patient data

Names in the patient database menu	Description
No.	Patient index number
Surname	Patient surname
Given name	Initial letter of the patient's name
Middle name	Initial letter of the patient's middle name
Sex	Patient sex (M/F)
Age	Patient age number
Diagnose	Patient diagnosis made by responding physician
Doctor	Surname of the responding physician
Profile	Profile set for the patient in the "Procedures" mode by default

To edit individual patient data, go to the **patient database editor** menu. The user has the following options for editing patient accounts: adding a new patient (creating a new account), deleting an existing patient account, editing individual information sections of a patient's account. To prevent accidental editing of the patient database, entry to the **patient database editor** menu is carried out by means of the password set in the **Edit passwords** menu in the Settings mode (see Section 5.9.6.6 – Editing passwords).

In order to simplify the operation and configuration of the treadmill, in the **patient database editor** menu, the user can set the desired default running profile for the patient. This profile can be used in the “Procedures” operation mode.

For more convenient navigation through patient accounts, a search is provided for the required patient account by his / her surname. The search for a patient's account is carried out in the **Patient search** menu.

To track the progress in the treatment and rehabilitation of patients, when using a treadmill, on the control unit screen, go to the **patient history** menu. In this menu, in a tabular form, information about the procedures performed and the parameters achieved for a certain time period of using the treadmill is presented (Table 8).

Table 8 – History of the selected patient

Name in the patient history menu	Description
Number	Sequence number of the record on the completed procedure
Time	Procedure start time (hour:min)
Date	Procedure date (day/month/year)
Surname	Patient surname
Given name	Initial letter of the patient's name
Middle name	Initial letter of the patient's middle name
Profile	Name of the running profile used in the “Procedures” mode
Duration	Duration of the procedure performed (hours/minutes/seconds)
Distance	Distance covered (km)
Speed	Average running speed (km/h)
Acceleration	Maximum achieved acceleration (m/s <sup>2</sup> )
Angle	Maximum running belt ascent angle (deg)
Heart rate	Average heart rate (bpm)
Energy	Total energy expended (kcal)
Power	Average generated power (W)
Aerobic power	Average generated power (MET)

The information in the **patient history** menu is stored in the non-volatile memory of the treadmill for the last 10,000 procedures for each patient account.

To perform the statistical data analysis for the entire period of using the treadmill by a specific user / patient, select the **Statistics on the selected patient** menu on the control unit screen. In this menu, the data on the selected patient described in Table 9 is displayed.

Table 9 – Statistics on the selected patient



Name in the Statistics on the selected patient menu	Description
No.	Sequence number of the patient in the <b>Patient database</b> menu: <input type="text" value="00008"/>
Full name	Surname and Initial letters of name and middle name of the patient: <input type="text" value="Suyakov"/> <input type="text" value="S."/> <input type="text" value="A."/>
Total distance covered	<input type="text" value="03.164"/> km
Total time of procedures	<input type="text" value="00"/> hour <input type="text" value="35"/> min <input type="text" value="16"/> sec
Total energy expended	<input type="text" value="1574.9"/> kcal

To track the progress in the treatment and rehabilitation of patients, calculate the patient statistical data, before starting to work with the rest of the treadmill modes, you need to create a user / patient or select an existing one from the **Patient database** menu. After that, in the **Patient database** menu, you need to activate the patient account by clicking on the button:



In the absence of the necessity of calculating the statistical data and maintaining of the patient history, deactivate the patient account in the **Patient database** menu by clicking on the button:



The user can export / import data from Tables 7, 8, 9 to the FLASH drive connected to the treadmill in the "Settings" mode, for further editing in third-party software (for more information, see Section 5.9.6.2 – Import / export data on users / patients).

### 5.9.5 “Procedures” mode

The transition to the "Procedures" mode is carried out from the **main menu**. The "Procedures" mode is intended for conducting testing, treatment procedures where the treadmill is controlled in manual or automatic mode according to previously recorded program. In this mode, work on the following procedures is possible: free running, running on profile, HR biofeedback running, testing (only for treadmills of 10 km/h speed modification). For treadmills of 22 km/h and 30 km/h speed modifications, you must select the treadmill application to start the procedures. Two applications are available: “Rehabilitation” and “Sports and Fitness”.

If the “Rehabilitation” application is selected, the functionality of the treadmill in the “Procedures” mode is similar to the functionality of the treadmills of 10 km/h speed modification.

If the “Sports and Fitness” application is selected, the functionality of the treadmill in the “Procedures” mode is expanded with additional modes and functions.

For more details, see the menu block diagrams above.

#### 5.9.5.1 Free running

This procedure is similar for all speed modifications of treadmills and for all treadmill applications.

The transition to the **free running** menu is carried out by clicking the corresponding button in the “**Procedures**” menu. The treadmill is controlled by the user in manual mode. The control and indication elements on the control unit are provided in Table 10.

Table 10 – Control and indication elements on the control unit screen in the “Free running” mode.





Figure	Name	Function performed
	Up	Lifting of the treadmill in relation to the horizon - up.
	Down	Lowering of the treadmill in relation to the horizon - down.
	Start	Starting the motion of the running belt.
	Stop	Stopping the motion of the running belt.







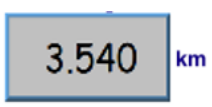
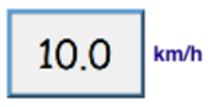
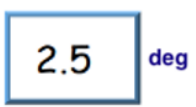
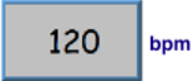
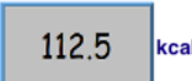
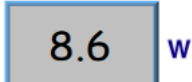
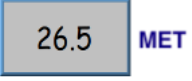
Figure	Name	Function performed
	Pause	Stops the motion of the running belt, but does not reset the current set values of speed, running time. To continue working, press the <b>Start</b> button.
	Plus	Increasing the treadmill running belt speed.
	Minus	Decreasing the treadmill running belt speed.
	Forward	Setting the direction of the treadmill running belt - forward.
	Backward	Setting the direction of the treadmill running belt - backward.
	Running time	Displays the time elapsed since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). The time is displayed in hours, $\Pi$ , seconds.
	Distance covered	Displays the distance covered since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed).
	Running speed	Displays the set value of the treadmill running belt speed (when pressing the <b>Plus</b> or <b>Minus</b> buttons). When clicking on the graphic symbol, a dialog box pops up to set the numerical value of the speed.
	Ascent angle	Displays the set value of the ascent angle of the treadmill in relation to the horizon (changes by pressing the <b>Up</b> or <b>Down</b> buttons). When clicking on the graphic symbol, a dialog box pops up to set the numerical value of the angle.

Figure	Name	Function performed
	Heart rate	Displays the heart rate value tracked by the HR sensor. The unit for measuring heart rate is the number of beats per minute. To start the procedures, attach the HR sensor to the patient / user's body (in accordance with the operation manual of the sensor manufacturer) and connect the sensor to the treadmill (for more information, see Section 5.9.6.1 – Connecting / disconnecting the HR sensor to the treadmill).
	Energy	Displays the current value of the expended energy. The energy is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the expended energy, the patient account in the “Patients” mode should be activated.
	Power	Displays the current value of the power generated by the user/ patient. The power is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the generated power, the patient account in the “Patients” mode should be activated.
	Aerobic power	Displays the amount of oxygen consumed by the user / patient during running. The aerobic power is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the generated aerobic power, the patient account in the “Patients” mode should be activated.

#### 5.9.5.2 Running on profile

The transition to the **running on profile** menu is carried out by clicking the corresponding button in the “**Procedures**” menu. On the screen of the treadmill control unit, in the **running on profile** menu, the user can select the menus (depending on the treadmill speed modification and the use of the treadmill): **standard running profiles** (only for treadmills of 22 km/h and 30 km/h speed modifications and Sport and Fitness application) and **user running profiles** (for all modifications and applications).

The **standard running profiles** menu displays a list of preset running profiles (set by the manufacturer at the time of release). After selecting of the required running profile, the user can set the following parameters (limitations): maximum motion speed and maximum running belt ascent angle, total profile time, acceleration and deceleration time of the running belt (for more detailed description of

setting the acceleration and deceleration time of the running belt, see Section 5.9.6.8 – Setting the acceleration and deceleration time of the running belt). After setting the running parameters and pressing the **Running on profile** button on the control unit screen, the user goes to the **running on configured profile** menu.

In the **user running profiles** menu, the user has access to the individual running profiles of the user / patient that were previously configured and saved in the internal memory of the treadmill. After selecting the desired user profile and pressing the **Running on profile** button on the control unit screen, the user goes to the **running on configured profile** menu.



**Attention!**

When starting the treadmill from the **running on profile** menu, the lifting / lowering of the treadmill and changing the speed of the running belt will be performed automatically.



**Attention!**

Never set too high loads (speed, acceleration / deceleration, ascent angle) if the health and state of the user / patient does not correspond to these loads, and if the physician's permission for such loads has not been obtained. Ignoring this can lead to the serious health problems or, in the worst cases, death. When working with high values of loads on the user / patient, special attention should be paid to safety precautions.

In the **standard running profiles** menu, the user can select one of the following preset running profiles with moderate load:

- interval training for beginners;
- standard interval for endurance training;
- progressively increasing interval training;
- interval training for beginners with an ascent angle;
- standard interval for endurance training with an ascent angle;
- progressively increasing interval training with an ascent angle.

The diagrams showing the progress of preset profiles with moderate loads are shown in Figures 29–34, the numeric parameters of the profiles are presented in Tables 11–13.

