



*Allure*

*Vestra salus – nostra salus*

## **OPERATOR'S MANUAL**

**Melanger 80-3,0-400x3-50-A**

**Melanger 30-2,2-230x1-50-A**

**TU 5131-001-02351413-2016**

**«ALLURE» LLC**

**FEB 2020**

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| LLC «Allure» | Melanger 80-3,0-400x3-50-A (30-2,2-230x1-50-A) |
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## Identification Data for

|  |   |
|--|---|
| Type and designation                     | Melanger 80-3,0-400x3-50-A  |
| Serial number                            | №   |
| Production year                          | 2020  |
| The name and address of the manufacturer | LLC «Allure»<br>115477, Russia, Moscow, Kantemirovskaya str., 29, apt. 94 |
| Phone                                    | +7 (495) 989 4290   |
| Cell.                                    | +7 (965) 311 36 68  |
| E-mail                                   | sp79653113668@gmail.com   |

## General view of the Melanger



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**ATTENTION!**

**Before starting operating the Machine the Manual should be read by operators, repairers and others who are responsible for the transportation of the product, its installation, commissioning, service and maintenance.**

**Please read the operating instructions and the safety rules given in this manual.**

**Do not start work until fully reading and understanding the material contained in this manual and other documentation supplied.**

**All security recommendations in the manual are obligatory.**

**Manual must be kept in accessible place for service personnel.**

**In addition to the measures referred to in the Manual, the law on the bases of labour protection and the rules for accident prevention and environmental protection in accordance with applicable laws should be observed.**

**Security must be in first priority when using the Melanger.**

**Manual does not reflect the minor design changes in equipment made by the manufacturer after the signing of the release of this guide, as well as for accessories and documentation coming with them. It only means that Melanger is improved to better meet your requirements.**

**ATTENTION!**

**Operating manual applies to the Machine with complete set of all units and does not take into account the changes reflected in the contract.**

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# 1. Introduction

This "owner's manual" (the Guide) on the Machine should be seen as an integral part of the Machine and must be accessible for maintenance personnel.

Purpose of these guidelines is to provide all the information needed for transportation, commissioning, operation and maintenance of the product. The Manual provides guidelines for the safe, appropriate and cost-effective operation of the Machine. For the units of the Machine, for which it is appropriate, the Guide includes instructions for maintenance, replacement and adjustment. Compliance with these instructions helps avoiding danger, reduce downtime and repair costs, increase reliability and extend the lifetime of the Machine.

This guide has the sign of attention, with the following meaning:



*The sign is put where it is necessary to be especially careful, precisely follow the requirements and instructions to avoid violations of the technological process and breaking the Machine.*



*Only a thorough daily implementation of guidelines to ensure the safety, maintenance of the Machine with care can ensure successful operation!*

*Failure to comply with the requirements of this manual frees the manufacturer from liability.*

*Use of the Melanger for other purposes than specified in this guide, is not permitted. The company "Allure LLC" is not responsible for damage caused by non-compliance with instructions and guidelines outlined in this Manual.*

If there are issues that you cannot resolve yourself, consult with the customer service of the "Allure" company



*Any request to perform work by our specialists should have indication to the model of Machine, serial number and the contract number.*

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## 2. General information

### 2.1. Designation of the Machine

This guide applies to the Melanger 80-3,0-400x3-50-A (30-2,2-230-25-A), hereinafter the Melanger, designed for producing chocolate, masses, fillings from its ingredients.

### 2.2. Personnel qualification



*Installation, commissioning, operation, maintenance and repair is allowed by personnel qualified and trained to work with Machine . Staff qualification must be proved by proper documents.*

*The owner or his authorized representative is responsible for training the untrained personnel and the necessary training of qualified personnel of the rules of safe operation and maintenance of Machine.*

*The staff which is being trained should work on the Machine only under the supervision of an experienced person authorized to provide training.*

*Staff training to operate the Machine by the LLC "Allure" company specialist can be done at the time of commissioning, or on the LLC "Allure" factory facilities.*

We recommend the company, which uses the *Melanger*, To Issue internal instructions, taking into account the professional expertise of the staff and, in all cases, documenting studying this Manual and implementation of instruction or training.

- |                              |  |
|------------------------------|--|
| <b>Operator</b>              | <ul style="list-style-type: none"><li>• Trained personnel/specialist</li><li>• Instruction at the workplace</li><li>• Training by the manufacturer</li></ul> |
| <b>Service-mechanic</b>      | <ul style="list-style-type: none"><li>• Specialist</li><li>• Instruction at the workplace</li><li>• Training by the manufacturer</li></ul>                   |
| <b>Service - electrician</b> | <ul style="list-style-type: none"><li>• Specialist</li><li>• Instruction at the workplace</li><li>• Training by the manufacturer</li></ul>                   |

The management of the company operating the melanger should periodically check the qualifications of the personnel and the safety of its work.



*Please make an entry in the registry log of "Registration of staff development and maintenance verification ".*

Failing to fill the log can lead to voiding the manufacturer warranty service for the Melanger.

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## 2.3. Declaration of conformity

During the design of the Melanger, when selecting materials for the Melanger parts and its components, when selecting components, and in the manufacturing process of the Melanger, the Melanger safety was ensured in accordance with the following European standards, directives and safety standards:

- (E)N 954-1 safety of machinery. Details of control systems for safety. Part 1. The basic principles of design.
- EN1005-2 safety of machinery. The physical characteristics of the person. Part 2. Manual handling of machinery and component parts of machinery.
- EN1005-3 safety of machinery. The physical characteristics of the person. Part 3. Recommended limits of efforts for the operation of the machines.
- GOST r 51333-99 (EN 292-1-91, EN 292-2-91). Safety of machinery. Basic concepts, general principles for design. Terms, technology solutions and specifications.
- GOST r 51334-99 (eN 294-92), safety of machinery. Safety distances for the protection of the upper extremities from getting into the danger zone.
- GOST r 51335-99 (eNo. 349-93) safety of machinery. Minimum distances to prevent crush parts of the human body.
- GOST r 51337-99 (eN 563-94), safety of machinery. Temperature of those surfaces. Ergonomics data to establish limit values for hot surfaces.
- GOST r 51339-99 (eN 811-96), safety of machinery. Safety distances to prevent lower limbs from getting into the danger zone.
- GOST r 51343-99 (eN 1037-95), safety of machinery. Prevention of unexpected start-up.
- GOST r 51344-99 (eN. 1050-96), safety of machinery. Principles of risk assessment.
- GOST r 51345-99 (eN 1088-95), safety of machinery. Locking device of protective devices- principles of design and choice.
- GOST r MEK 60204-1-99 (eN 60204-1) safety of machinery. Electrical equipment of machines and mechanisms. Part 1: General requirements.
- EU directive on machinery (98/37/EG).
- EU directive on electrical equipment designed for use within certain voltage limits (73/23/EEC).
- STATE STANDARD 12.2.003-91. system of labour safety standards. Equipment production. General safety requirements.
- GOST 2.601-2006 ESKD. Operational documents
- GOST 9.014-78 ESZKS. Temporary corrosion protection products. General requirements.
- GOST 9.032-74 ESZKS. Varnish-and-paint coatings. Groups, technical requirements and symbols.
- GOST 9.105-30 ESZKS. Varnish-and-paint coatings. Classification and basic parameters of a method of staining.
- GOST 9.402-2004 ESZKS. Varnish-and-paint coatings. Preparation of metal surfaces before painting.
- GOST 12.1.003-83 SSSL Noise. General safety requirements.
- GOST 12.1.012-2004 SSSL. Vibration safety. General requirements.
- GOST 12.1.030-81 SSSL. Electrical Safety. Protective earth. Features.
- STATE STANDARD 12.2.003-91 SSSL. Equipment production. General safety requirements.
- GOST 12.2.062-81 SSSL. Equipment production. Protective fences.
- GOST 12.2.064-81 SSSL. Control of production facilities. General safety requirements.
- STATE STANDARD 12.2.124-90 SSSL. Food equipment. General safety requirements.
- GOST 12.4.040-78 SSSL. Control of production facilities. Mark.
- GOST 15.201-2000 development system and products. Products for industrial purposes. Procedure for development and production of products for production.

