



OPERATING INSTRUCTION

WHIRLPOLISHING MACHINE

type EC6



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1 GENERAL RECOMMENDATIONS

1. EC6 whirlpolisher is designed for wet or dry grinding and polishing of jewelry products, precious stones, items made of plastic or metal, as well as other materials.
2. It is recommended that the machine should be operated by one or two operators, who are responsible for the technical condition of machine. Careful operation and maintenance will ensure a constant willingness to work.
3. The technical operating, described in the following instruction needs to be carried systematically.
4. Minor defects should be recognized and then immediately repaired, which will prevent from future expensive and long-term repairs.
5. It has been proved that if used acting on the instruction, the machine will failure freely work for at least 2000 work-hours with the use of hard grinding charge.

In EC6 polishing machines it is possible to run the following types of processing:

- Wet and dry grinding
- Wet and dry polishing

Before operating the machine, make sure you know and follow these rules:

- Keep the machine and the work stand clean
- After ending work clean the machine with pure water; after the process of wet grinding the machine must be rinsed out with 3 liters of pure water with the rotor working on top speed in order to clean the gaps between the rings
- Check the gaps between the rings of the mantle and the rotor every day and if necessary adjust the gaps depending on the kind of the process taking place (see paragraph 6.3. Setting the gap between the mantle and the rotor)
- Always before starting work, check the everyday technical service (see paragraph 9.1)
- Before starting work on the machine familiarize with the instruction manual and strictly follow the recommendations

2 TECHNICAL DATA

- Power supply 230V, 50Hz
- Installed power..... 0,25 kW
- Total capacity 6l
- Weight 34 kg
- Dimensions 500x435x635 mm
- Noise level up to 45dB

3 STRUCTURE FO THE MACHINE

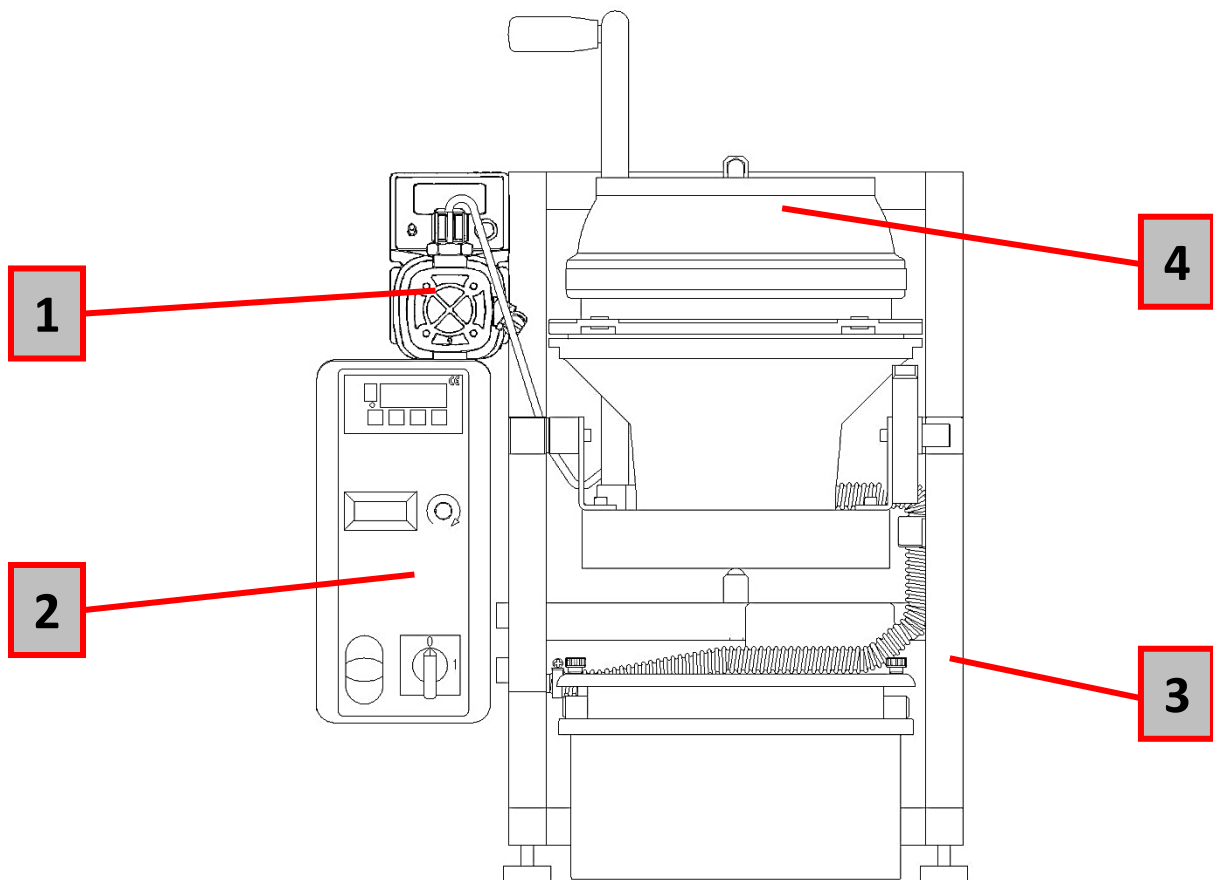


Figure 1. Structure of the machine

1. Dosing pump
2. Control panel
3. Frame
4. Working chamber.

Frame for EC6 is made of welded stainless steel profiles(3) on which is mounted working chamber driven by the motor. Power is transmitted from the spindle to the machine rotor via belt drive. Working chamber is made of polyurethane (hardness of 95 degrees). Polyurethane layer has a high abrasion resistance and a favorable coefficient of friction.