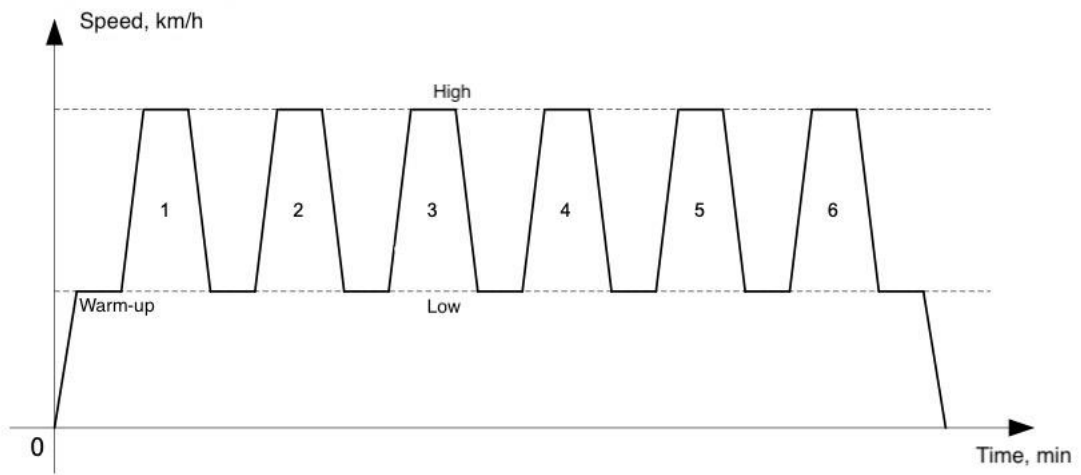


Figure 29 – Profile No. 1 – Interval training for beginners

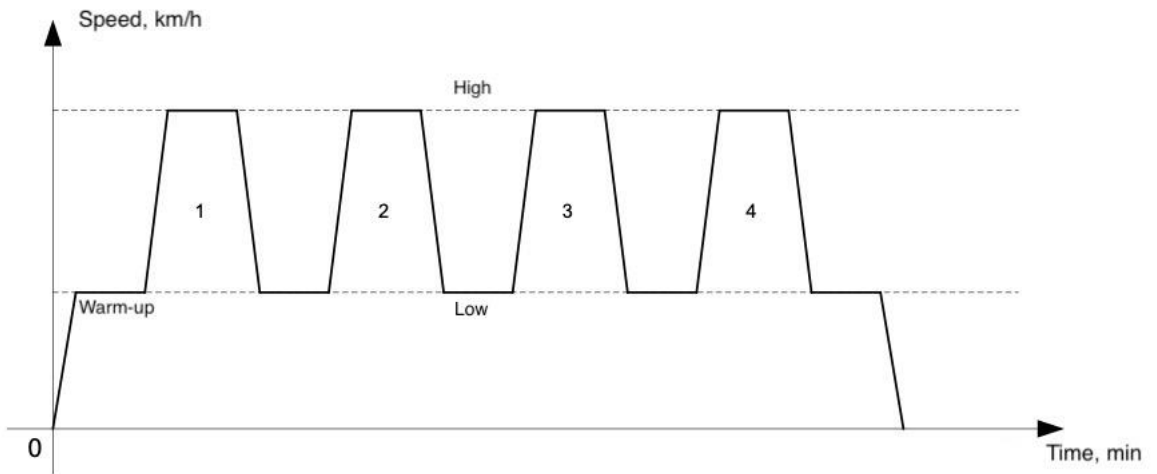


Figure 30 – Profile No. 2 – Standard interval for endurance training

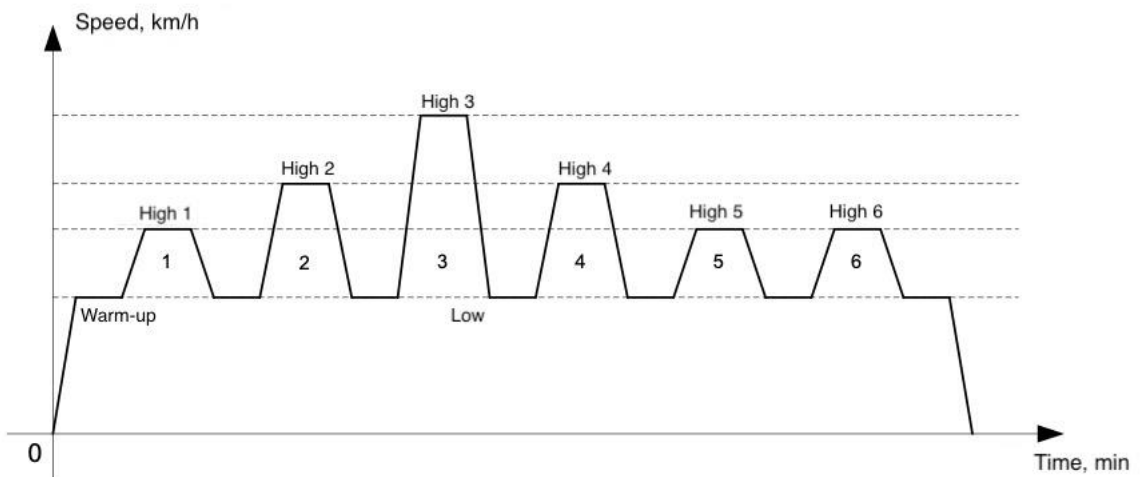


Figure 31 – Profile No. 3 – Progressively increasing interval training

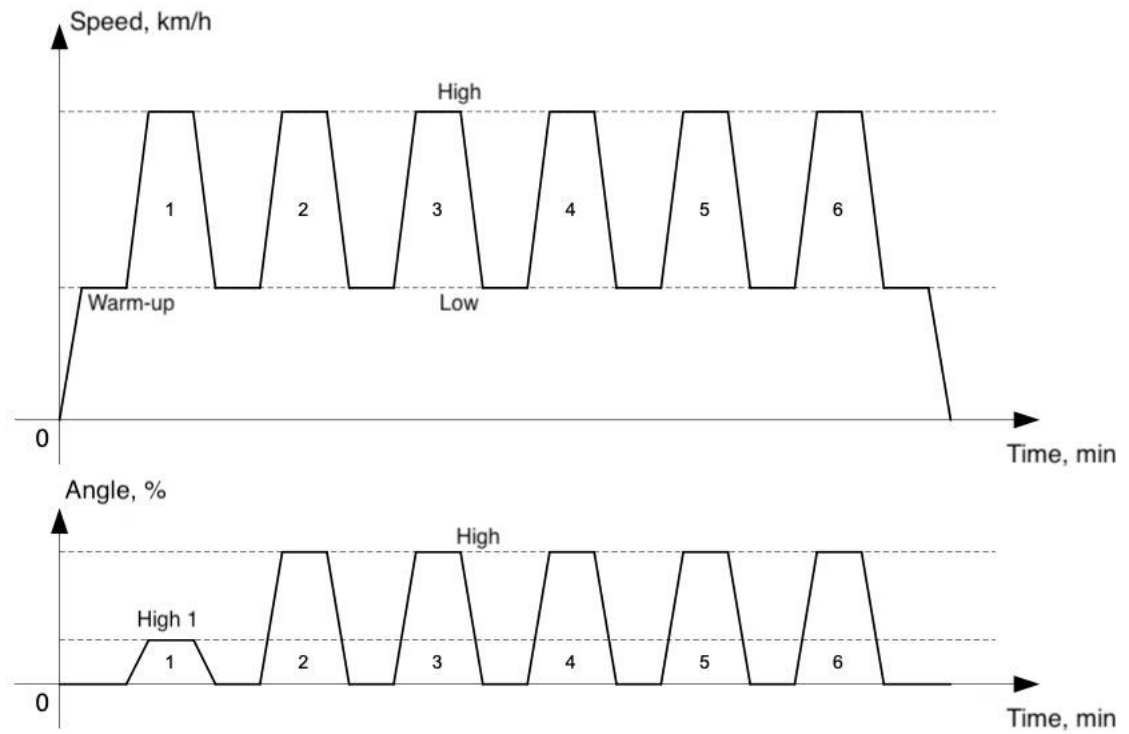


Figure 32 – Profile No. 4 – Interval training for beginners with an ascent angle

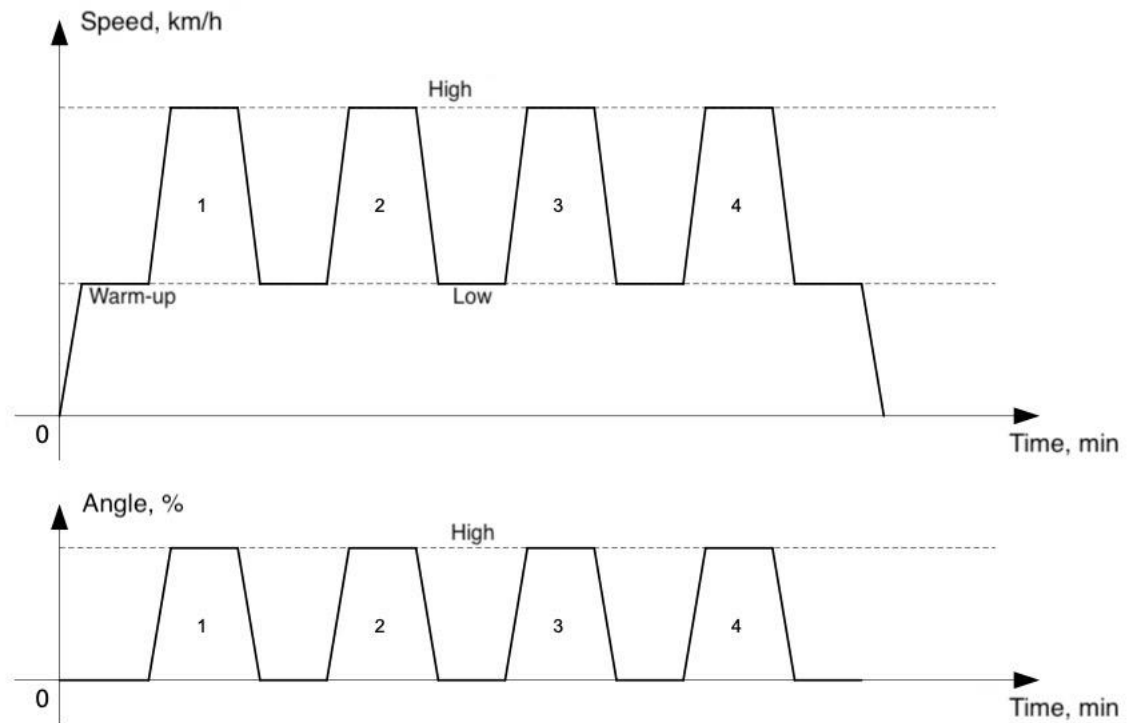


Figure 33 – Profile No. 5 – Standard interval for endurance training with an ascent angle

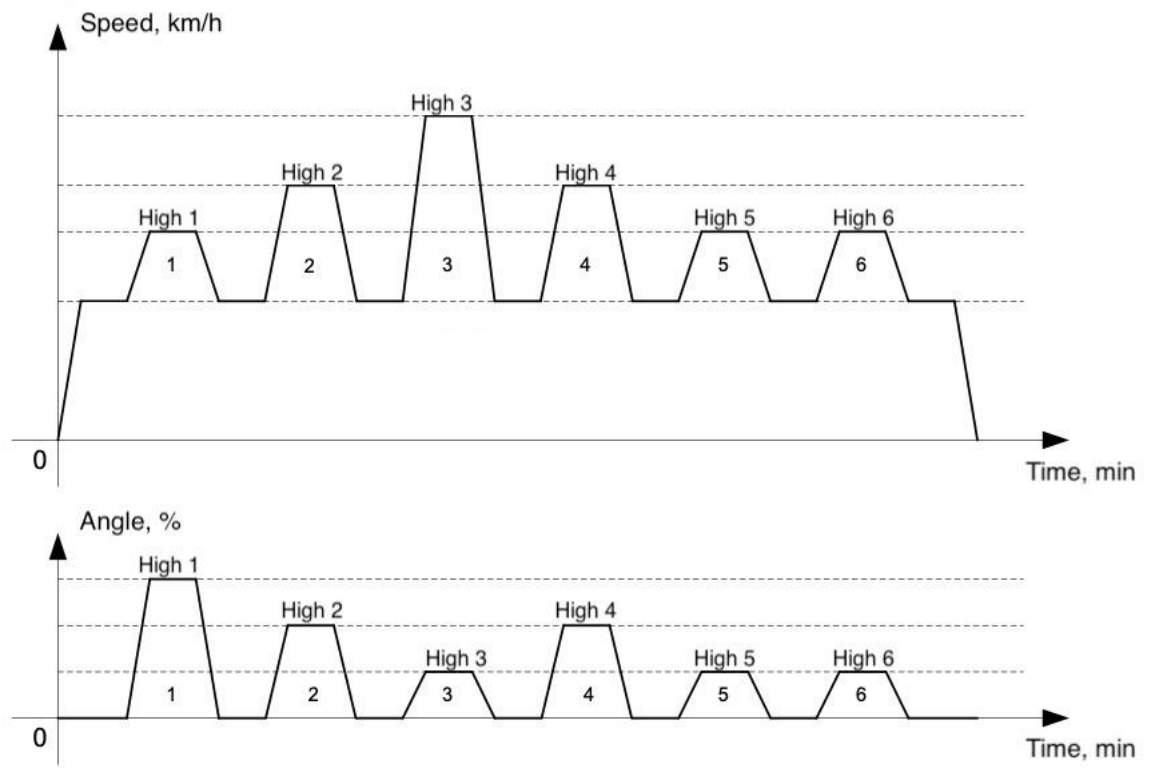


Figure 34 – Profile No. 6 – Progressively increasing interval training with an ascent angle



Table 11 – Numeric values of the Profile No. 1 and Profile No. 4

Profile intervals	Speed, km/h	Interval time		Angle of ascent to the horizon for profile 1, %	Angle of ascent to the horizon for profile 4, %
		min	sec		
Warm-up	6.5	4	0	0.0	0.0
High 1	9.0	0	30	0.0	5.0
Low 1	6.5	3	0	0.0	0.0
High 2	9.0	0	30	0.0	10.0
Low 2	6.5	3	0	0.0	0.0
High 3	9.0	0	30	0.0	10.0
Low 3	6.5	3	0	0.0	0.0
High 4	9.0	0	30	0.0	10.0
Low 4	6.5	3	0	0.0	0.0
High 5	9.0	0	30	0.0	10.0
Low 5	6.5	3	0	0.0	0.0
High 6	9.0	0	30	0.0	10.0
Low 6	6.5	3	0	0.0	0.0

Table 12 – Numeric values of the Profile No. 2 and Profile No. 5

Profile intervals	Speed, km/h	Interval time		Angle of ascent to the horizon for profile 2, %	Angle of ascent to the horizon for profile 5, %
		min	sec		
Warm-up	7.2	5	0	0.0	0.0
High 1	9.0	3	0	0.0	10.0
Low 1	7.2	2	0	0.0	0.0
High 2	9.0	3	0	0.0	10.0
Low 2	7.2	2	0	0.0	0.0
High 3	9.0	3	0	0.0	10.0
Low 3	7.2	2	0	0.0	0.0
High 4	9.0	3	0	0.0	10.0
Low 4	7.2	2	0	0.0	0.0

Table 13 – Numeric values of the Profile No. 3 and Profile No. 6

Profile intervals	Speed, km/h	Interval time		Angle of ascent to the horizon for profile 3, %	Angle of ascent to the horizon for profile 6, %
		min	sec		
Warm-up	10.1	4	0	0.0	0.0
High 1	11.5	2	0	0.0	10.0
Low 1	10.1	2	0	0.0	0.0
High 2	13.0	1	0	0.0	7.5
Low 2	10.1	2	0	0.0	0.0
High 3	14.4	1	0	0.0	5.0
Low 3	10.1	2	0	0.0	0.0
High 4	13.0	1	0	0.0	7.5
Low 4	10.1	2	0	0.0	0.0
High 5	11.5	1	0	0.0	5.0
Low 5	10.1	2	0	0.0	0.0
High 6	11.5	1	0	0.0	5.0
Low 6	10.1	4	0	0.0	0.0

In the **standard running profiles** menu, the user can select the following high load profiles:

- ascending - descending ("Pyramid");
- training with an interval of 500 m;
- training with an interval of 400 m;
- training with an interval of 300...600 m;
- training with an interval of 300 m;
- interval training for highly trained athletes.
- interval training with an ascent angle for highly trained athletes.

The diagrams showing the progress of preset profiles with high loads are shown in Figures 35, 36, 37, 38, 39, 40, 41, the numeric parameters of the preset profiles with high loads are presented in Tables 14-20. In these figures, black shows distance-limited intervals, light ones - time-limited intervals. Also, these diagrams do not show the acceleration / deceleration intervals.