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- GOST r 27.403-2009 Reliability in engineering. Test plans to control the probability of non-failure operation.
- 112-78, GOST meteorological glass Thermometers. Technical conditions.
- GOST 2991-85 Boxes sealed the deal for cargo weighing up to 500 kg. General technical conditions.
- GOST 5264-30 manual arc welding. Welded connections. The main types, features and dimensions.
- GOST 6359-75 meteorological barographs of aneroid type. Technical conditions.
- GOST 7502-98 Roulettes, tapes measuring metal. Technical conditions.
- GOST 9150-2002 basic norms of interchangeability. Metric thread. Profile.
- GOST 10354-82 polyethylene film. Technical conditions.
- ISO 10374-93 analogue direct-acting electrical indicating and auxiliary parts to them. Part 7. Special requirements for multi-function instruments.
- GOST 11534-75 manual arc welding. Connections welded under acute and obtuse angles. The main types, features and dimensions.
- GOST 11708-82 basic rules of interchangeability. Thread. Terms and definitions.
- GOST 12969-67 Decals for cars and appliances. Technical requirements.
- GOST 14192-96 cargo marking.
- GOST 14254-96 degrees of protection provided by enclosures (IP code).
- GOST 15150-69 Cars, machinery and other technical products. Performance for different climatic regions. Category, operating conditions, storage and transportation in part the impact of climatic factors in the external environment.
- GOST 17187-81 sound level meters. General technical requirements and test methods.
- GOST 21130-75 electrotechnical products. Earthing Clips and grounding signs. Design and dimensions.
- GOST 23170-78 packaging for mechanical engineering production. General requirements.
- GOST 26582-85 food machinery and equipment. General technical conditions.
- GOST 30150-96 labelling machines. General technical requirements and test methods.
- GOST r 50342-92 thermoelectric converters. General technical conditions.
- GOST r 53228-2008 Scales manual actions. Part 1. Metrological and technical requirements. Tests.
- GOST r 52869-2007 pneumatic drives. The requirement for security.
- GOST r 51317.6.2-2007 electromagnetic compatibility of technical equipment. Immunity to electromagnetic interference technology applied in industrial areas. Requirements and test methods
- GOST r 51317.6.4-2009 electromagnetic compatibility of technical equipment. Electromagnetic interference from equipment used in industrial areas. Standards and test methods
- GOST r MEK 60204-1 2007-safety of machinery. Electrical equipment of machines and mechanisms. Part 1. General requirements
- RD 50-690-89, methodical guidelines. The reliability of the technology. Methods of evaluation of indicators of reliability by experimental data.

«Allure» LLC  
General Director



G.V. Korotkov

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## 2.4. Manufacturer's warranty and liability

The manufacturer guarantees the compliancy of Machine with the above standards, directives and regulations, subject to following the terms of transportation, storage, installation and operation of the Machine, as set out in this guide.

**The warranty period** of exploitation for which the manufacturer undertakes to repair or replace the Machine on manufacturer's fault, is **60 months** unless otherwise agreed in the contract.

Beginning of the warranty period is calculated from the day of commissioning of the Machine, but not later than **3 months** from the date of shipment of the Machine from the warehouse of the manufacturer.



*The manufacturer is not liable for injuries to persons or damage to property, if they are the result of:*

- non-compliance with the storage rules set out in this Manual;*
- accidental or not unintended operation of the Melanger;*
- improper handling with the Melanger on maintenance and operation;*
- non-compliance to Manual instructions on any of the stages of operation the Machine;*
- operation of the Machine with improperly installed, or defective safety devices, as well as when dismantling or ignoring them;*
- changing parameters or design of Machine, not confirmed with the manufacturer;*
- increased wear because of the lack of maintenance;*
- improper repairs.*

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## 2.5 General appearance and composition of the Melanger

General view of the Melanger, the location and designation of parts is presented in Fig. 2-1. List of components of the Melanger is given in table 2.1.

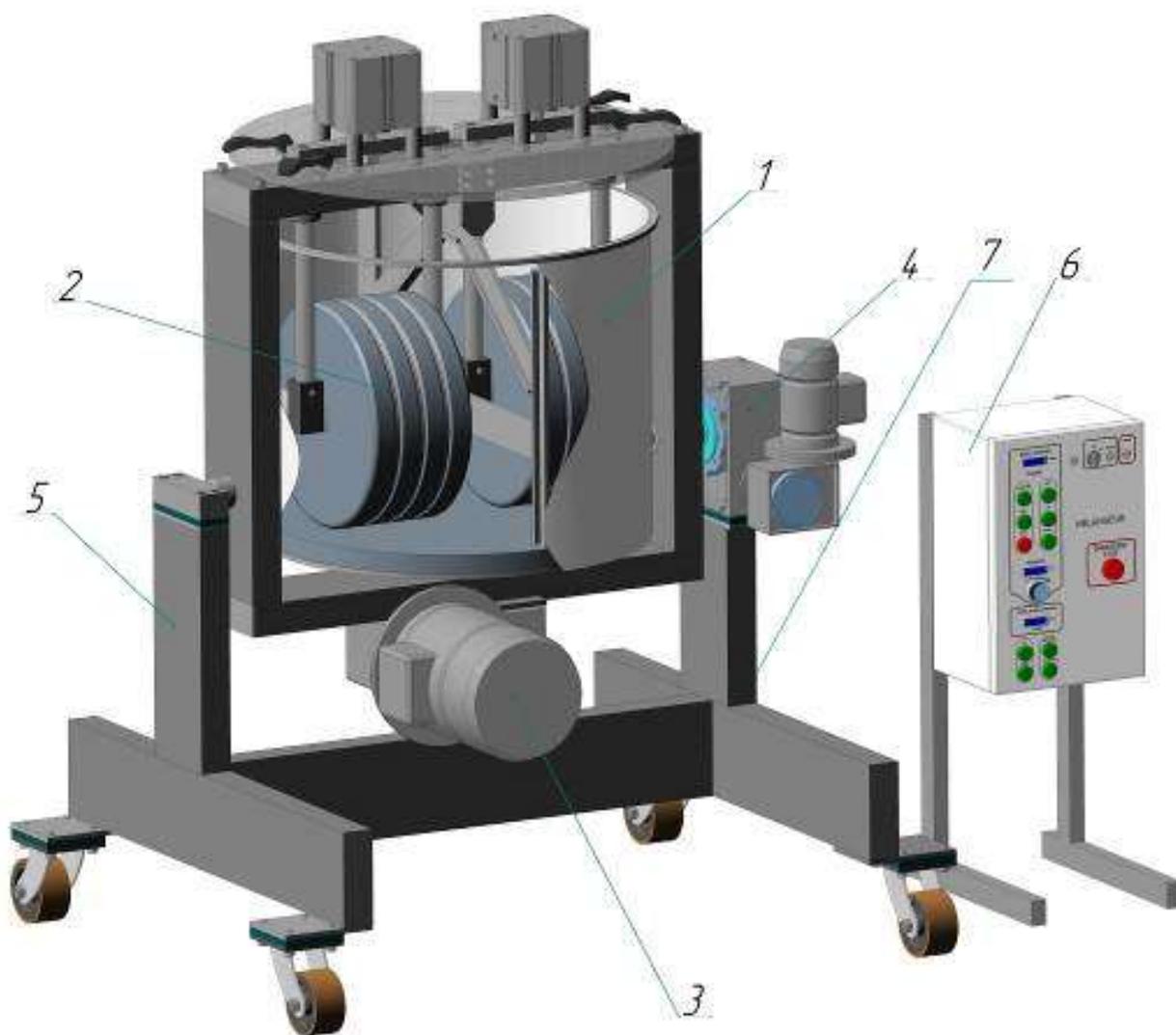


Figure 2-1

**Note:** Control cabinet 6 is mounted on an additional rack.

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Table 2.1 List of components of the Melanger

| <b>№ p/p</b> | <b>The name of the node</b>   | <b>The number of the position in Figure 2.1</b> |
|--------------|---|---|
| <b>1</b>     | <b>2</b>  | <b>3</b>  |
| 1            | The bowl made of stainless steel, which is mounted in the bottom of the granite drive | 1   |
| 2            | A pair of granite runners with independent pneumatic pressuring                       | 2   |
| 3            | The main electrical drive, consisting of the motor and the Motor reducer              | 3   |
| 4            | The tilting mechanism   | 4   |
| 5            | The Frame   | 5   |
| 6            | The Control cabinet   | 6   |
| 7            | The place of Grounding the framework  | 7   |

## 2.6. Principle

Equipment construction consists of carrier frame 5 and turning module with bowl 1 made from food grade stainless steel. The main unit of equipment is turning module, consisting of the frame with the main motor 3, rotating the Bowl 1 and two runners 2. The bottom of the bowl and two runners are made of a hard type of natural granite. Suspension of runners to the frame is independent. Pressure of granite runners to granite bottom of the bowl is via two independent pneumatic cylinders. Rotation of the bowl is done by electric motor through reducer. While rotating the bowl the grinding and mixing of the components on the bottom of the Bowl by granite runners is performed. Mixing and removal of chocolate from the walls of the bowl is done using the stationary blades. Rotary module 4 provides the rotation of the bowl and the tilting via a reducer to unload the finished chocolate. Control cabinet 6 is mounted on a special stand or frame of

## 2.7. Operation

The controls are located on the Melanger control cabinet (fig. 2-2).