The whole machine is a light and compact structure with the possibility of moving it manually by one person. The polishing machine is a simple and safe device, the rotatable elements possess firm covers.

Whirlpolishing machine is a simple and safe to use. Rotating elements have a fixed covers. The design does not have sharp edges that may cause injury.

3.1. CONTROL PANEL

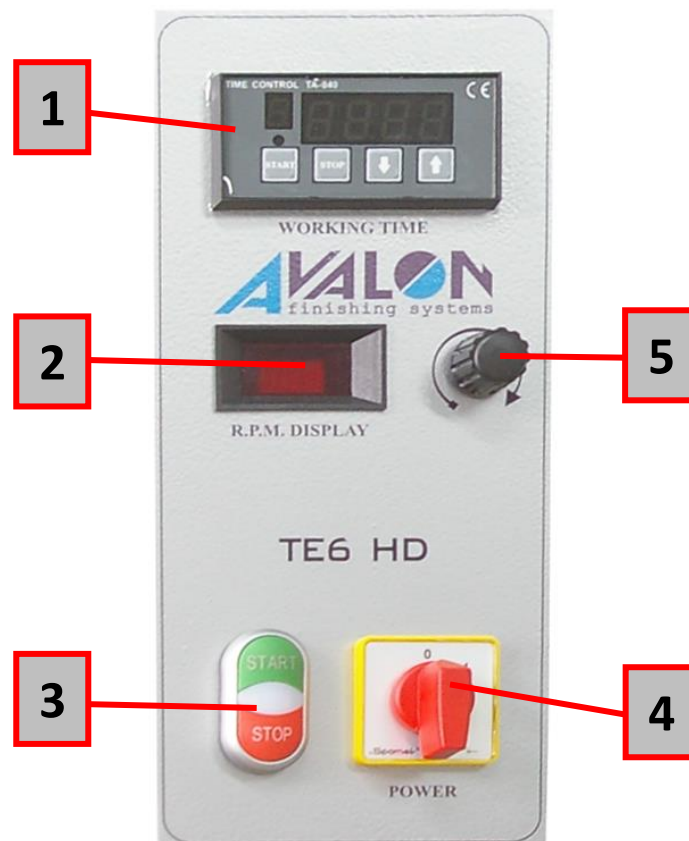


Figure 2. Control panel

1. Timer TA-040
2. Frequency rate Display
3. START/STOP buttons
4. Main switch
5. Frequency regulation knob

3.2. INSTRUCTION FOR USE TIMER TA-040

After connecting the machine to electricity grid, the remainder of the process will appear on the main display (7) and recently implemented program number on the display (1) (eg: >> 1 <<). Clock allows you to save a persistent memory of 10 different time schedules.

To make changes to the program set, press the START key for 3 seconds.

The first step is to select the program number you wish to change or re-programmed. Press cursor ↑ (up) or ↓ (down) until the program you wish to change appears on display (1). Press the START button (3). On the main display, on the position of hour, display will flash e.g.: "02".05. Set the number of hours by cursors ↑ (up) and ↓ (down). Then press the START key and hold it for few seconds. On the position of minute, display will flash 02 "05". Set the number of minutes by cursors ↑ (up) and ↓ (down) and confirm the value by START button. This will automatically save the set value in driver memory.

To start the machine, select the cursor ↑ (up) or ↓ (down) on the appropriate program number. Then press the START button. Confirmation of the controller response is shining LED (2) and the flashing dots 02».«05. The set time will be counted down from the set value to 0.

To correct the set time, during the operation, press the STOP button – this will stop the machine - make adjustments in the same way as for setting the time.

Press START to temporarily stop the machine and to restart it. This operation can be performed multiple times during the cycle.

Pressing the STOP button during operation will stop the machine while resetting a specified time. After countdown of the set time the device will stop and the display will show previously set time. In the case of power failure, the machine stops. According to current standards, the operator must restore the machine to work himself. It should be noted that the machine starts with a small delay (ok.2s) - this is needed for certain processes.

In the case of co-operation of the clock with the controls, where inverter is installed, it is possible to display 2 different error messages:

- ER1 – shows the fluid sensor error (lack of liquid in reservoir),
- ER2 – indicates an inverter error.

In both cases, the device should be disconnected from the mains, remove the cause of the error and restart the machine.