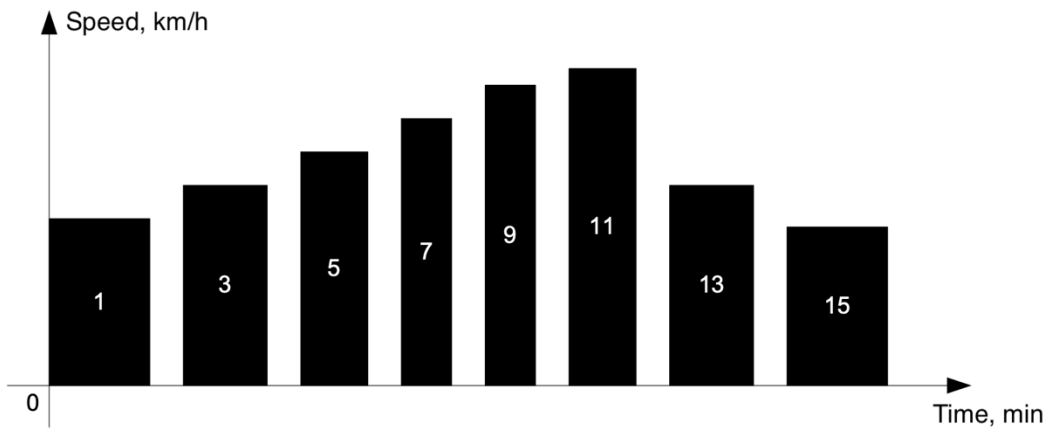


Figure 35 - Profile No. 7 – Descending - descending ("Pyramid")

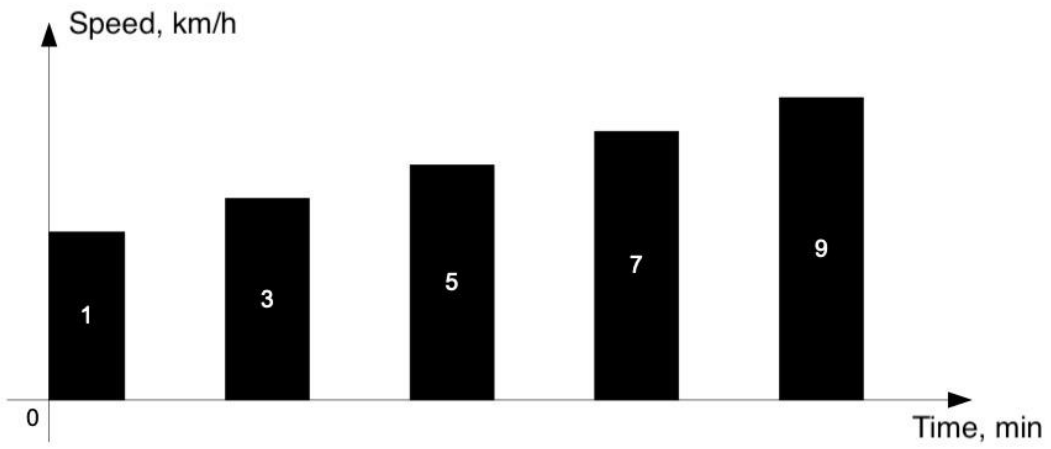


Figure 36 - Profile No. 8 – Training with an interval of 500 m

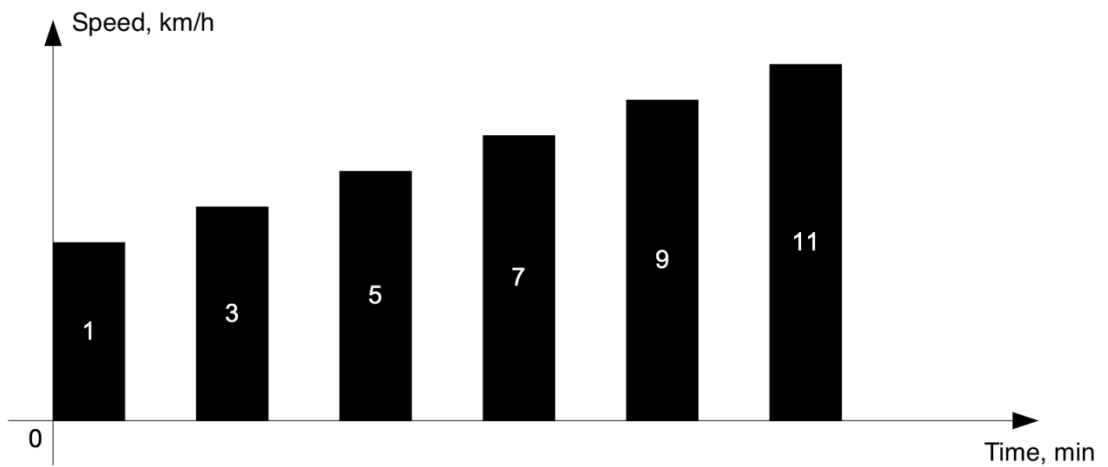


Figure 37 - Profile No. 9 – Training with an interval of 400 m

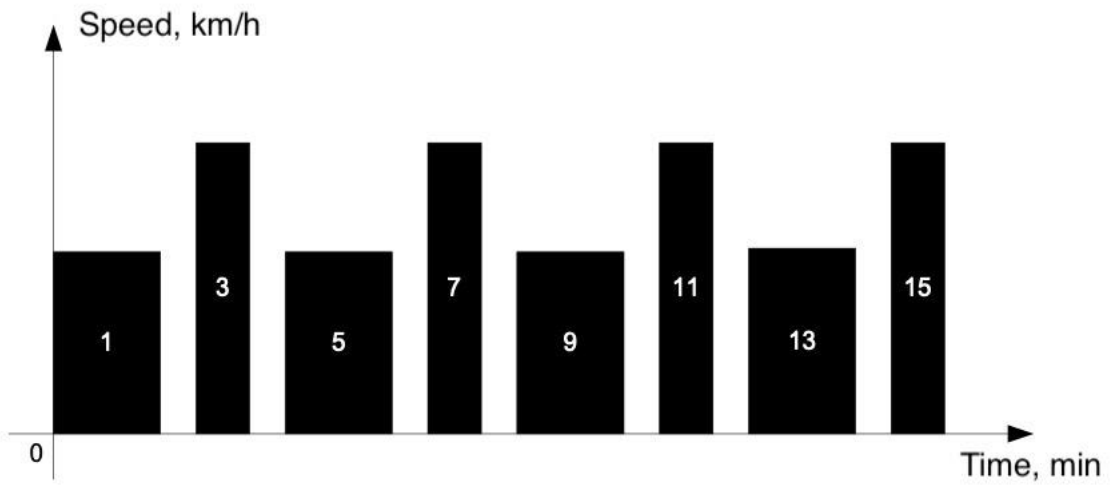


Figure 38 - Profile No. 10 – Training with an interval of 300...600 m

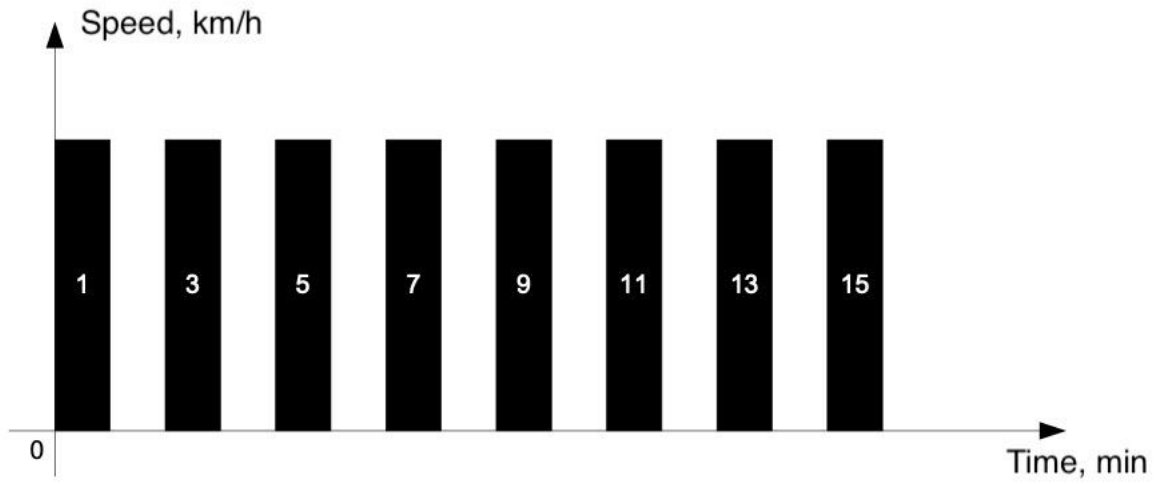


Figure 39

- Profile No. 11 – Training with an interval of 300 m

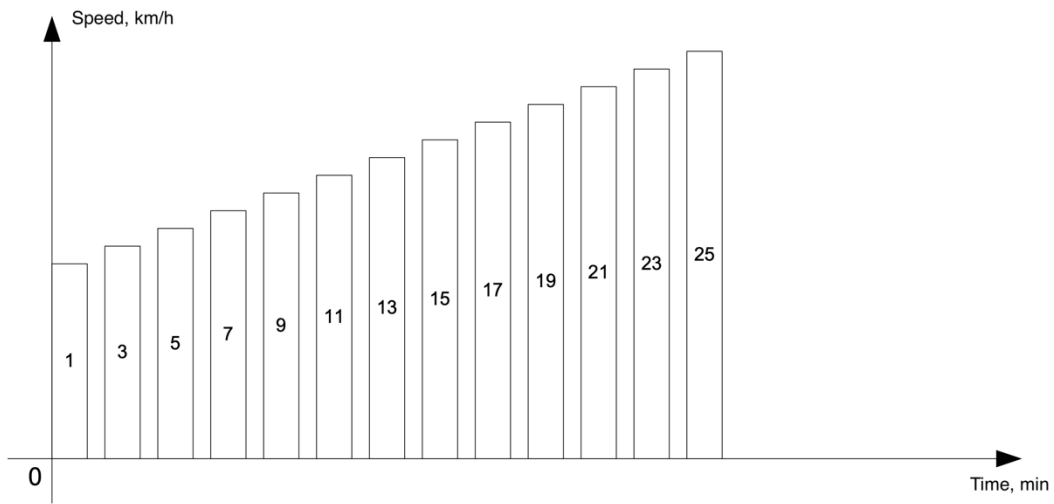


Figure 40 - Profile No. 12 – Interval training for highly trained athletes.

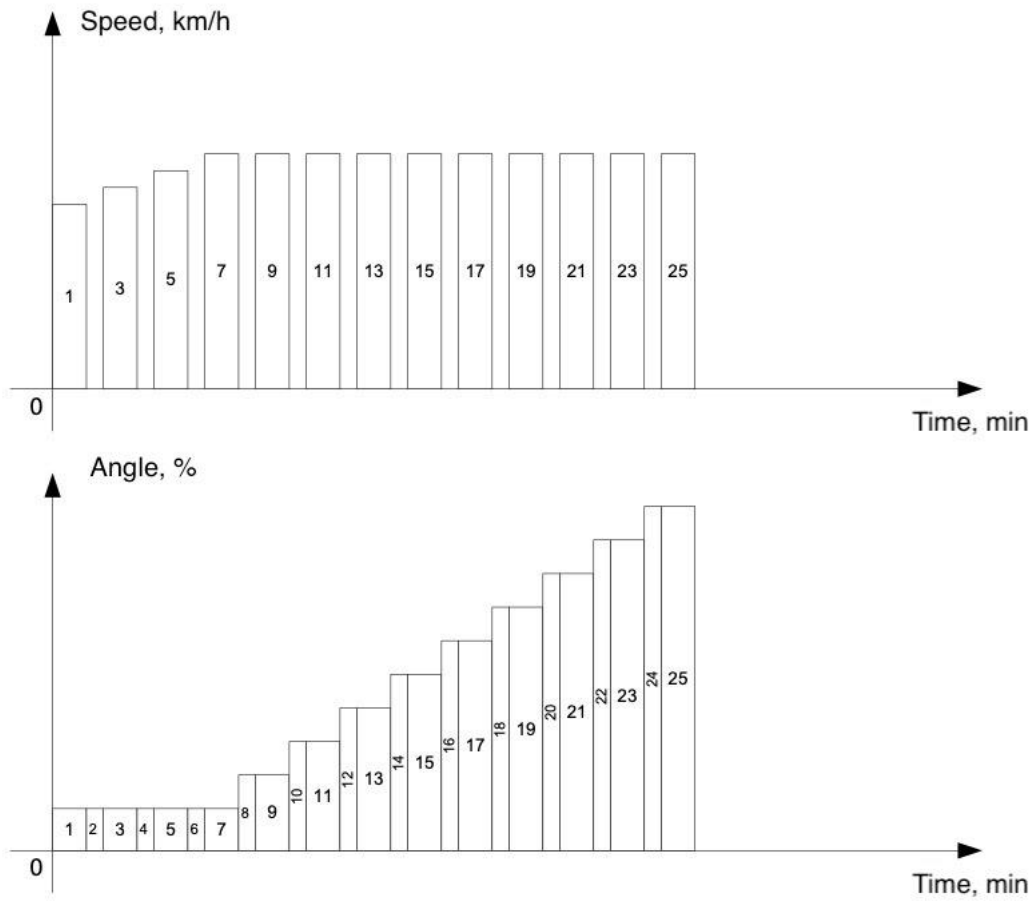


Figure 41 - Profile No. 13 – Interval training with an ascent angle for highly trained athletes.