The operation of Melanger is done via the signals sent from the Cabinet Office.

- The toggle switch 1 is used to turn on/off the power of Melanger,
- The button 3 is designed for emergency stop
- The indicator 5 "READY" led lights up when toggle switch 1 is turned in position "ON".
- The indicator 7 shows the power consumption (kW) of the Melanger,
- The toggle switch 18 is for switching the Melanger bowl mode ROTATION or TILT
- The led indicator 8 will light up when there toggle switch 18 is switched to ROTATION;
- The button 9 is to switch ON the Bowl rotation mode;
- The button 10 is designed to switch OFF the Bowl rotation mode;
- The speed controller with the scale 12 is to adjust the speed.

Turning the control knob will change the rotational speed of the Bowl from 0 to 130 RPM.

The speed value (RPM) is displayed on the display 11.

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- The joystick 14 is to lift UP the granite wheels,
- The regulator 15 is to adjust the force pressure of granite wheels to bottom of the Melanger bowl at a range of 0-4 Bar. The value is displayed on the indicator 13.
- The indicator 6 lights up when toggle switch 18 is switched to TILT.
- The buttons 16 and 17 are to tilt the bowl UP and DOWN.
- The regulator 19 shows a current temperature of the product. Also is possible to adjust a maximal temperature of the product. The Machine will support the adjusted temperature in automatic mode during the entire work cycle.

When the surge protection goes off, the Melanger automatically shuts down.

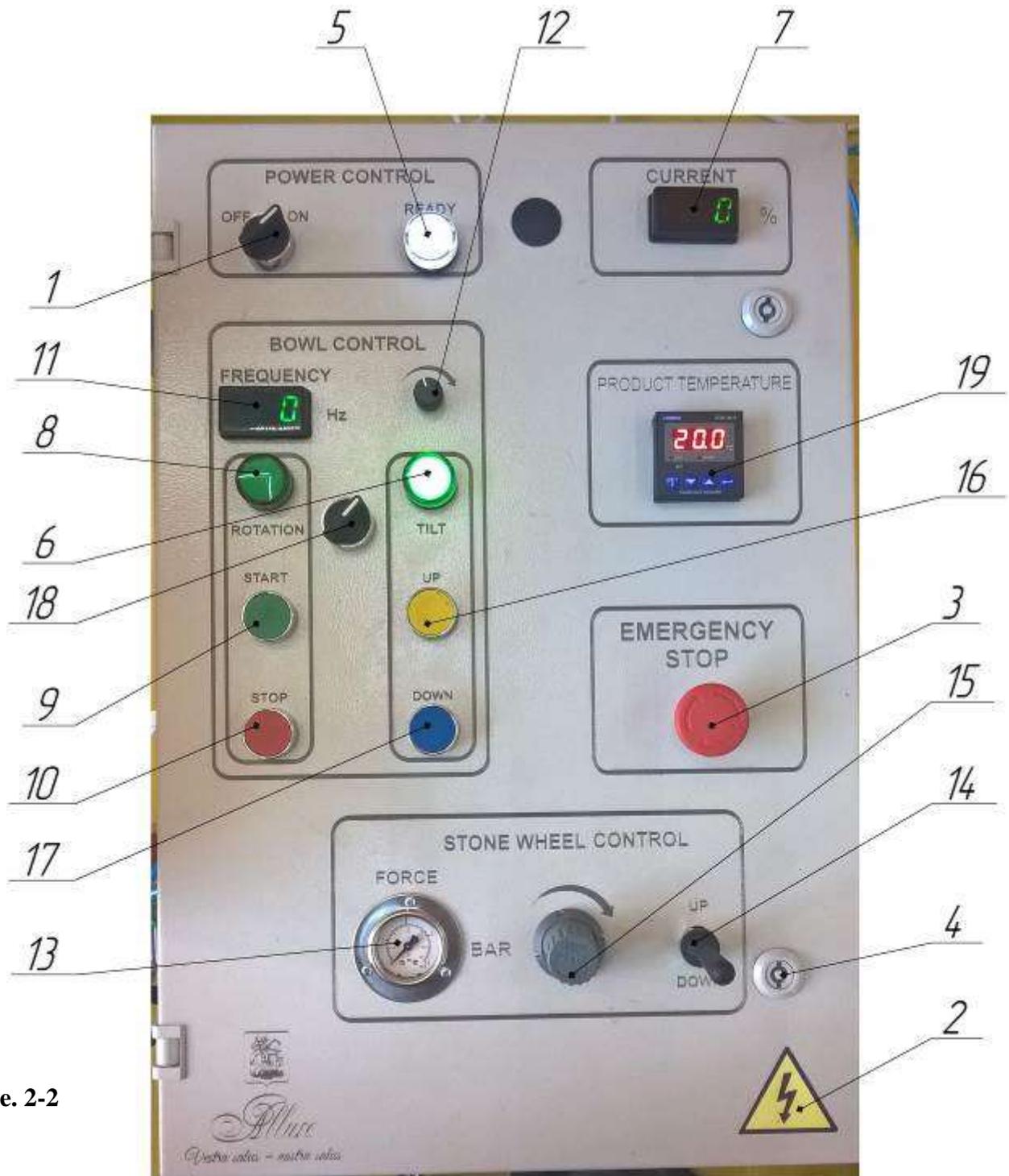


Figure. 2-2

|              |  |
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### 3. Technical data and specifications

#### 3.1. Technical characteristics of the Melanger

Main parameters and dimensions shall be in accordance with table 3.1.

Table 3.1

| Parameters of the Melanger / Model                       | M30 (30 kg)                  | M80 (80 kg)                    |
|--|------------------------------|--------------------------------|
| Characteristics of the power supply                      | 230V (400V) : 50/60Hz        | 400V (230V): 50/60Hz           |
| Main drive power, kW                                     | 2.2 / 2.95                   | 3 / 4.02                       |
| Product batch Max, kg                                    | 30                           | 80                             |
| Current no more than, Amps                               | 8.5/8 (4.9/4.7)              | 6.7/6.3 (11.6/10.9)            |
| The power of pressing granite runners, kg                | 0-385                        | 0-654                          |
| Air pressure MPa / max air flow l / min                  | 0.4/0.1                      | 0.4/0.1                        |
| Max revolutions at 50 Hz, rpm                            | 90/108                       | 100/120                        |
| Dimensions of the machine / packaging, not more than, mm | 1100*700*800 / 1200*800*1200 | 1350*740*1070 / 1400*1050*1080 |
| Cabinet dimensions, mm                                   | 1280*400*630                 | 1280*400*630                   |
| Net / gross weight kg                                    | 273/323                      | 406/445                        |

#### 3.2. Electric connection of the Melanger

Four-wire power supply system with protective (PE) conductor. Melanger is powered by electric power from a three-phase or single-phase alternating current network with the following characteristics:

- voltage 230x1 B±10%; 400x3 B±10%
- frequency of 50 –60Hz;
- power, not less than 3,0 kW.

### 4. Safety

#### 4.1. General requirements for the safety

The Manual provides the basic safety instructions on handling Machine, including transportation, storage, operation, maintenance, repair.

Safety at work on the Machine is ensured activities in the design of the Machine in accordance with the requirements laid down in European standards, norms and guidelines. Despite this, the Machine can be dangerous in cases of misuse by unqualified personnel or use for other purposes.

The danger situation is possible:

|              |  |
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- for the health and life of the operator or third party;
- for the machine and other property.

Any person who maintains moving the Machine, its commissioning, maintenance and repairs, must read and understand this manual and in particular the section "safety requirements" and strictly implement the guidelines requirements!

Requirements for security, besides this chapter are contained in the relevant sections of the Manual and applications delivered.

The following safety instructions must be observed in addition to the General requirements for the safety and injury prevention.

## 4.2. Safety measures

### 4.2.1 The danger warning Signs

In this guide, apply the danger warning signs, have the following meanings.

|   |  |
|---|--|
|  | <p><b>Mechanical danger that threatens the life and health of people, and can also cause great damage to property.</b></p> |
|---|--|

|   |  |
|---|--|
|  | <p><b>Electric danger that threatens the life and health of people, and can also cause great damage to property.</b></p> |
|---|--|

The Melanger danger warning symbols, with the following meanings.

|   |   |
|---|---|
|  | <p><b>Electric danger that threatens the life and health of people, and can also cause great damage to property. The sign is located on the control cabinet door figure 2-2. (POS. 2)</b></p>   |
|  | <p><b>The "Grounding". Place the ground wire connection is shown in Fig. 9 Melanger hull 2-1 (POS. 7). The spot of the grounding wire connection control cabinet housing the electrical cabinet door is indicated on Figure 4-1. (POS. 3)</b></p> |

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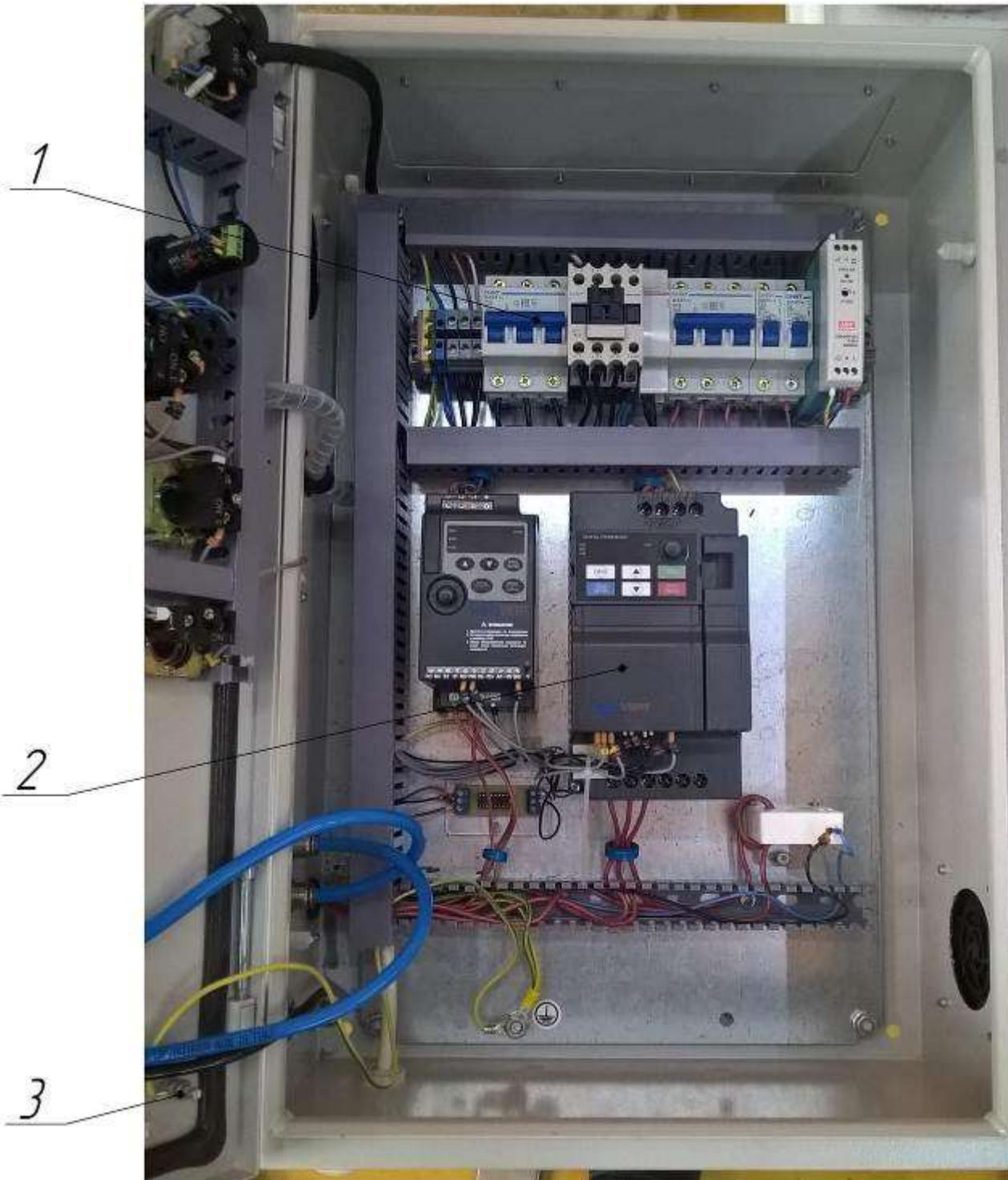


Figure 4-1



**Inattention to warning signs and non-compliance with the safety instructions can lead to serious consequences for the health of the personnel and material damage!**

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***Damaged and lost characters must be restored without fail!***

#### **4.2.2. Protective and safety devices**

To connect electrical equipment to the mains, as well as to disconnect from the network during a break in work or in emergency situations, a special input switch with a device for locking it in the disconnected state is provided (position 1 of Fig. 4-1).

Access to the control cabinet is excluded by locking it with a detachable key (pos. 4 fig. 2-2).

Protection against spontaneous switching on of the drive when restoring a suddenly disappeared supply voltage is provided by a frequency converter (position 2 of Fig. 4-1), which sets zero control signals at its outputs after power is restored.

Protection of electric motors and control circuits against short circuit currents and overloads is carried out by circuit breakers with thermal and current protection, Fig. 4-2, where:

- QM - the main switch.
- KM - emergency stop contactor.
- Q1 - automatic control circuit breaker (temperature controller, power supply unit 220 VAC / 24 VDC.
- Q2 - circuit breaker of the main drive (rotation).
- Q3 - circuit breaker drive rotary mechanism.
- Q4 - circuit breaker for the cooling fan of the main drive.
- PS - power supply unit 220 VAC / 24 VDC

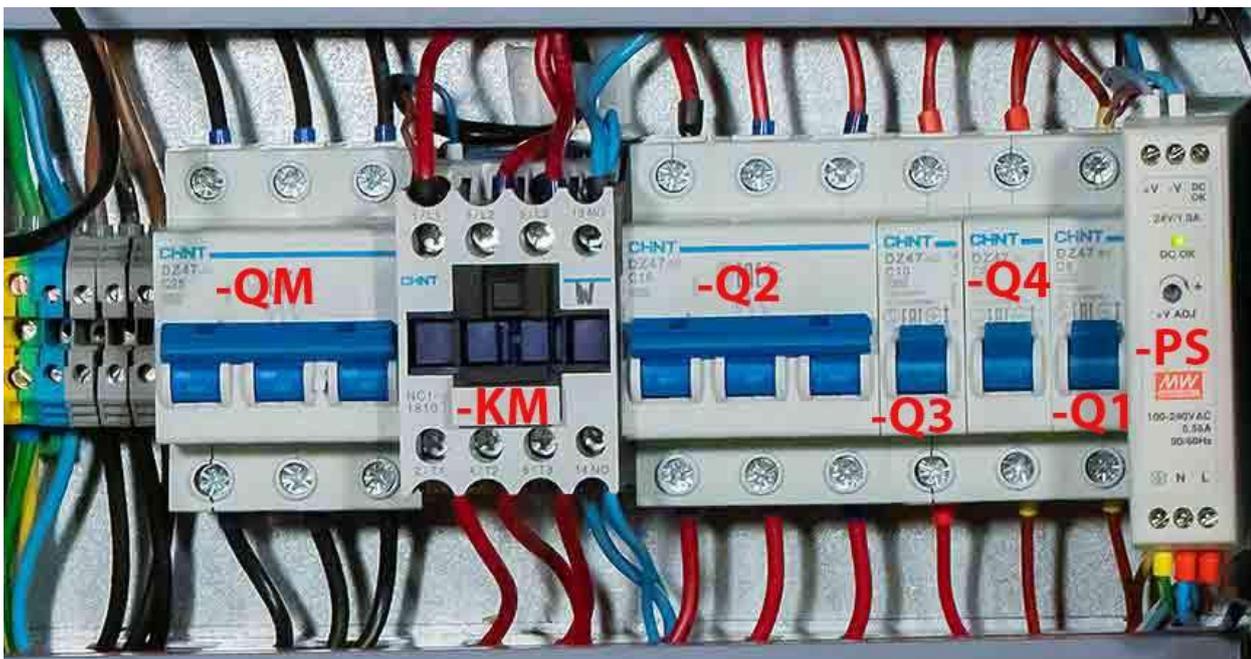


Fig. 4-2

The most likely reasons for the protection to operate: jamming, failure or overheating of the engine, deviation of the electrical network parameters from the norm.