Table 14 – Numeric values of the Profile No. 7

<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	600	-	16.0	0.0
2	-	1:30	0.0	0.0
3	500	-	17.0	0.0
4	-	1:15	0.0	0.0
5	400	-	18.0	0.0
6	-	1:00	0.0	0.0
7	300	-	19.0	0.0
8	-	0:45	0.0	0.0
9	300	-	20.0	0.0
10	-	0:45	0.0	0.0
11	400	-	21.0	0.0
12	-	1:00	0.0	0.0
13	500	-	17.0	0.0
14	-	1:15	0.0	0.0
15	600	-	15.0	0.0
16	-	1:30	0.0	0.0

Table 15 – Numeric values of the Profile No. 8

<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	500	-	15.0	0.0
2	-	1:15	0.0	0.0
3	500	-	16.0	0.0
4	-	1:15	0.0	0.0
5	500	-	17.0	0.0

<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
6	-	1:15	0.0	0.0
7	500	-	18.0	0.0
8	-	1:15	0.0	0.0
9	500	-	19.0	0.0
10	-	1:15	0.0	0.0

Table 16 – Numeric values of the Profile No. 9

<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	400	-	16.0	0.0
2	-	1:00	0.0	0.0
3	400	-	17.0	0.0
4	-	1:00	0.0	0.0
5	400	-	18.0	0.0
6	-	1:00	0.0	0.0
7	400	-	19.0	0.0
8	-	1:00	0.0	0.0
9	400	-	20.0	0.0
10	-	1:00	0.0	0.0
11	400	-	21.0	0.0
12	-	1:00	0.0	0.0

Table 17 – Numeric values of the Profile No. 10

<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	600	-	15.0	0.0
2	-	1:30	0.0	0.0
3	300	-	21.0	0.0
4	-	0:45	0.0	0.0
5	600	-	15.0	0.0
6	-	1:30	0.0	0.0
7	300	-	21.0	0.0
8	-	0:45	0.0	0.0
9	600	-	15.0	0.0
10	-	1:30	0.0	0.0
11	300	-	21.0	0.0
12	-	0:45	0.0	0.0
13	600	-	15.0	0.0
14	-	1:30	0.0	0.0
15	300	-	21.0	0.0
16	-	0:45	0.0	0.0

Table 18 – Numeric values of the Profile No. 11

<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	300	-	20.0	0.0
2	-	0:45	0.0	0.0
3	300	-	20.0	0.0
4	-	0:45	0.0	0.0



<b>Profile intervals</b>	<b>Distance, m</b>	<b>Interval time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
5	300	-	20.0	0.0
6	-	0:45	0.0	0.0
7	300	-	20.0	0.0
8	-	0:45	0.0	0.0
9	300	-	20.0	0.0
10	-	0:45	0.0	0.0
11	300	-	20.0	0.0
12	-	0:45	0.0	0.0
13	300	-	20.0	0.0
14	-	0:45	0.0	0.0
15	300	-	20.0	0.0
16	-	0:45	0.0	0.0

Table 19 – Numeric values of the Profile No. 12 (applicable only to the treadmills of 30 km/h speed modification)

<b>Profile intervals</b>	<b>Time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	3:00	9.0	0.0
2	0:30	0.0	0.0
3	3:00	10.8	0.0
4	0:30	0.0	0.0
5	3:00	12.6	0.0
6	0:30	0.0	0.0
7	3:00	14.4	0.0
8	0:30	0.0	0.0
9	3:00	16.2	0.0
10	0:30	0.0	0.0
11	3:00	18.0	0.0
12	0:30	0.0	0.0
13	3:00	19.8	0.0
14	0:30	0.0	0.0
15	3:00	21.6	0.0
16	0:30	0.0	0.0
17	3:00	23.4	0.0
18	0:30	0.0	0.0
19	3:00	25.2	0.0
20	0:30	0.0	0.0
21	3:00	27.0	0.0
22	0:30	0.0	0.0
23	3:00	28.8	0.0

<b>Profile intervals</b>	<b>Time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
24	0:30	0.0	0.0
25	3:00	30.0	0.0

Table 20 – Numeric values of the Profile No. 13

<b>Profile intervals</b>	<b>Time, min:sec</b>	<b>Speed, km/h</b>	<b>Angle of ascent to the horizon, %</b>
1	3:00	9.0	2.0
2	0:30	0.0	2.0
3	3:00	10.8	2.0
4	0:30	0.0	2.0
5	3:00	12.6	2.0
6	0:30	0.0	2.0
7	3:00	14.4	2.0
8	0:30	0.0	4.0
9	3:00	14.4	4.0
10	0:30	0.0	6.0
11	3:00	14.4	6.0
12	0:30	0.0	8.0
13	3:00	14.4	8.0
14	0:30	0.0	10.0
15	3:00	14.4	10.0
16	0:30	0.0	12.0
17	3:00	14.4	12.0
18	0:30	0.0	14.0
19	3:00	14.4	14.0

Profile intervals	Time, min:sec	Speed, km/h	Angle of ascent to the horizon, %
20	0:30	0.0	16.0
21	3:00	14.4	16.0
22	0:30	0.0	18.0
23	3:00	14.4	18.0
24	0:30	0.0	20.0
25	3:00	14.4	20.0





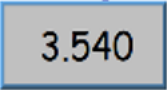
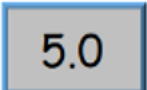
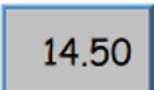
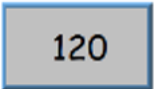
In addition to the preset profiles, the user can create his own (individual) profile in the **user running profiles** menu. For each interval of the user profile, the following parameters are set: acceleration, speed, time, and angle of ascent to the horizon. When saving a user profile into the treadmill memory, the possibility of entering of its unique name is provided. An example of filling in the user profile with numeric values is shown in Table 21.

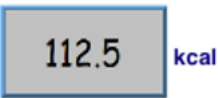
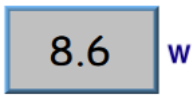
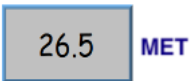
Table 21 – Example of filling in a user profile

Profile interval	Acceleration	Speed, km/h	Interval time, sec	Angle of ascent to the horizon, %
1	1	1.0	10	1.0
2	2	2.0	20	2.0
3	3	3.0	30	3.0
4	1	4.0	40	4.0
5	2	5.0	50	5.0
6	3	6.0	60	6.0
...	...	...	...	...
20	1	1.0	70	3.0

Control and indication elements on the control unit screen for the running on profile procedure, in the **running on configured profile** menu are provided in Table 22.

Table 22 – Control and indication elements on the control unit screen for the running on profile procedure, in the **running on configured profile** menu.

Graphic designation	Name	Function performed
	Start	Starting the motion of the running belt. After pressing this button, the treadmill starts operating in accordance with the selected profile, the Running time display will start counting the time in minutes.
	Stop	Stops the motion of the running belt, resets the current set values of speed, running belt ascent angle, running time.
	Pause	Stops the motion of the running belt, but does not reset the current set values of speed, running belt ascent angle, running time. To continue working on the profile, press the <b>Start</b> button.
	Running time	Displays the time elapsed since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). The time is displayed in hours, minutes, seconds.
	Distance covered	Displays the distance covered since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed).
	Running speed	Displays the current set value of speed of the treadmill running belt.
	Ascent angle	Displays the current set value of the ascent angle of the treadmill in relation to the horizon (changes by pressing the <b>Up</b> or <b>Down</b> buttons).
	Heart rate	Displays the heart rate value tracked by the HR sensor. The unit for measuring heart rate is the number of beats per minute. To start the procedures, attach the HR sensor to the patient / user's body (in accordance with the operation manual of the sensor manufacturer) and connect the sensor to the treadmill (for more information, see Section 5.9.6.1 –

Graphic designation	Name	Function performed
		Connecting / disconnecting the HR sensor to the treadmill)
	Energy	Displays the current value of the expended energy. The energy is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the expended energy, the patient account in the “Patients” mode should be activated
	Power	Displays the current value of the power generated by the user/ patient. The power is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the generated power, the patient account in the “Patients” mode should be activated.
	Aerobic power	Displays the amount of oxygen consumed by the user / patient during running. The aerobic power is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the generated aerobic power, the patient account in the “Patients” mode should be activated

### 5.9.5.3 HR biofeedback running

The transition to the **HR biofeedback running** menu is carried out by pressing the corresponding button in the “**Procedures**” menu. On the screen of the treadmill control unit, in the **HR biofeedback running** menu, the user can select the following menus (depending on the treadmill speed modification and the use of the treadmill): **setting by HR<sub>MIN</sub> / HR<sub>MAX</sub>, setting by HR / Power** (for treadmills of 10 km/h speed modification and the “Rehabilitation” application). For the Sports and Fitness application, in the **HR biofeedback running** menu, the following menus are available for selection: **setting by HR<sub>MIN</sub> / HR<sub>MAX</sub>, setting by age, setting by Karvonen method, setting by AnT (anaerobic threshold).**

Before starting the procedures, it is necessary to attach the HR sensor to the patient / user's body (in accordance with the operation manual of the sensor manufacturer), connect the sensor to the treadmill (for more information, see Section 5.9.6.1 – Connecting / disconnecting the HR sensor to the treadmill) and make sure that the safety precautions for the treadmills are observed (see Section **Ошибка! Источник ссылки не найден.** – Safety precautions when using the treadmills). In the **Biofeedback running procedure parameters** menu, the user presets the required parameters (limitations) for all

procedures: warm-up on / off, warm-up time, initial speed, final speed, procedure time / distance covered.

For the selected procedure, the user sets the following additional parameters:

- **setting by HR<sub>MIN</sub> / HR<sub>MAX</sub>:** minimum / maximum HR values, maximum of the permissible HR value;
- **setting by HR / Power:** maximum value of HR /power, minimum / maximum of HR value (in percent) at several intervals of the procedure, interval time;
- **setting by age:** user / patient age, minimum / maximum HR values (as a percentage of the maximum permissible HR value, which is calculated automatically based on the entered user / patient age value);
- **setting by Karvonen method:** user /patient age, HR value at rest, minimum / maximum HR values (in percent);
- **setting by AnT:** user / patient's AnT heart rate, minimum / maximum HR values (in percent).

After setting the running parameters and pressing the **Running by set procedure** button on the control unit screen, the user goes to the **Running by set procedure** menu.

In the **Running by set procedure** menu the HR sensor periodically monitors the heart rate of a person on the running belt and transmits this information to the treadmill, which, taking into account the parameters (limitations) set by the user, adjusts the ascent angle and the motion speed of the running belt based on this information. Thus, the treadmill maintains the set HR value of the person who is on the treadmill.

#### **Algorithm for adjusting the running parameters depending on the HR readings.**

When starting the treadmill from the **Running by set procedure** menu, the ascent angle of the running belt is set equal to 0°. There is a gradual increase in the motion speed of the running belt (from the set initial value to the value of the final (maximum) speed) until the measured heart rate corresponds to the one set by the user. In case if the motion speed of the running belt has increased to the final (maximum) value, and the measured heart rate has not reached the set one, an increase of the ascent angle of the treadmill occurs. If the measured heart rate value exceeds the user-set maximum value, the ascent angle of the running belt decreases. If the ascent angle of the running belt has reached 0,° and the measured heart rate value exceeds the user-set maximum value, the running belt motion speed will decrease until the measured and set minimum heart rate matches.

The change in the load (running time, running speed, angle of inclination) on the user / patient when running with HR biofeedback is carried out according to the numerical values from the Tables 23, 24.

Table 23 – Load change when reaching the lower HR level

Difference between the current and set (minimum) HR, beats/min	Speed, km/h	Angle of ascent to the horizon, %	Time, sec
0 -5.0	0.2	0.1	25
5.1 – 15.0	0.4	0.2	25
15.1 – 30.0	0.6	0.6	25
30.1 – 50.0	0.8	0.8	20
>50.1	1.0	1.0	20

Table 24 - Load change at the programmed upper HR level

Difference between the current and set (maximum) HR, beats/min	Speed, km/h	Angle of ascent to the horizon, %	Time, sec
0 -5.0	0.3	0.3	12
5.1 – 15.0	0.8	0.8	12
15.1 – 30.0	1.0	1.0	10
30.1 – 50.0	1.5	1.2	8
>50.1	2.0	1.6	7

**Attention!**



When starting the treadmill from the **Running by set procedure** menu, the lifting / lowering of the treadmill and changing the speed of the running belt will be performed automatically.

**Attention!**



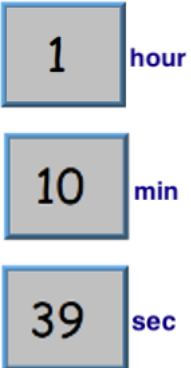
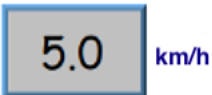
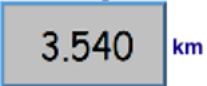
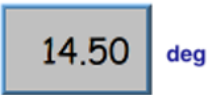


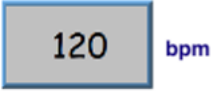
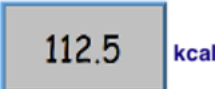
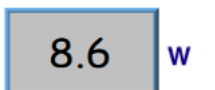
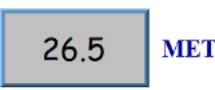
Never set too high loads (value of the supported heart rate, running time or distance covered, maximum motion speed of the treadmill running belt) if the health and state of the user / patient does not correspond to these loads, and if the physician's permission for such loads has not been obtained. Ignoring this can lead to the serious health problems or, in the worst cases, death. When working with high values of loads on the user / patient, special attention should be paid to safety precautions.