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### 4.2.3. Requirements for service personnel

#### *General requirements for service personnel*

Personnel authorized to work with Machine, as well as to commissioning, maintenance and repair the Machine, is obliged to:

- get health and safety training in accordance with the manufacturer's instructions, developed on the basis of the operating instructions, standardly applied safety instructions;
- familiarize with the General rules of operation and maintenance of the Machine with safety instructions contained in this manual;
- familiarize with constructive and technological properties of the Machine and attend a special instruction on the work of the Machine of this model.



*Responsibilities on maintenance of the Machine should be clearly defined and strictly adhered, that in the part of ensuring security - the competence of each employee is clearly defined.*

*It also means that operation on the Machine in special modes (for example, when setting up) may only be carried out by specially trained personnel!*

|  |   |
|--|---|
|  | <p>Work on electrical maintenance of Machine must be conducted by <b>two trained specialists</b>, having Permit to the maintenance of electric equipment with voltage up to 1000V.</p> <p>Unauthorized individuals in the service area of the Machine are <b>not allowed</b>.</p> <p>Before switching on the voltage after installation or repair of electrical equipment or after a long interruption, ensure <b>correct grounding</b>.</p> <p>The door of the control cabinet <b>must be locked with a key</b>.</p> <p>Access to the control unit to unauthorized persons <b>is prohibited</b>.</p> <p>Areas surrounding the control unit <b>shall not be cluttered or jammed</b>.</p> <p><b>Failure to comply with these requirements may result in electrical hazard or its risk possibility!</b></p> |
|--|---|

Dismantling or disabling any security devices is - unacceptable.

|   |   |
|---|---|
|  | <p>Working with disconnected security devices, gives rise to <b>all kinds of mechanical and electrical dangers</b>.</p> |
|---|---|

The operator must always maintain the Machine in perfect condition. Keep work area clean.

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|  | <p>If there is dirt or foreign objects, if there is no order in the arrangement of the workplace tools, devices, movable goods etc. - there is a <b>danger of confusion, slipping, or being hit</b> by falling heavy objects on lower limbs.</p> |
|---|--|

Errors, noises and obvious flaws shall immediately be reported by service personnel to the person in charge and recorded in the work registry. In the case of danger - Machine should be immediately shut down.

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## ***The use of personal protective equipment***

When operating the Machine the personnel, as appropriate, should use personal protective equipment:

- dust masks with appropriate filters (when shipping products or materials that emit harmful substances in the work area that can get into the lungs);
- durable thick gloves to protect hands from mechanical damage during technical maintenance and repairs;
- Sturdy boots with soles to prevent slipping (if slippery fluids are used in production) as well as protecting the operator legs from injuries (protection from pinching or falling objects);
- special robe, which could not catch hold of parts of Machine. Sleeves should be rolled up only inwards. Loose clothes, ties, neckwear, jewelry watches, rings, bracelets, etc. are dangerous;
- headdress, closing the hair;
- earplugs (hearing protection from noise) if necessary.

### **4.3. Safety measures during transportation and installation of the Machine**

Due to the diversity of factors to be taken into consideration starting-up and adjustment works are done by the service engineer of the "Allure LLC" company. It is desirable not only in relation to warranty terms, but also in order to:

- check the Machine (damage during transportation);
- training the customer's personnel;
- additional recommendations of the exploitation of the Machine, care and maintenance in good condition.



**During transportation no people should be in the danger zone!**

Manuals, scope of supply, marking, packing, storage, unpacking and transportation.

### **4.4. Safety measures when preparing the Machine**

Before turning on the Machine - make sure that its start is not dangerous for people around, remove from the Machine foreign objects out of the work zone, become familiar with the device, the principle of operation and control system of Machine.

Connect the machine to a low-resistance earthing guild.

After installation of the Machine, before connecting it to a power line, you must make the plant measurements of electrical resistance between earth bus and any metal part of the Machine with the elements of electrical equipment that may be energized above 25V through wire insulation breakdown. The measured resistance should not exceed 0.1 ohms.



**All metal parts of the machine (frame, motor housing), which may be at voltages above 25V must be earthed.**

Connection to power of the Machine must be carried out by a qualified and trained electrician. He must familiarize with electric diagrams and understand them, and ensure correct grounding connection of the Machine.

All switches must be turned to their original or zero position.

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The main switch on the control cabinet must be locked with the key in the "OFF" position in case if an electrician work for some reason has not been completed and the Machine remains unattended. A detailed description of the tests described in Appendix 1 "Electrical equipment". The case of cabinet has a degree of protection IP43 GOST 14254-96. Before the starting of work the control cabinet must be locked.

#### 4.5. Safety when operating the Machine

Do not disable the locks, foreseen in the wiring diagram!

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|  | <p>When you disable locks of Machine, foreseen in the wiring diagram it may lead to <b>all kinds of mechanical and electrical hazards</b>.</p> |
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|   |  |
|---|--|
|  | <p>When you turn on the mains switch, the input signal green led lights up, which signals the presence of voltage in the Machine.<br/>Neglecting this information increases the risk of <b>all types of mechanical and electrical hazards</b>.</p> |
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|   |   |
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|  | <p>Machine should be disconnected from the mains supply at the end of the work. Failure to do so leads to <b>an increased risk of electrical hazards</b>.</p> |
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|  |  |
|--|--|
|  | <p>After pressing the button 1 <b>on control unit</b>, the hazardous voltage remain on switch input contacts, and contacts of clamp terminal set. Disregarding this information increases the risk of <b>all types of electrical hazards that threaten the lives and health of people</b>.</p> |
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Do not use the Machine in a dangerous (for example, wet) environment because the humidity can cause short-circuits in the electrical system.

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|  | <p>When you use the Machine in a wet environment on the surfaces of the Machine, which typically do not have contact with powered parts and which the operator may touch, can <b>dangerous high voltage</b> appear.</p> |
|---|---|

Dangerous zone between the Machine and other equipment in the production room (if available) should be fenced or protected by the user.

Set the sufficient lighting of the workplace (not less than 150 Lux).

|   |   |
|---|---|
|  | <p><b>Do not</b> work in dark workplace in avoidance of operator's mistake and <b>breakdown of the Machine</b>.</p> |
|---|---|

Study the manual. Follow the recommended operation modes of the Machine.

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|---------------------|---|



Failure to follow recommended in the manual operation mode of the Machine increases **risk of damage** of the Machine and/or **injury to the operator**.

Machine is not intended for use with flammable and explosive materials.



When using inflammable or explosive materials, there is a **risk of fire and/or explosion**.

When using materials that emit harmful substances with concentrations exceeding the permissible limit, we recommend that you:

- identify the type of hazard;
- conduct a risk assessment that takes place during the Machine processes the product;
- develop a security system for this product;
- provide the necessary accessories, such as devices monitoring, or remove harmful substances, shut-off devices, quickly triggered before a dangerous product will get into the hands of others, due to the specifics of a particular production.
- to reduce the concentration of harmful substances in the air of the working area by the exhaust hood system and use a reliable ventilation in accordance with the characteristics of production and local regulations on labour protection;
- use of personal protective equipment.



Failure to follow the recommendations of this manual on transportation of hazardous materials, leads to the **risk of contact or inhalation of hazardous gases or dusts (risk of damage to the skin, eyes, and respiratory tract irritation, as well as disfunctions of the internal organs)**.



*Since the list of harmful materials is wide, this guide does not provide recommendations for all occasions.*

*Compliance of these recommendations does not exempt the user from performing of additional security measures due to the specifics of a particular production.*

Do not stand on the Machine in any case.



Failure to do so could result in **overturning the Machine, which leads to an increase in the risk of all mechanical hazards that threaten the lives and health of people, and can lead to great material damage**.

#### 4.6. The technical design changes



*Any modifications or changes in the Machine unauthorized by the manufacturer are not allowed for reasons of safety for people and the Machine.*

*The user can use the spare and wear parts recommended by the manufacturer only.*

*Otherwise, the manufacturer is not liable for the operability of the Machine.*

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## 4.7. Machine noise level

In standard operating conditions the Machine operator workplace noise level does not exceed 80 DBA. The Machine in typical conditions (grinding of 30 kg of cocoa beans, the noise level does not exceed 75 DB(a). Uncertainty of measurement of noise conforms to ISO 3746 and 95% probability with confidence equal to  $\pm 1.96 O_R$  of the measured values, where  $O_R = 3$  DBA.

Noise characteristics were measured in accordance with the methodology of ISO 3746-95 and ISO11204-95 in the light of the requirements of BS EN 415-3: 2000.