Control and indication elements on the control unit for the HR biofeedback running procedure in the **Running by set procedure** menu are shown in Table 25.



Table 25 – Control and indication elements on the control unit for the HR biofeedback running procedure in the **Running by set procedure** menu.

Graphic designation	Name	Function performed
	Start	<p>Starting the motion of the running belt. After pressing this button, the treadmill starts operating in accordance with the set mode parameters, the Running time display will start counting the time in minutes.</p> <p>If the contact with the =HR sensor is lost, the <b>Start</b> button becomes hidden. To continue the procedure, you must reconnect the sensor to the treadmill.</p>
	Stop	Stops the running belt motion. To continue working, press the <b>Start</b> button.
	Time	Displays the time elapsed since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). The time is displayed in hours, minutes, seconds.
	Running speed	Displays the current set value of motion speed of the treadmill running belt.
	Distance	<p>Displays the covered distance since the start of the treadmill running belt motion, when the Procedure time parameter is set in the <b>Biofeedback running procedure parameters</b> menu.</p> <p>Displays the remaining distance since the start of the treadmill running belt motion, when the Procedure time parameter is set in the <b>Biofeedback running procedure parameters</b> menu.</p>
	Ascent angle	Displays the current set value of the ascent angle of the treadmill in relation to the horizon.

Graphic designation	Name	Function performed
	Heart rate	Displays the heart rate value tracked by the HR sensor. The unit for measuring heart rate is the number of beats per minute.
	Energy	Displays the current value of the expended energy. The energy is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the expended energy, the patient account in the “Patients” mode should be activated.
	Power	Displays the current value of the power generated by the user/ patient. The power is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the generated power, the patient account in the “Patients” mode should be activated.
	Aerobic power	Displays the amount of oxygen consumed by the user / patient during running. The aerobic power is counted since the moment of starting the motion of the treadmill running belt (since the <b>Start</b> button was pressed). To count the generated aerobic power, the patient account in the “Patients” mode should be activated

#### 5.9.5.4 Testing

The transition to the **Testing** menu is carried out by clicking the corresponding button in the **Procedures** menu.

The user / patient loading test procedure is used for:

- detection of pathology and assessment of symptoms (chest pain, attacks of dyspnea, palpitations, syncopal states) that occur during physical activity;
- assessment of the current level of physical fitness, primarily cardiorespiratory endurance;
- assessment of the individual physical characteristics of the user / patient in order to select the required running procedure.
- assessment of the dynamics (progress - regression) of the user / patient physical fitness.

In the Testing menu, the user can choose from the following three menus: **testing with the use of an external stress-system**, **testing by standard protocols**, and **testing by user protocols** (for all modifications and applications of treadmills).

In the **testing with the use of an external stress-system** menu, the treadmill is controlled by an external device (stress-system) connected to the corresponding treadmill connector (for more information, see Section **Ошибка! Источник ссылки не найден.** – Description of connectors and connections).

In the **testing by standard protocols** menu, a list is displayed with the names of the preset test protocols (set by the manufacturer at the time of release), in accordance with Table 26 (only for treadmills of 10 km/h speed modification and the “Rehabilitation” application).

Table 26 - Parameters of test protocols

Protocol name	Protocol modification	Protocol parameters			
		Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
Bruce	Classic	1	3:00	2.7	10
		2	3:00	4.0	12
		3	3:00	5.4	14
		4	3:00	6.7	16
		5	3:00	8.0	18
		6	3:00	8.8	20
		7	3:00	9.6	22
	Modified	1	3:00	2.7	0
		2	3:00	2.7	5
		3	3:00	2.7	10
		4	3:00	4.0	12
		5	3:00	5.4	14
		6	3:00	6.7	16
		7	3:00	8.0	18
		8	3:00	8.8	20
		9	3:00	9.6	22
	Simplified	1	3:00	1.9	0
		2	3:00	1.9	3
		3	3:00	1.9	6
4		3:00	2.7	6	

Protocol name	Protocol modification	Protocol parameters			
		Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
Naughton	Classic	1	3:00	3.0	0
		2	3:00	3.0	3.5
		3	3:00	3.0	7
		4	3:00	3.0	10.5
		5	3:00	3.0	14
		6	3:00	3.0	17.5
	Modified	1	2:00	1.6	0
		2	2:00	3.2	0
		3	2:00	3.2	3.5
		4	2:00	3.2	7
		5	2:00	3.2	10.5
		6	2:00	3.2	14
		7	2:00	3.2	17.5
		8	2:00	3.2	21
Balk	Balk-Ware	1	1:00	5.3	2
		2	1:00	5.3	3
		3	1:00	5.3	4
		4	1:00	5.3	5
		5	1:00	5.3	6
		6	1:00	5.3	7
		7	1:00	5.3	9
	Substandard Balk	1	2:00	3.2	0
		2	2:00	3.2	2.5
		3	2:00	3.2	5
		4	2:00	3.2	7.5

Protocol name	Protocol modification	Protocol parameters			
		Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
		5	2:00	3.2	10.0
		6	2:00	3.2	12.5
		7	2:00	3.2	15.0
	Standard Balk	1	2:00	4.8	2.5
		2	2:00	4.8	5.0
		3	2:00	4.8	7.5
		4	2:00	4.8	10.0
		5	2:00	4.8	12.5
		6	2:00	4.8	15.0
		7	2:00	4.8	17.5
	Superstandard Balk	1	2:00	5.5	2
		2	2:00	5.5	4
		3	2:00	5.5	6
		4	2:00	5.5	8
		5	2:00	5.5	10
		6	2:00	5.5	12
		7	2:00	5.5	14
Ellesteadxx	-	1	3:00	2.7	10
		2	2:00	4.8	10
		3	2:00	6.4	10
		4	3:00	8	10
		5	2:00	8	15
		6	3:00	9.7	15
Cornell	-	0	2:00	2.7	0
		0.5	2:00	2.7	5

Protocol name	Protocol modification	Protocol parameters			
		Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
		1.0	2:00	2.7	10
		1.5	2:00	3.4	11
		2.0	2:00	4.0	12
		2.5	2:00	4.8	13
		3.0	2:00	5.4	14
		3.5	2:00	6.2	15
		4.0	2:00	6.7	16
		4.5	2:00	7.4	17
		5.0	2:00	8.1	18
Kattus	-	1	2:00	2.7	10
		2	2:00	3.2	10
		3	2:00	4.0	10
		4	2:00	4.8	10
		5	2:00	5.6	10
		6	2:00	6.4	10
		7	2:00	6.4	14
STEEP	-	1	1:00	2.4	0
		2	1:00	3.2	0
		3	1:00	3.2	1.5
		4	1:00	3.2	3.0
		5	1:00	4.0	3.0
		6	1:00	4.0	5.0
		7	1:00	4.0	7.0
		8	1:00	4.8	7.0
		9	1:00	4.8	9.0

Protocol name	Protocol modification	Protocol parameters			
		Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
		10	1:00	4.8	11.0
		11	1:00	5.6	11.0
		12	1:00	5.6	13.0
		13	1:00	5.6	16.0
		14	1:00	6.7	16.0
		15	1:00	8.0	16.0
Gardner Angiological Protocol	-	Pre-test phase - the patient stands on the side surfaces of the treadmill (but not on the running belt)			
		0	Before the repeated pressing of the Start button (total time 2:00 min)	3.2	0
		Test phase - the patient steps on the running belt			
		1	2:00	3.2	0
		2	2:00	3.2	2
		3	2:00	3.2	4
		4	2:00	3.2	6
		5	2:00	3.2	8
		6	2:00	3.2	10
		7	2:00	3.2	12
		8	2:00	3.2	14
		9	2:00	3.2	16
10	2:00	3.2	18		
11	30:00	3.2	18		

For the Sports and Fitness treadmill application, in the **Testing by standard protocols** menu, the test protocols are preset, the numerical values of which are presented in Table 27.





Table 27 - Parameters of test protocols for treadmill Sports and Fitness application.

Protocol name	Protocol parameters			
	Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
Harbor	1 (warm-up)	3:00	Comfortable walking speed	0
	2 - ∞	+ 1:00	+ (1.3...7.3) (depending on the level of physical fitness)	+ (1...4) (depending on the level of physical fitness)
	Stopping the test at the request of the subject due to the inability to further perform it due to the development of fatigue, (testing-to-failure).			
Astrand	1 (warm-up)	3:00	2.7	0
	2 - ∞	+2:00	2.7	+2,5
	Stopping the test at the request of the subject due to the inability to further perform it due to the development of fatigue, (testing-to-failure).			
Fox-Costill	1 (warm-up)	10:00	Comfortable walking speed	0
	2	2:00	14.3	2
	3	2:00	14.3	4
	4	2:00	14.3	6
	Etc. until the subject is completely tired and (or) refuses to continue procedure.			
Pavlov-Ordzhonikidze	1 (warm-up)	1:00...5:00	5	0.2
	2	2:00	2	0.2
	3 - ∞	2:00	1.5	+ 0.1
	Stopping the test at the request of the subject due to the inability to further perform it due to the development of fatigue, (testing-to-failure).			
Protocol name	Protocol parameters			
	Interval	Distance, m	Speed, km/h	Angle of ascent to the horizon, %
Conconi	1	200	8	0
	2 - ∞	+ 200	+ 0.5	+ 0

Protocol name	Protocol parameters			
	Interval	Duration, min:sec	Speed, km/h	Angle of ascent to the horizon, %
	Stopping the test at the request of the subject due to the inability to further perform it due to the development of fatigue, (testing-to-failure).			

After selecting the required test protocol and pressing the **Start testing** button on the control unit screen, the user goes to the **Test by protocol** menu.

In the **testing by user protocols** menu, the user has access to the individual test protocols that were previously configured and saved in the internal memory of the treadmill. The **View the selected protocol** button is intended for transition to the menu, in which the detailed information about the selected user protocol is displayed. This information includes the number of profile intervals, the acceleration during the transition between intervals, interval speed, interval time, ascent angle at each profile interval. The **User protocol editor** button is intended for transition to the menu (with entering a password), in which editing and deleting user protocols, adding new protocols can be performed. When editing and deleting a new user protocol, the user can set the speed, the duration of time intervals, the ascent angle at each of the intervals, the number of profile intervals, as well as the acceleration value (setting the acceleration / deceleration time of the running belt motion is described in more detail in Section 5.9.6.8 – Setting the acceleration and deceleration time of the running belt).

Control and indication elements on the control unit screen, in the **testing by protocol** menu, are similar to the procedure for running by profile, in the **running on configured profile** menu (Table 22).



**Attention!**

When starting the treadmill from the **testing** menu, the lifting / lowering of the treadmill and changing the speed of the running belt will be performed automatically.



### **Attention!**

Never set too high loads (speed, acceleration / deceleration, ascent angle) if the health and state of the user / patient does not correspond to these loads, and if the physician's permission for such loads has not been obtained. Ignoring this can lead to the serious health problems or, in the worst cases, death. When working with high values of loads on the user / patient, special attention should be paid to safety precautions.

#### 5.9.6 “Settings” mode

The transition to the "Settings" mode is carried out from the **main menu**. To enter the "Settings" operating mode, the user needs to press the **Settings** button on the control unit screen, select a **doctor** in the users section and enter the set password. Default password (set by manufacturer at the time of release): **111111**.

In the "Settings" mode, the following functional capabilities are provided:

- connecting / disconnecting the HR sensor to the treadmill;
- importing / exporting the data on users / patients;
- switching the units of measurement of physical quantities;
- calibrating the treadmill position;
- configuring the control unit;
- editing passwords;
- displaying the service information;
- setting the acceleration / deceleration time of the running belt.

##### 5.9.6.1 Connecting / disconnecting the HR sensor to the treadmill

To connect the HR sensor to the treadmill it is necessary to attach the HR sensor to the patient / user's body, turn on the sensor (in accordance with the operation manual of the sensor manufacturer). Press **Search** button in the **HR sensor connection / disconnection** menu on the control unit screen. At the end of the search process, select the device with the name of the corresponding HR sensor from the list of found Bluetooth devices and connect the sensor to the treadmill by pressing the **Connect** button. For name of the Bluetooth device corresponding to the sensor being used, refer to the operation manual of the sensor manufacturer.

To disconnect the HR sensor from the treadmill, press the **Disconnect** button in the **HR sensor connection / disconnection** menu on the control unit screen.

### 5.9.6.2 Importing / exporting the data on users / patients

User / patient data import is used for loading information in tabular form. The export of user / patient data is used to transfer the information stored in the treadmill. To import / export the data on users / patients, it is necessary to connect the FLASH-drive to the USB-connector of the treadmill (see Section **Ошибка! Источник ссылки не найден.** - Description of connectors and connections), go to the data **Import / export** menu of the "Settings" operating mode and follow the instructions in the tooltips. To handle the exported data, use the program for exchanging data with the ReaTerra treadmill (Appendix **Ошибка! Источник ссылки не найден.**).

### 5.9.6.3 Switching the units of measurement of physical quantities

In the **Switching units of measurement of physical quantities** menu of the "Settings" operating mode, there is a list of displayed physical quantities on the screen of the built-in / portable control unit: running time, distance covered, running speed, acceleration / deceleration, ascent angle, heart rate, energy, power, aerobic power. In this menu, the user can select the required units of measurement for a specific physical parameter according to Table 28.

Table 28 – Units of measurement of physical quantities

Name of the physical quantity	Possible display options
Running time	hr, min, sec - hours, minutes, seconds
Distance covered	km - kilometer; m - meter; ml - mile.
Running speed	km/h - kilometer per hour; m/sec - meter per second; ml/h - mile per hour.
Ascent angle	deg - degree; % - percent.
Acceleration / deceleration	sec – acceleration time from minimum to maximum speed, in seconds; $m/sec^2$ - meter per second per second.
Heart rate	bpm - beats per minute
Energy	kcal - kilocalorie; J - joule; kWh - kilowatt per hour.
Power	W - watt; kW - kilowatt.
Aerobic power	ml/min/kg - oxygen consumption per kg of body weight; MET - metabolic units.

### 5.9.6.4 Calibrating the treadmill position

The procedure for calibrating the position (positioning) of the treadmill relative to the floor is required to reduce the vibrations and noise during operation, as well as to correctly set the inclination

angles of the treadmill during operation. The order of performing this procedure is described in Section 1.1 – Calibrating the treadmill position.

#### 5.9.6.5 Configuring the control unit

The **Control unit screen settings** menu of the “Settings” operating mode is intended for setting the non-volatile real time clock and calendar.

The setting of brightness, contrast, and other color rendering parameters of the built-in/portable control unit is performed in accordance with the operation manual of the this device manufacturer.

#### 5.9.6.6 Editing passwords

Default password (set by manufacturer at the time of release): **111111**. The user can independently change the password at his own discretion in the **Password editor** menu of the "Settings" operating mode.

If the password is lost, it is possible to set a new one only with administrator rights in the "Settings" mode (see Section **Ошибка! Источник ссылки не найден.** - Treadmill settings service configuration menu).

#### 5.9.6.7 Displaying the service information

The parameters displayed in the **Service information** menu of the "Settings" operating mode are used by the service personnel to perform preventive and repair works.

#### 5.9.6.8 Setting the acceleration / deceleration time of the running belt

To set the acceleration / deceleration time of the running belt motion, it is necessary to set the acceleration level in the **Setting acceleration / deceleration** menu of the "Settings" operating mode, according to Table 29.

The acceleration time value implies the time during which the running belt accelerates from zero to maximum speed (depending on the treadmill speed modification, this value is 10 km/h, 22 km/h and 30 km/h).

Table 29 – Acceleration / deceleration levels of the treadmill running belt

Acceleration / deceleration level	Time during which the speed changes from 0 to maximum / from maximum to 0, sec	Acceleration / deceleration for the ReaTerra series treadmill, 10 km/h speed modification, m/sec <sup>2</sup>	Acceleration / deceleration for the ReaTerra series treadmill, 22 km/h speed modification, m/sec <sup>2</sup>	Acceleration / deceleration for the ReaTerra series treadmill, 30 km/h speed modification, m/sec <sup>2</sup>
1	131	0.021	0.047	0.064
2	66	0.042	0.093	0.126

Acceleration / deceleration level	Time during which the speed changes from 0 to maximum / from maximum to 0, sec	Acceleration / deceleration for the ReaTerra series treadmill, 10 km/h speed modification, m/sec <sup>2</sup>	Acceleration / deceleration for the ReaTerra series treadmill, 22 km/h speed modification, m/sec <sup>2</sup>	Acceleration / deceleration for the ReaTerra series treadmill, 30 km/h speed modification, m/sec <sup>2</sup>
3	33	0.084	0.185	0.252
4	16	0.173	0.382	0.521
5	8	0.346	0.764	1.04
6	5	0.554	1.22	1.67
7	3	0.923	2.03	2.78

The deviation acceleration /deceleration time of the treadmill running belt motion from the value set by the user does not exceed  $\pm 20\%$  (provided that the load on the running belt is within the permissible limits according to Table **Ошибка! Источник ссылки не найден.**, while for acceleration / deceleration levels 6 and 7, the load on the running belt is considered to be 80% of the values given in Table **Ошибка! Источник ссылки не найден.**).

Example: treadmill, 10 km/h speed modification

When setting the acceleration level [2], the running belt will accelerate to a speed of 10 km/h in 66 seconds. If the user sets the maximum motion speed of 5 km/h, this means that the running belt will

accelerate to that speed in  $t = \frac{5 \text{ км/ч} \cdot 66 \text{ с}}{10 \text{ км/ч}} = 33 \text{ с}$ .

For the of convenience of determining the acceleration / deceleration time, depending on the level and the current set maximum speed, a graph is shown in Figures 42, 43, 44 for 10 km/h, 22 km/h and 30 km/h speed modification, respectively.

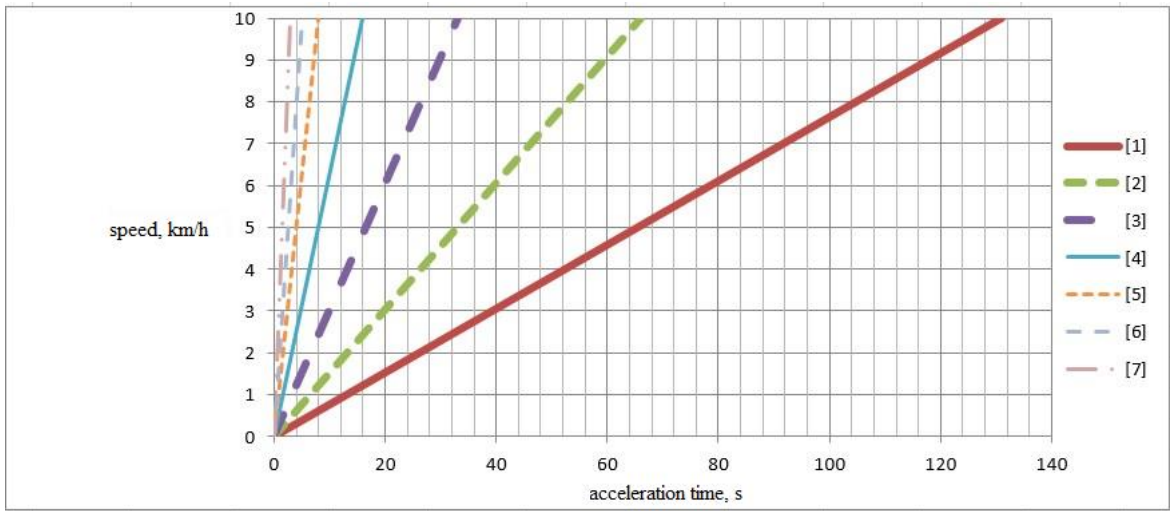


Figure 42 – Graph for determining the acceleration time of the running belt of the treadmills of 10 km/h speed modification.

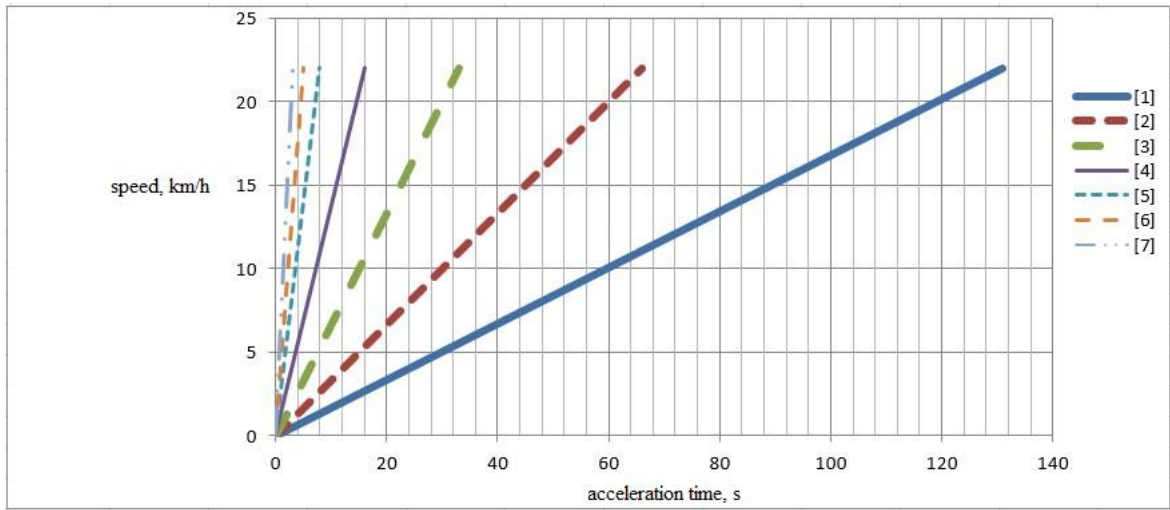


Figure 43 – Graph for determining the acceleration time of the running belt of the treadmills of 22 km/h speed modification.

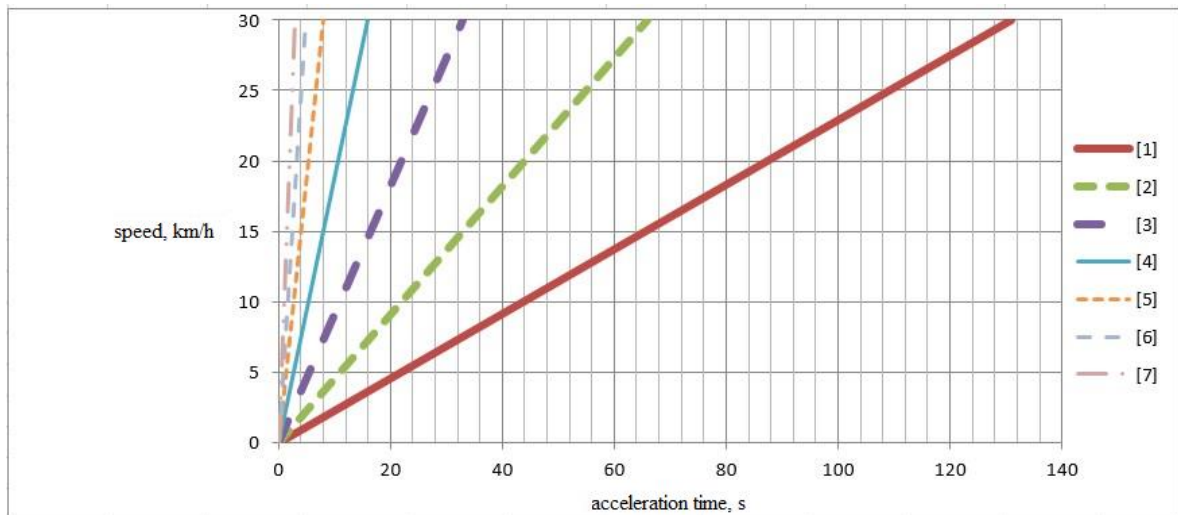


Figure 44 – Graph for determining the acceleration time of the running belt of the treadmills of 30 km/h speed modification.


Explanations of the figures:

For example, in a treadmill (10 km/h modification), the user has set the running belt level of acceleration [1] (in the Figure 42 this is the first straight line on the right) and the maximum current speed of 6 km/h. The graph determines the intersection point of the straight line corresponding to the acceleration level [1] and the speed value of 6 km/h. This intersection point corresponds to an acceleration time of approximately 75 sec (a more accurate value can be calculated using the formula

$$t = \frac{6 \text{ km/h} \cdot 131 \text{ c}}{10 \text{ km/h}} = 78,6 \text{ c}.$$

The determination of the running belt deceleration time is carried out similarly to the method described above.

#### HR sensor connection / disconnection menu

The transition to the HR sensor connection / disconnection menu is carried out from the **main menu**, as well as from the "Procedures" mode, by pressing the  button on the control unit.

To connect the HR sensor to the treadmill it is necessary to attach the HR sensor to the patient / user's body, turn on the sensor (in accordance with the operation manual of the sensor manufacturer). Press **Search for a wireless HR sensor** button in the **HR sensor connection / disconnection** menu on the control unit screen. At the end of the search process, connect the sensor to the treadmill by clicking on the line from the list of found Bluetooth devices with the name corresponding to the heart rate sensor. For name of the Bluetooth device corresponding to the sensor being used, refer to the operation manual of the sensor manufacturer.



To disconnect the HR sensor from the treadmill, press the **Disconnect wireless HR sensor** button in the **HR sensor connection / disconnection** menu on the control unit screen.

## **6 Package**

Components of the scope of delivery of the treadmills are supplied as follows:

- The treadmill is wrapped with foam rubber (or porilex) or polyethylene tape and placed into the consumer container's box #1 with fixation to prevent movement during transportation. The set of fasteners is packed in a plastic bag and placed into a consumer container with fixation to prevent movement during transportation.
- The isolating transformer is placed into the box #2 of the consumer container with fixation preventing movement during transportation; the built-in or portable control unit is placed into the box #2 of the consumer container in the original manufacturer's packaging, with the fixation against movement during transportation.
- The handrails, ramp, seats for medical personnel, front safety bar, as well as the remaining components of the treadmill scope of delivery are wrapped with foam rubber, polyethylene film and placed into the box #3 of the consumer container with fixation preventing movement during transportation.