**At adverse operating conditions, when the average noise level for the 8 hour shift exceeds 80 DBA, one must use safety equipment (ear muffs, ear plugs), and/or reduce the time in these modes.**

The above values of noise level are not necessarily safe for work on the Machine. Despite the existence of a correlation between emitted and perceived noise, this cannot be used as a reliable option to determine whether or not you want to take further precautions.

Factors influencing the practical level of perception of the noise emitted include the characteristics of the working premises, other noise sources, etc. e.g. the number of Machines, and other related processes, as well as the time during which the operator is exposed to noise. However, the above information will allow the user to assess the dangers and risks faced by staff.

## 4.8. The residual risks

The personnel requirements of the above Melanger for this model reduces the residual risks to the level achieved in the same equipment, adequate security is proven experience of its operation.

However, the personnel must know and remember about the existence of residual risks, because the fulfillment of the above requirements **are not completely obviate the danger.**

# 5. Scope of supply, marking, packing, storage, unpacking and handling

## 5.1. Scope of supply

The scope of supply is provided in the packing list, which is composed in accordance with the contract for the Machine.

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## 5.2. Marking

5.2.1. Each Machine has on its frame side surface, a nameplate attached containing:

- The country of the manufacturer;
- Full company of the manufacturer;
- The mark of the manufacturer;
- The address of the manufacturer;
- Product model, serial number, year of manufacture;
- Power supply, voltage and frequency;
- Power;
- Weight.

5.2.2. The transport marking on the packaging contains:

Main inscriptions:

- Full or conventional name of consignee;
- The name of the destination (the station), and the short name of a transport route (road, if necessary);
- Name of reloading place (when necessary);
- Package number (in the numerator-the pack number in the lot, in the denominator-the number of places).

Additional inscriptions:

- Full or conventional name of consignor;
- Delivery point (the station) and the short name of a transport route (road, if necessary);
- Inscriptions of transport organizations.

Information box:

- The dimensions of the package, cm;
- NET and gross weight, kg;
- Cargo volume, m<sup>3</sup>.

Manipulation signs:

- "Beware - delicate";
- "The place of slinging";
- "Top, do not tilt";
- "Center of gravity";
- "Do not stack";
- "No Humidity".

5.2.3. Additionally cargo space is indicated by:

- model of the Machine;
- serial number of the Machine.

## 5.3. Packaging

Machine comes in a crate or a partial package on a pallet, film wrapped. The type of packing is negotiated with the buyer and is fixed in the contract on delivery.

All the Machine accessories, spare parts and documentation are packed in boxes, placed in a box for Machine packing or next to it (on partial packing) and securely fastened.

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*The manufacturer is not liable for damage of the Machine, occurred during the transport in package inadequate to normative and technical documentation of the manufacturer.*

### 5.4. Acceptance



*When receiving the Machine check the integrity of the packaging. The manufacturer does not hold liability for the Machine, delivered with damaged factory packaging.*

*Found damage should be confirmed by the forwarder by a note in the transportation documents.*

### 5.5. Storage

Storage of packaged Machine shall be:

-for any climate areas in heated and ventilated warehouses under the following conditions:

- ambient temperature: (+5-+40)°c;
- relative humidity: not more than 80% at 25°c;
- Dew is not allowed;
- the impact of corrosive gases is not permitted.

**Storage at temperatures below - 20°C may damage electronic components.**

|  |  |
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|  | Failure to follow recommended storage mode increases the <b>risk of damaging</b> the Machine and/or <b>injury to</b> the operator. |
|--|--|

Warranty storage period Machine in the factory packaging 1 year under specified storage conditions.

### 5.6. Unboxing

When unpacking, it is recommended that you first remove the top board of packing box and then the side boards. Care should be taken not to damage the Machine by the tools during unpacking



*Before unpacking the Machine should be kept under operating conditions temperature to align Machine temperature and facilities (usually 24 hours).*

*When unpacking, verify the completeness of the delivery against the packing list and/or for possible damage during transportation.*

*If there are discrepancies, please contact your manufacturer.*

### 5.7. Transport

Machine can be transported by any means of transport provided a reliable fixation and packaging ensured to keep from damage, in accordance with the rules of transporting goods, applicable for each mode of transport.

Transportation must be subject to the following conditions:

- ambient temperature: (-20 to + 50)°c;
- relative humidity: not more than 98 % at temperature of 25°C;
- Dew is not allowed.

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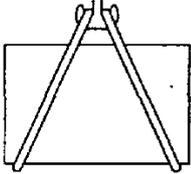


**Transport at temperatures below minus 20°C may damage electronic components.**



Failure to follow recommended guidelines conditions of transportation increases **the risk of possible damages** of the Machine and/or **injury to the operator.**

Before delivering the Machine carefully plan its unloading and transport to the place of installation. At the time of the delivery transport and lifting devices must be fully prepared. Before delivering the Machine remove possible obstacles for the transportation from the place of unloading to place of installation.



**When un/loading the presence of people in the danger zone is not allowed!**



**Personnel performing the work on the transport must have appropriate qualifications.**

**Before the beginning of works on transportation requires that staff are kept up to date with security requirements as described in this manual in the section "safety precautions during transportation and installation."**



**Incorrect handling can lead to an accident or cause damage or malfunction of Machine, for which the manufacturer is not liable.**



**Use vehicles only with sufficient carrying capacity, i.e. more than the transported weight!**

**The weight of packed Machine is specified on the box.**

**When you unload the Machine in packed form, make sure to follow the instructions marked on the outside of the package!**

**During transportation to the place of installation and when placed on the floor, ensure that Machine is not subjected to strong shocks or drops.**

Scheme of the strapping and moving of the Machine inside the factory in unpacked mode using hoisting equipment is shown in Figure (5.1). before moving the Machine hopper must be removed by unscrewing screws 1 (fig. 5.1)

Between the strapping and sharp edges at the appropriate points use pieces of corrugated cardboard for machinery protection.



**STRICTLY COMPLY WITH THE SCHEME OF THE STRAPPING AND INSTRUCTION SECURITY!**

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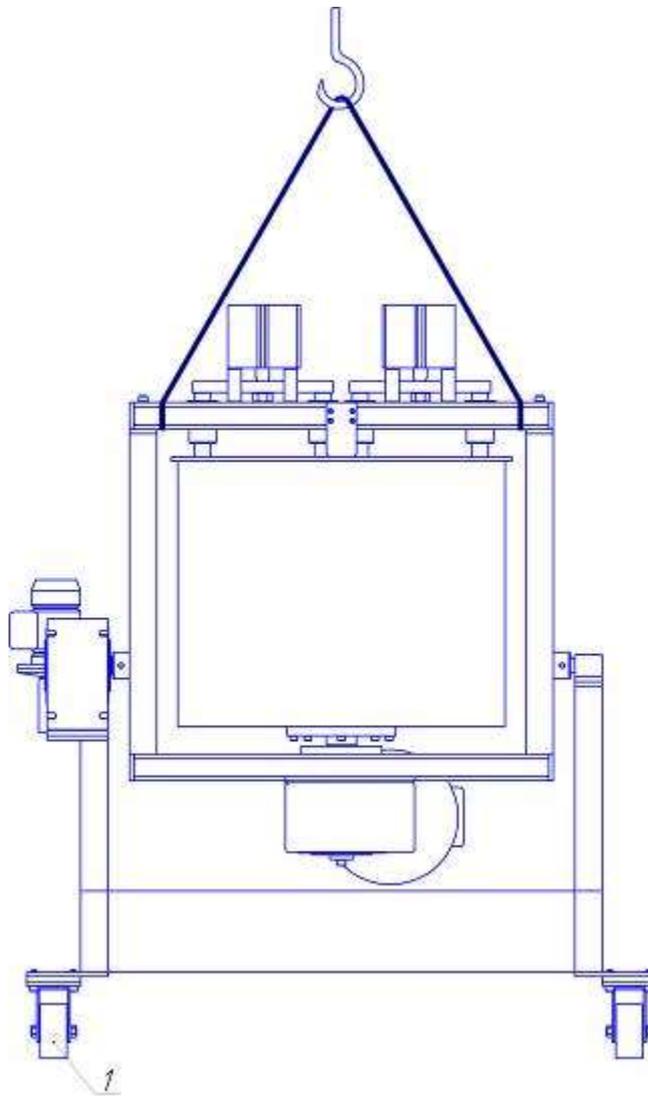


Figure 5-1.