Components of the scope of delivery of the body weight support system are supplied as follows:

The main framework, racks, base of the body weight support system, patient support vest are wrapped with foam rubber (or porilex) and polyethylene tape and placed into the consumer container's box #4 with fixation to prevent movement during transportation.

The shipping containers comply with the requirements of GOST 5959.

Shipping containers are laid out from the inside or upholstered with paper in accordance with GOST 515 and GOST 8828.

A packing list is included in each box, which indicates the following:

- manufacturer's name or trademark;
- name or type (brand, model) designation of the treadmill, body weight support system;
- number of items in the package;
- packer and supervisor reference number;
- packaging date;

total number of packages and number of specific package.

## 7. Maintenance



### **Attention!**

To maintain the appropriate performance of the equipment in accordance with its specifications and parameters declared by the manufacturer, the Purchaser, who has previously studied the documentation for the treadmills, the procedure for operating them, as well as safety precautions, or with the involvement of the appropriate specialists, should perform maintenance of the treadmills in accordance with this section.

Performing Maintenance is not the elimination of any defects in the equipment, and does not fall under the terms of the manufacturer's warranty, but is a preventive measure to exclude the appearance of various defects in the equipment and ensure the proper operation of the treadmill under normal conditions.

Maintenance includes a set of measures described in this section.



### **Attention!**

Disregard of the recommendations on the intended use of treadmills, contraindications, risks when using treadmills, safety precautions, recommendations for maintenance and safety checks can lead to injuries or deaths and / or may damage the treadmills.



### **Attention!**

In case of detection of any malfunctions and / or any suspicions for malfunctions and / or detection of any warning labels / plates on which the text faded and / or become illegible, operation of the treadmills should be immediately stopped. Afterwards, immediately inform the manufacturer or authorized service center on the detected malfunctions in writing.



### **Attention!**

During maintenance of the treadmills, the safety regulations must be observed.



### **Attention!**

Before performing the treadmill maintenance, it is necessary to disconnect the treadmill mains cable plug from the isolation transformer, and the isolation

transformer mains cable plug from the mains socket-outlet, and hold the treadmills powered off for 10 minutes.

### Preliminary inspection

Prior to each switch on, visually inspect the treadmills for the following:

- integrity of all cables;
- integrity of socket-outlets;
- state of connectors;
- state of cable glands.

### Urgent maintenance



#### **Attention!**

If it is required to perform urgent maintenance of the treadmill, its use prior to the procedure is prohibited.

Urgent maintenance is required in the following cases:

- if the running belt displaced to the edges of the treadmills;
- if the running belt poorly lubricated;
- if the damage of the body weight support system hoist rope is detected;
- if other treadmill defects were revealed.

Urgent maintenance may include the following items (depending on the found defect):

- Preliminary inspection for mechanical damage and defects of the treadmill components.
- Lubrication (see Section 0 – Running belt lubrication), checking and adjusting the running belt tension (see Section 0 – Checking and adjusting the tension of the running belt), centering the running belt (see Section 0 – Running belt centering).
- Cleaning the crossing optical sensors (see Section 0 – Cleaning the infrared crossing sensors).
- Replacing the fuse-links (see Section **Ошибка! Источник ссылки не найден.** – Fuse links replacement).

## Periodic maintenance

Periodic maintenance should be carried out regularly, with a frequency of 1 time per year or 600 hours of the training device operation, whichever comes first. After completion of periodic maintenance, information label shall be glued onto the treadmill, on which date of the current periodic maintenance, date of the next periodic maintenance, name and signature of the person in charge who performed the maintenance shall be indicated.

Scope of the periodic maintenance:

- visual inspection;
- running belt lubrication.

### Visual inspection

- Visual inspection for damage to the treadmills and their components and accessories, connecting cables;
- Visual inspection of mechanical parts of treadmills and wear of parts – the drive belt, the drive and driven shafts of the treadmill, elements of the lifting mechanism and the actuator, welding seams on the treadmill frame, the reliability of tightening all bolts and nuts.
- Dust removal from the treadmills.
- Checking the readability of warning labels on the information stickers, checking the integrity of the protective casing of the running belt drive.

### Running belt lubrication



#### **Attention!**

Do not touch the running belt while it is moving. The lubrication of the running belt should be carried out with an assistant who can press the “Emergency stop” button in case if an emergency stop of the running belt is required.

Lubrication of the running belt is carried out using a silicone tube syringe included into the treadmill scope of delivery (see Section **Ошибка! Источник ссылки не найден.** – Completeness).

Procedure for running belt lubrication:

- Fill the syringe with a silicone grease (the grease is included into the treadmill scope of delivery).

- Place the syringe silicone tube into the hole on the side surface of treadmill (see Figure 45). The silicone tube should be inserted in the hole at full length.
- Force the silicone grease out of the syringe.
- Lubricate the other side of the treadmill in the same way.
- Perform the run of the running belt at speeds of 3 ... 5 km/h for 2...3 minutes to evenly distribute the lubricant over the inner surface of the running belt.
- After running the treadmill, repeat the lubrication procedure above.
- After completing these operations, the treadmill is ready for use.

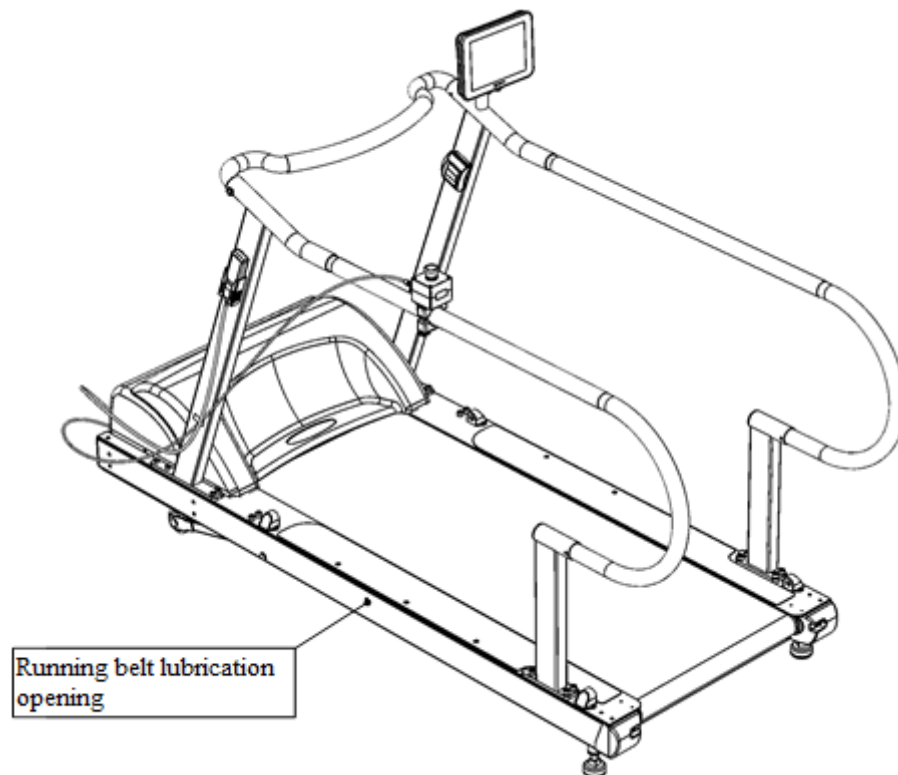


Figure 45 - Location of the running belt lubrication hole

#### Checking and adjusting the tension of the running belt

In the process of treadmills operation, the running belt tension may decrease. In this case, the running belt may slip relative to the input shaft of the treadmills, especially in cases where there is a significant load on the running belt.

Checking the tension of the running belt can be performed as follows:

- Visually inspect the surface of the running belt for mechanical damage. In the presence of the latter, it is recommended to immediately replace the running belt.

- Remove the casing of the treadmill drive.
- Put the running belt in motion at a low speed (1 ... 1.5 km / h) in the "Free running" mode, while taking safety precautions (make sure that no foreign objects get into the working area of the running belt drive).
- Step on a running belt. It is necessary to try to stop the running belt motion with your feet, while grasping the handrails on both sides with your hands. The running belt stop procedure can be performed by two persons.
- Hold the running belt for no more than 10 seconds. If the drive shaft and the input shaft of the running belt do not rotate during the time of the treadmill holding, then the tension of the running belt is acceptable. Otherwise, the tensioning of the running belt is required.



**Attention!**

In case of the running belt is held during the long time, the running belt drive overload protection function can be actuated, causing it to stop. In this case, you must reset this protection according to the method provided in Section **Ошибка! Источник ссылки не найден.** – Description of protection features.

Procedure for running belt tensioning.

The tension of the running belt should not exceed 0.4 ... 0.5%. To tension the running belt, it is necessary to mark two points on the surface of the running belt at a distance of 1000 mm from each other with a marker (see Figure 46). When doing this, the running belt must be completely loosened. After that, it is necessary to tension the running belt until the distance between these points becomes within 1004 ... 1005 mm (0.4 ... 0.5%) using screws that adjust the degree of tension of the running belt (see Figure 47 ) using a 10 mm hex wrench. When rotating these screws clockwise, the running belt is tensioned by shifting the corresponding edge of the rear shaft. When tensioning, it is necessary to monitor the uniform shift of each end of the rear shaft, otherwise the running belt will move from the center position to the edges of the treadmill as it is operating. If this happens, it is necessary to center the running belt according to the recommendations provided in Section 0 – Running belt centering).

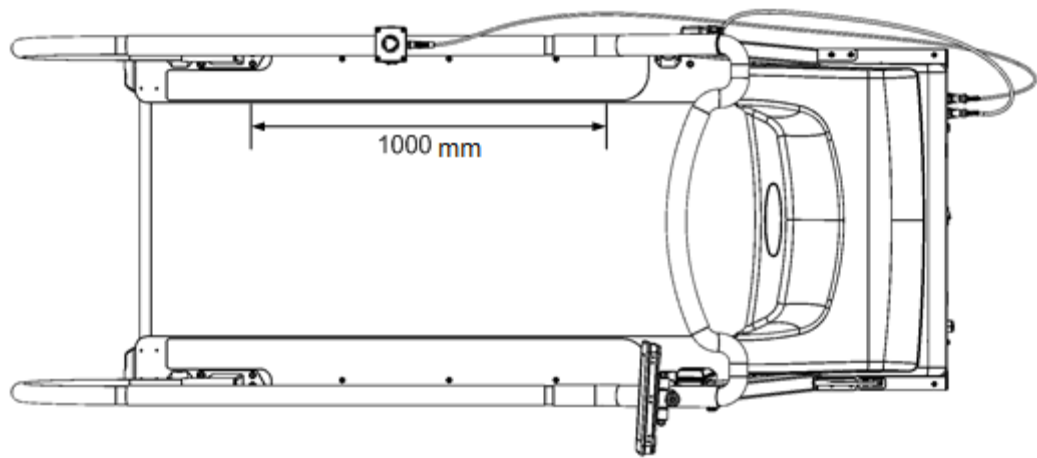


Figure 46 - Marking the running belt for its tensioning

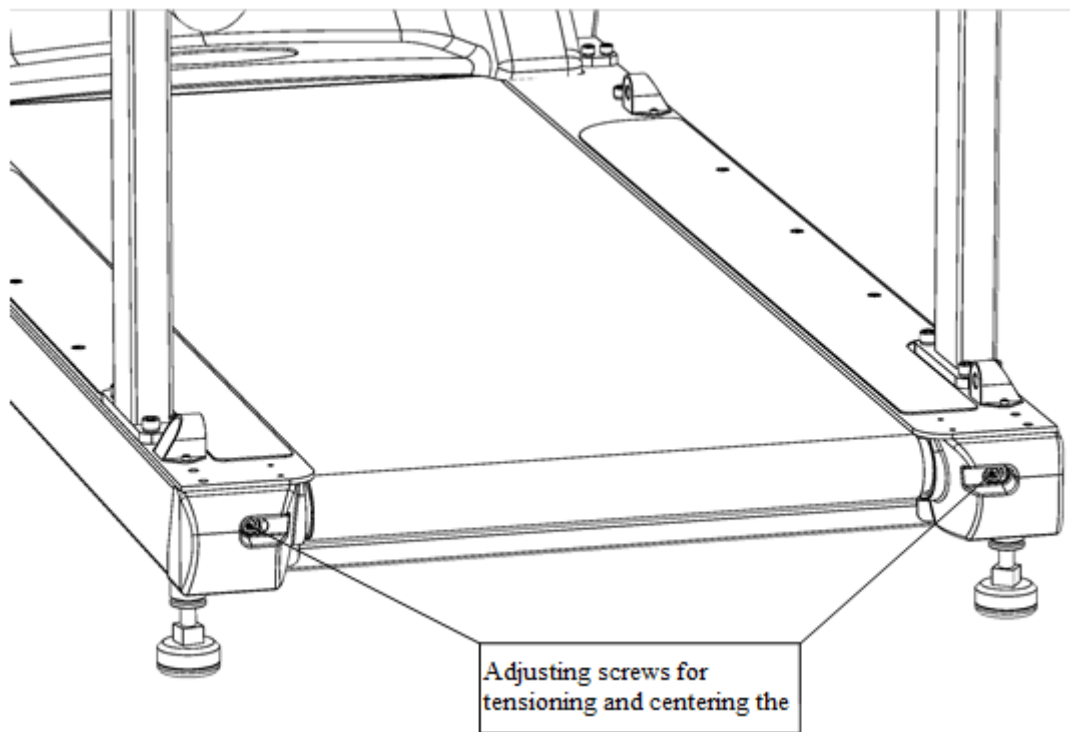


Figure 47 - Location of the adjusting screws for tensioning and centering the running belt

## Running belt centering



### **Attention!**

The rear shaft of the running belt is a dangerous area when it moves. It is necessary to take care that the clothing, long hair were at a safe distance from the rotating rear shaft. For safety reasons, the centering of the running belt should be carried out with an assistant who can press the “Emergency stop” button in case if an emergency stop of the running belt is required.

Is necessary, lubricate the running belt (see Section 0 – Running belt lubrication), as the presence of lubrication can facilitate the running belt centering procedure. Centering is performed on a tensioned running belt (according to Section 0 - Checking and adjusting the tension of the running belt) while the running belt is moving, using the adjusting screws located at the rear part of the treadmill (see Figure 47), using a 10 mm hex wrench.

Procedure for centering the running belt:

- Put the running belt in motion at a speed of 5 km/h, while the treadmill angle of inclination in relation to the horizon should be equal to 0.
- Monitor the motion of the running belt for about 2 minutes. If the running belt is centered correctly, it should not displace when moving towards the edges of the treadmill.
- If the running belt has displaced to any of the edges of the treadmill, return the running belt to the center position by rotating the left adjusting screw (see Figure 47). Turning the left adjusting screw clockwise shifts the running belt to the left edge of the treadmill, and turning the left adjusting screw counterclockwise shifts the running belt to the right edge of the treadmill.
- If the running belt has displaced relatively to the middle of the rear shaft insignificantly, the adjusting screw should be turned by a maximum of 1/4 of its full turn, in case of a significant displacement of the running belt, the adjusting screw should be turned by a maximum of 1/2 of its full turn.
- After performing the adjustment, the running belt motion should be monitored for about 2 minutes.
- For more convenient centering of the running belt, this procedure can be performed at various speeds of the running belt.



- The centering procedure can be considered completed, if the running belt remains exactly in the middle of the rear shaft when the running belt is moving at a speed of 10 km/h or more for at least 4 minutes.
- Operation of treadmills in various modes (for example, simulating an uphill situation) may cause displacement of the running belt from the central position). The lateral displacement of the running belt by no more than  $\pm 5$  mm does not require a repeated centering procedure. The running belt is considered to be correctly centered, if it remains in central position after 1 month of the treadmill operation.
- It is necessary to repeat the centering procedure, if the direction of rotation of the running belt has reversed.



### **Attention!**

To avoid the damage of the running belt, it is necessary to monitor the rate at which the running belt displaces towards the edges of the treadmill during the centering procedure. In case of quick displacement of the running belt towards the edges of the treadmill (if the rear and front shafts of the treadmill are not parallel, or if the running belt motion speed is high), stop the running belt immediately (for example, by pressing the “Emergency Stop” button). After that, the running belt centering procedure should be performed at low values of the speed of the running belt.

## 1.1 Calibrating the treadmill position

Treadmills are equipped with a sensor for the position of the treadmill in space relative to the direction of gravity (accelerometer) to measure the ascent angle of the treadmill in relation to the horizon. For proper operation of this unit, it is necessary to calibrate the position of the treadmill during installation (to place the treadmill in a level position with respect to the installation surface).

To perform the calibrating procedure, it is necessary to turn on the treadmill (see Section **Ошибка! Источник ссылки не найден.** – Procedure for switching the treadmills on/off and the general notes), go to the “Settings” mode, select the “**Calibrating the treadmill position**” menu item. Next, follow the instructions in the tooltips to adjust the treadmill legs (see Figure 48). Adjustment of the treadmill legs is performed using a 22 mm wrench by rotating them. Rotation of the leg clockwise (when viewed from above) lifts the treadmill, counterclockwise -

lowers it. When performing the calibration procedure, you should monitor that the height of the left leg is equal to the height of the right leg (using a ruler).

After completion of the calibration procedure, the leg should be secured with the locking nuts using a 24 mm wrench by tightening them to the upper position.

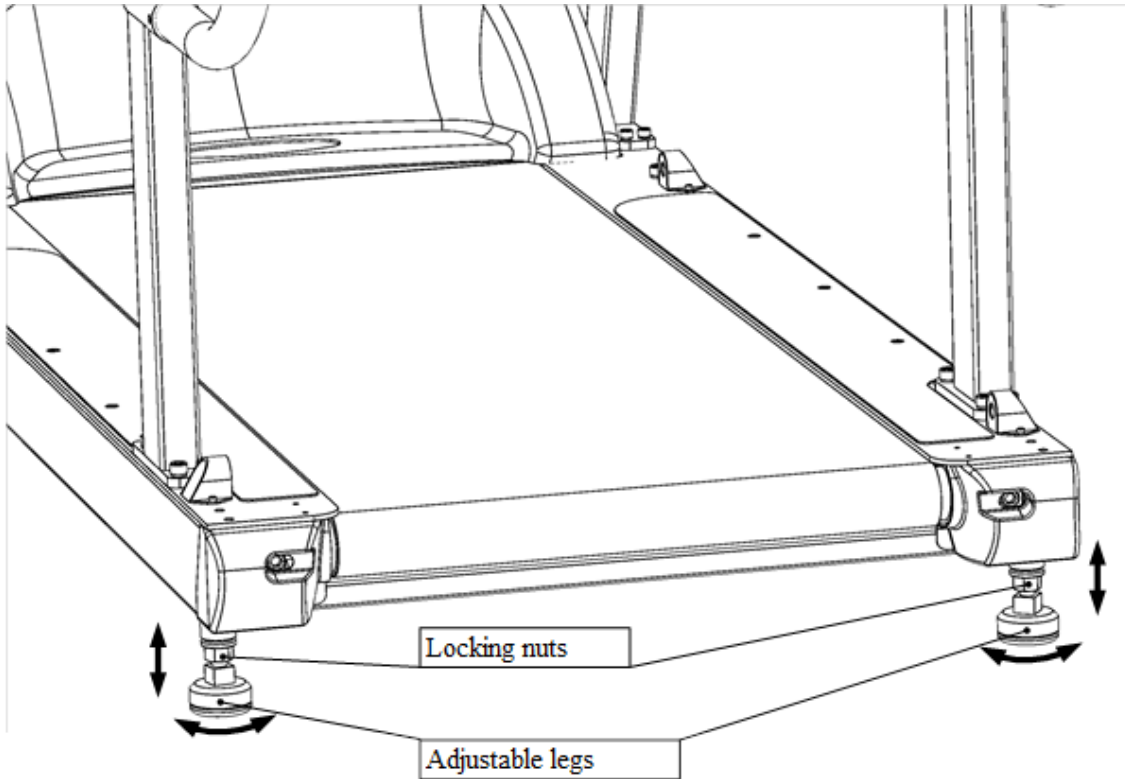


Figure 48 - Procedure for treadmill calibration

For a treadmill modification with a body weight support system, the calibration procedure is similar.

#### Checking the side surfaces of treadmills

In the treadmill design the side surfaces are provided, covered with a special anti-slip material. These side surfaces are intended for safe support of the user/ patient in situations where it is necessary to quickly leave the running belt. They should be regularly checked for wear and damage, and replaced if the latter are present.

#### Cleaning the optical infrared crossing sensors

The treadmill design includes the infrared crossing sensors located at the front and rear part of the treadmill. For proper operation of these sensors, it is necessary to regularly clean

the working surfaces of the sensors (see Figure **Ошибка! Источник ссылки не найден.**) using a soft absorbent cloth moistened with alcohol solution.



**Attention!**

Do not clean the infrared crossing sensors while the treadmill is operating.

### Manufacturer's guarantees

Manufacturer guarantees the compliance of treadmills with the requirements of these technical specifications subject to adherence to the conditions of operation, transportation, and storage.

Defects occurred due to the ingress of liquids inside the treadmill or body weight support system, or if the treadmill, body weight support system or their components have been subjected to external mechanical exposures (falls from a great height, damage to power and interface cables), are not a warranty event.

Guaranteed service life 12 months. The guarantee period is calculated since the date of sale.

Guaranteed storage life is 12 months since the date of manufacture.

## **Appendix A. External view of label plates and tags**

The figures below show a general view of the stickers on treadmills.

<b>MD</b>		<b>Reaterra series treadmills</b> without body weight support(running belt 1500/590 mm)	
	Power supply 220 V, frequency 50Hz, power consumption 2.5 kVa		Working mode: duty cycle 8h/1h
	OOO NPF Rehabilitation technologies 603136, Russia, Nizhny Novgorod, General Ivlev St. 39, ap 64		CPartner4U BV Esdoornlaan 13 3951 DB Maarn The Netherlands
Option:	14 km/h		RTR 101-02
			8 562314 325897
			0000
			Made in Russia

<b>MD</b>		<b>Reaterra series treadmills</b> with body weight support(running belt 1500/590 mm)	
	Power supply 220 V, frequency 50Hz, power consumption 2.5 kVa		Working mode: duty cycle 8h/1h
	OOO NPF Rehabilitation technologies 603136, Russia, Nizhny Novgorod, General Ivlev St. 39, ap 64		CPartner4U BV Esdoornlaan 13 3951 DB Maarn The Netherlands
Option:	14 km/h		RTR 101-01
			8 562314 698547
			0000
			Made in Russia

<b>MD</b>		<b>Reaterra series treadmills</b> without body weight support(running belt 1500/900 mm)	
	Power supply 220 V, frequency 50Hz, power consumption 2.5 kVa		Working mode: duty cycle 8h/1h
	OOO NPF Rehabilitation technologies 603136, Russia, Nizhny Novgorod, General Ivlev St. 39, ap 64		CPartner4U BV Esdoornlaan 13 3951 DB Maarn The Netherlands
Option:	14 km/h		RTR : 101-04
			8 562314 789547
			0000
			Made in Russia

<b>MD</b>		<b>Reaterra series treadmills</b> with body weight support(running belt 1500/590 mm)	
	Power supply 220 V, frequency 50Hz, power consumption 2.5 kVa		Working mode: duty cycle 8h/1h
	OOO NPF Rehabilitation technologies 603136, Russia, Nizhny Novgorod, General Ivlev St. 39, ap 64		CPartner4U BV Esdoornlaan 13 3951 DB Maarn The Netherlands
Option:	14 km/h		RTR 101-03
			8 562314 899544
			0000
			Made in Russia

<b>MD</b>		<b>Reaterra series treadmills</b> without body weight support(running belt 1500/590 mm)	
	Power supply 220 V, frequency 50Hz, power consumption 2.5 kVa		Working mode: duty cycle 8h/1h
	OOO NPF Rehabilitation technologies 603136, Russia, Nizhny Novgorod, General Ivlev St. 39, ap 64		CPartner4U BV Esdoornlaan 13 3951 DB Maarn The Netherlands
Option:	22 km/h		RTR 201-02
			8 562314 789654
			0000
			Made in Russia

<b>MD</b>		<b>Reaterra series treadmills</b> with body weight support(running belt 1500/590 mm)	
	Power supply 220 V, frequency 50Hz, power consumption 2.5 kVa		Working mode: duty cycle 8h/1h
	OOO NPF Rehabilitation technologies 603136, Russia, Nizhny Novgorod, General Ivlev St. 39, ap 64		CPartner4U BV Esdoornlaan 13 3951 DB Maarn The Netherlands
Option:	22 km/h		RTR 201-01
			8 562314 789547
			0000
			Made in Russia



CONNECTORS FOR EXTERNAL PERIPHERALS

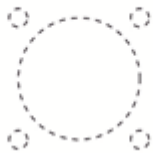
**X4**



**X5**



**X6**



**X7**



**X8**



TREADMILL POWER CABLE AND EARTH TERMINAL



the treadmill is designed for operation from an external isolation transformer MBFTM-43622E-002



**X3**



rated supply voltage: 230 V –  
rated supply voltage frequency: 50 Hz  
maximum power consumption: 2.4 kVA





Body weight support system indicator




Connector for built-in control unit


**X9**


 **CAUTION! HIGH VOLTAGE!**

 **X1**

ISOLATING TRANSFORMER POWER CONNECTOR





 **CAUTION! HIGH VOLTAGE!**


 ISOLATING TREADMILL POWER CONNECTOR


**X2**

Nominal output voltage	<b>230 V ~</b>
Rated output voltage frequency	<b>50 Hz</b>
Maximum power output	<b>2.4 kVA</b>



 **CAUTION! HIGH VOLTAGE!**

 name: **fuses PVS (10 X 38) 20A, EKF company**  
pvc – 10 x 38 - 20

	rated current:	<b>20 A</b>
	operating voltage:	<b>500 V~</b>
	operating voltage frequency:	<b>50 Hz</b>

information concerning the "time-current" characteristic is available in the fuse manufacturer's operating documentation.

Research and Production Company  
Rehabilitation Technologies LLC

**MMTm.305435.007-01**

Built-in control unit cable

Research and Production Company  
Rehabilitation Technologies LLC

**MMTm.305435.007-02**

Body weight support system power cable

Research and Production Company  
Rehabilitation Technologies LLC

**MMTm.305435.007-03**

Treadmill power cable

Research and Production Company  
Rehabilitation Technologies LLC

**MMTm.305435.007-04**

Transformer power cable