## 6. Installation and initial start-up

### 6.1. Installation location and Foundation

The floor foundation should be firm for ensuring the maximum use of Machine capabilities during the specified period of service, and avoid the impact of Machine on the adjacent equipment.

Machine does not require special foundation and is not anchored to it. It is enough to ensure the flat floor of sufficient load-bearing capacity and space.

There must be sufficient space for the operator and the maintenance and repair (not less than 1m around the Machine).

### 6.2. The Climatic operation conditions

Machine is designed for operation in premises with artificially controlled climatic conditions, for example in closed heated and ventilated premises (no direct sunlight, rain, wind, sand and dust from the outside air, the absence or substantial reduction of impacts of condensation of moisture) under the following conditions:

- ambient temperature: (+5-+40) °C;
- relative humidity: not more than 30% at 25°C;

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- Dew is not allowed;
- the impact of corrosive gases is not permitted.
- The temperature variation of the workspace is not specified.
- Dust content of the work shop shall be within sanitary norms.

The place of installation of Machine should be selected in such a way as to exclude local heating or cooling (Sun, heating, draughts, etc.).  
 Melanger is not intended for use in explosive environments or near inflammable objects.

|   |  |
|---|--|
|  | If you fail to comply with the requirements, there is <b>the danger of fire and/or explosion</b> . |
|---|--|

 *The manufacturer is not liable for defects or injuries caused as a result of non-compliance with the requirements on service conditions.*

### 6.3. Installation of Melanger

Set the Melanger to work in accordance with clause 6.1 and 6.2.  
 You should do the following:

1. Free the equipment from a transport package.
2. Perform a visual inspection of equipment for mechanical damage.
3. Check the tightness of the threaded connections.
4. Install the equipment on site to use it on a flat and solid horizontal area. Adjust the wheels and lock the brake stops.
5. Install the control cabinet on the rack.

 *If it is necessary to open the control cabinet for maintenance and repair, this is allowed only to qualified staff!*

6. Attach electrical and pneumatic components to the corresponding elements of the control cabinet with electric and pneumatic connectors. Unwanted bends of electric cable and pneumatic tubes are NOT allowed!
7. Connect equipment to the pneumatic lines with pressure of 0.6 MPa.
8. Connect the equipment to a single-phase power supply 230 V / 50Hz. Connect cord (cable) should be placed in such a way as to prevent it from damage (bending, breaking, cut, etc.)

 *The electrical outlet must be grounded required amperage is 16 A.*

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## 6.4. Preparation to start-up Melanger



*Connecting the Melanger is maintained by the service-engineer of the company "Allure LLC" during commissioning and installation. The manufacturer accepts no responsibility for injuries and damage to the Melanger resulting from an independent user self start up.*

In accordance with the instructions of the application 1 "electrical equipment" connect Melanger to shop online and check reliability of grounding. The case of Melanger must be grounded grounding circuit connection to the earthing Stud.

## 6.5. The initial start

Operation of the equipment being maintained from the Cabinet box.



After connecting the control cabinet to the power supply the shown led shall lit to indicate the power in the line.



To turn the control cabinet on the Power control switch should be turned from position OFF to the position "ON". The light indicator "READY" shall lit and the digital indicators will display current parameters.



**ATTENTION!** *The operators working clothing should not have any hanging straps, belts etc., to avoid getting in the moving parts of the machine!*

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For starting the machine switch the toggle switch in position “ROTATION”, then press the button “START”. The bowl will start rotation.



The loading of ingredients is done as follows:

- stop the bowl rotation by pressing the “STOP” button;
- remove the front cover over the bowl by loosening the fixtures;
- start again by pressing the “START” button;
- adjust the rotation speed setting the frequency  $n$  turning the knob



(the frequency value will be shown on the digital display);

- adjust the pressure force of the wheels by adjusting the pressure regulator (For rotation control knob must be pulled from the cabinet itself, until it clicks).



(the pressure value will be shown on the manometer), lock the knob by pressing;

- load the ingredients making sure that the value on “CURRENT” display does not exceed «85»;

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- if the value reaches «85» or higher, stop adding the ingredients; if within 5 seconds the power does not come down below the allowed, then the rotation speed of the bowl should be decreased for 1-3 minutes, by turning the knob counter clockwise.



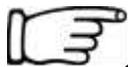
(after that you may return to the chosen parameter);

- continue loading observing the values on the “POWER” and bowl rotation speed;



**ATTENTION! Keep extreme caution while being close to working machine. To avoid injuries- any work inside the bowl while machine is running/bowl rotating - is PROHIBITED!**

- after finishing loading the ingredients stop the bowl rotation by pressing “STOP” button;
- replace the front cover over the bowl and fix its fixtures;
- start the machine into production by pressing “START” button;



**ATTENTION! The front cover for adding ingredients can be removed only after the bowl has stopped rotation!**



**ATTENTION! In the event of any emergency situation, the machine can be stopped by hitting the «EMERGENCY STOP» button!**



**IMPORTANT! After pressing «EMERGENCY STOP» button (turn the knob in the direction marked with the arrow). Melanger can be re-run not earlier than 60 seconds.**

It should be remembered that the grinding and mixing process is accompanied by the substantial generation of heat. For correct production of the mass its temperature should be controlled.



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To decrease the intensity of the heat generation process either the rotation speed of the bowl should be de-creased or the pressure of the millstones. The heat generation mainly depends on the bowl rotation speed. Lowering the temperature of processed mass is achieved by adjusting the speed of rotation of the tank. This can be done in manual and automatic modes.

To adjust manually to be rotated flywheel rotation adjustment tank, preventing rotation frequency below 35 Hz.

In order to control the maximum mass temperature was carried out in automatic mode, you must specify the required maximum temperature on the thermo controller (default 65 ° C is set).

This is done by pressing the "SET" and then pressing the "UP" or "DOWN" set.



**ATTENTION!** *Should an unplanned production stop be necessary the measures shall be taken to keep the mass in the melted state, using external heating by fan heaters or covering the machine with heat insulating materials. If none of the heat protection is possible, the bowl shall be discharged and cleaned from the mass.*

During the chocolate production the machine can be turned in the mode of Mixing without grinding by switching the joystick to position «UP»



The granite grinding wheels will be lifted in the upper position.

For lowering the millstones move the joystick to the «DOWN» position

After finishing the production of chocolate mass - discharge the machine.

The discharge process is performed as follows:

- stop the bowl rotation by pressing the button «STOP»;
- remove the front cover over the bowl by loosening the fixtures
- place the receiving vessel in the discharge area;
- tilt the bowl for the discharge, for this first turn the know to mode «TILT», then hold + press the button «DOWN». The bowl will start tilting.



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You may guide the flowing mass by the plastic or wooden paddles. The tilting will stop once the «DOWN» button is released. To stop the mass flowing – press and hold the button «UP» until the necessary position is reached



-perform a full discharge of the bowl, using the buttons «UP» and «DOWN»



*In order to avoid leakage of oil from the gear motor of the main drive, do not leave the bowl in an inclined position for a long time!*

- using the “UP” button, return the bowl to the vertical (initial) position and put the front cover back in place.

A new start-up of the equipment is carried out following the instructions given above. The operation of the “ROTATION” and “START” buttons is possible only when the bowl is in the vertical (initial) position.

## 6.6. The Emergency Shutdown Melanger

In emergency situations to stop the Melanger you must:

-Press the red button «**EMERGENCY STOP**» on the front panel of the control cabinet of Melanger. To unlock the emergency stop press the «**EMERGENCY STOP**» and turn the switch 1 (Figure 2.2), in position ON.

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## 7. Maintenance

### 7.1. General safety instructions for maintenance

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|  | <p>Melanger maintenance and repair work must only be carried out by trained, qualified and certified technicians.</p> <p>Before the beginning of works on maintenance service and repair personnel must familiarize with section "Security insurance".</p> |
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|   |   |
|---|---|
|  | <p>Before starting any maintenance work on Melanger avoid unintentional switching on. The power must be switched off (main switch in position 0) inside Cabinet Door where master switch is located should be Locked. We also recommend that you unplug the power connector and socket.</p> |
|---|---|

|   |   |
|---|---|
|  | <p>Hang a warning label on the control cabinet to avoid accidental pressing keys or switches.</p> <p>Install fencing to prevent access or interference by unauthorized persons.</p> |
|---|---|



*Regular maintenance is essential for safe and long Melanger perfectly work. The work described in this section must be carried out in a timely manner.*

*Please follow the maintenance work, in order to make an entry in the log book maintenance with a brief description of the work, as well as the executive in charge and the date of the work.*

*No log entries may result in denial of warranty service Melanger manufacturer.*

Maintenance on any subject you can get a free consultation by phone service.

### 7.2. Scope of maintenance work

The scope of works on maintenance service includes:

1. Checks to be done daily before machine is started;
2. Works performed monthly.

#### 7.2.1 Daily maintenance

1. Perform the external inspection of the Melanger.

Melanger must be kept clean. Dust can be removed from all surfaces (except the internal surface of the bowl) with a vacuum cleaner or a dry cloth, and when necessary damp cloth with neutral detergent, avoiding the accumulation and leaving of water on the surface.

2. Check all fasteners, retighten if necessary.

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## 7.2.2 Monthly maintenance

1. Visually inspect the absence of contamination on the surfaces of the runners adjacent to the axis of rotation. If necessary, clean them of adhered product residues.

Cleaning of the internal surfaces of the Melanger should be performed under the following conditions:

- (1) it is not allowed to rotate the tank with lowered millstones without water or processed product;
- (2) during the cleaning process pressure is not applied to the millstones;
- (3) the water temperature should not exceed 70 degrees Celsius;
- (4) the bowl rotation speed should not exceed 30 Hz;
- (5) the water level should be higher than the millstone axes (2/3 of the tank height);
- (6) The recommended time for rotating the tank with warm water is 15 minutes.
- (7) do not use chemical detergents for cleaning the machine!
- (8) not to allow even a small amount of processed mass in the tank to harden to avoid chipping of the millstones granite and breakdown of the drive!

In the course of the cleaning process and in the process of loading cocoa nibs into the Melanger, slight chipping of particles of granite parts of millstones up to 1 mm in size is allowed. During further work, fine particles are ground together with the mass, without deteriorating the quality of the final product and without harming human health.

- To prevent foreign particles from entering the final product, it is recommended to use the "Allure VF" vibrofilter with chocolate filter size up to 0.8 mm when draining the chocolate mass.

- In the process of the Melanger operation, the temperature of the motor-reducer rotating the tank is allowed up to 93 degrees Celsius.



***Maintenance of motor-gearbox is not required.***

After an year of operation, it is necessary to replenish the grease in the bearing of the tank rotation unit. To do this, unscrew the cap screw (Fig. 6, 7) of the filling hole. Insert the syringe firmly into the filling hole. Squeeze out 10 ml (half) of grease from the syringe, Fig. 8. Tighten the filler hole bolt.



Fig 6.



Fig 7.

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Fig 8.

## 8. Spare parts Order, call customer service

Spare parts, accessories, call customer service for warranty or post-warranty repair is carried out only on *written* application form.

The construction of the Melanger could be changed during the process of technical improvement. Thus in case of ordering of the spare parts, and requiring the service engineer the application should indicate the following points:

- 1) the model and the serial number of the Melanger. This number is indicated on the Machine marking plate, also in the manual's section "information on acceptance";
- 2) description of parts quantity.

To identify parts, we recommend that you use catalog of Assembly units and parts.

Components (bearings, electrical equipment, etc.) to acquire by type or number, put directly on them, indicating the master data or the position marked on the diagram.

For details of broken-down specify a brief description of the problems with the old part and, if possible, the reasons for which they have.

## 9. Memo for the User

An acceptable operational indicators:

- The Melanger Allure M80 at full load (80 kg) grinds the cocoa nibs with sugar to the dispersion of 30-35 microns in about 48 hours with the rotation of the bowl at frequency of 50 Hz. Reducing of speed to 25 Hz increases the grinding time by almost in 2 times.
- During the process of continuous work of the Melanger, natural wear of granite millstones and granite bottoms is allowed in 1-2 mm per year with an average load of 2 bar on the millstones.
- It is permissible to have insignificant presence (0.1%) in the loaded cocoa-grind small to 2-3 mm foreign inclusions (for example, pebbles), which will be grinded together with cocoa mass and will not lead to deterioration of the final product, and will not cause harm to health of the final product consumers.

The durability of the granite millstones depends on compliance with the rules of operation, including the rules for cleaning the internal surfaces of the Melanger. Cleaning of the internal surfaces of the Melanger should be performed under the following conditions:

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- (1) it is not allowed to rotate the tank with lowered millstones without water or processed product;
- (2) during the cleaning process pressure is not applied to the millstones;
- (3) the water temperature should not exceed 70 degrees Celsius;
- (4) the bowl rotation speed should not exceed 30 Hz;
- (5) the water level should be higher than the millstone axes (2/3 of the tank height);
- (6) The recommended time for rotating the tank with warm water is 15 minutes.
- (7) do not use chemical detergents for cleaning the machine!
- (8) not to allow even a small amount of processed mass in the tank to harden to avoid chipping of the millstones granite and breakdown of the drive!

In the course of the cleaning process and in the process of loading cocoa nibs into the Melanger, slight chipping of particles of granite parts of millstones up to 1 mm in size is allowed. During further work, fine particles are ground together with the mass, without deteriorating the quality of the final product and without harming human health.

- To prevent foreign particles from entering the final product, it is recommended to use the "Allure VF" vibrofilter with chocolate filter size up to 0.8 mm when draining the chocolate mass.
- In the process of the Melanger operation, the temperature of the motor-reducer rotating the tank is allowed up to 93 degrees Celsius.

#### 1. Preparation for cocoa nibs loading.

As when casting chocolate into the molds, the working surfaces of the Melanger (the bowl, the stones) should be previously heated a bit during nibs loading.

It prevents formation of lumps which are to be cleaned off manually by scraper.

#### 2. Cocoa nibs loading.

Turn on bowl rotation at 50Hz. Set pressure 0,5 bar. Lower the millstones.

Cocoa nibs load is performed by a scoop with volume of 1-2 liters. Set the pressure to 1.0 bar.

Perform an initial load of 8-10 scoops. Load the Cocoa nibs with frequency of 1-5 minutes. Wherein indicator data (indications) is/are to be watched and should not exceed 90%. By reaching 90% of load, the piling should be stopped.

Make a pause for 3 - 7 minutes until the load relieve to 70%. Continue downloading to 90% again. The pressure of the millstones can be increased to 2 bar.

#### 3. Sugar loading.

Sugar loading performs after cacao nibs grinding about 1 hour.

Before sugar loading the following parameters should be set: Bowl rotational speed – 50-60Hz.

Millstones pressure – 2 bar. Sugar loading performs as so as cacao nibs loading with controlling of load to 90%.

#### 4. Grinding process.

Grinding of an aggregation is performed with millstones pressure in 2 bar and temperature max 65°C (149°F).

The higher bowl rotational speed is the faster the temperature gains. If the current value of temperature exceeds the set value 1 degree more, the rotational bowl speed would automatically reduce to 33Hz.

In its turn, reducing of the bowl rotational speed leads to increasing of a grinding time. For time saving it's better not to allow an ultimate temperature, and, for example set a domestic fan with direction of airflow to the bowl.

Different additions may increase the grinding time. For example, adding of oats exceeds grinding time to 30 microns to 12 hours. To compensate for the increase in grinding time, it is permissible at the last hours of work to increase the pressure on the millstone to 3 bar."

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5. The Conching process.

If the dispersity of the mass has reached the desired value (for example, 30 microns), but the conching process has not yet been completed (the mass continues to give off an acidic smell), then it is necessary to raise the millstones and continue to rotate the bowl until the end of the conching. We recommend after 30 minutes of conching, lower the millstones for 2-5 minutes to improve the mixing of the mass.

6. Discharge and cleaning.

Cleaning should be performed only with warm water (not more than 70 C degrees) without any cleansers, once. Pour boiling water is strictly prohibited, it can lead to pasting the granite bottom of the tank. Warm water should be poured in when the millstones are closed on 2/3. Switch on the bowl rotation for 5-15 minutes for cleansing of the milestones.

Clean hard-to-reach places with a scraper or brush. After the discharge the bowl should be wiped by paper towels. Let it dry up before the next load. To dry the Melanger, tilt the tank and direct the stream of warm air from the heater with a fan into it.

When change is from the one sort of the dark chocolate to the another sort of the dark one, it's not necessary to wash the Equipment.

7. If the electricity has been shut down.

In case when the electricity has been shut down, the mass should be kept warm by all means not less than 40 degrees by Celsus. For example, cover the bowl with a blanket.

If the temperature got less than 40 C degrees, and the electricity has not been turned on yet, the mass should be urgently discharged.

To incline the bowl the electric plug should be pulled out of the power outlet.

After that the electric motor, inclining the bowl (little one, from the side), cover should be opened and the fan impeller should be twisted manually to incline the bowl on the needed side.

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