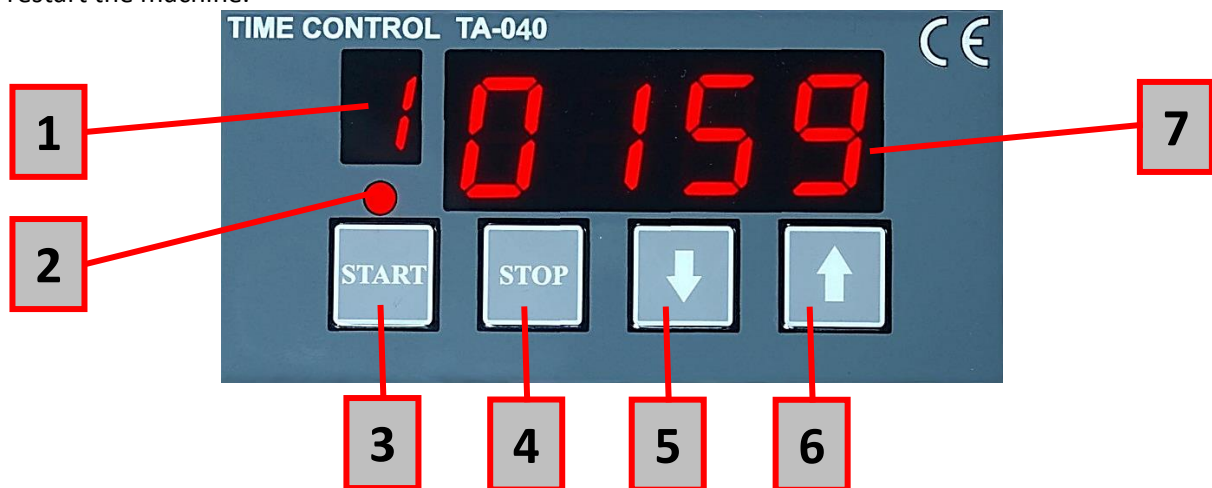


Figure 3. TA040 Timer

1. Program Number Display
2. Indicator light
3. START button
4. STOP button
5. Cursor DOWN
6. Cursor UP
7. Main Display

3.3. INSTRUCTION FOR DOSING PUMP

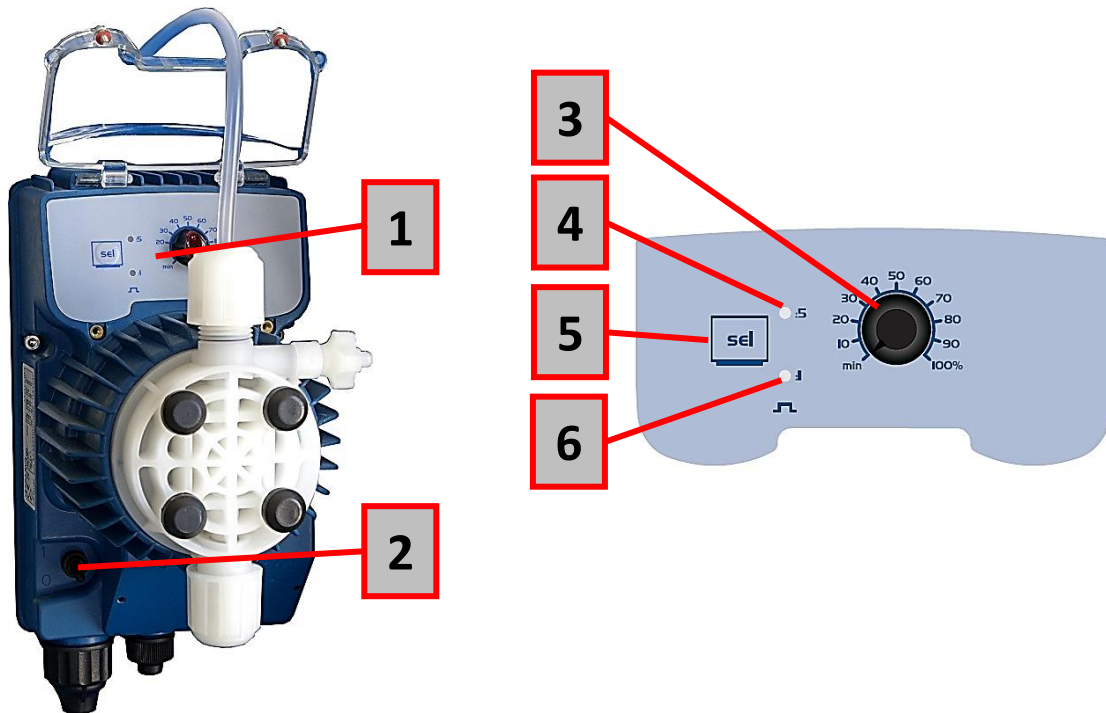


Figure 4. Dosing pump

1. Control Panel
2. ON/OFF switch
3. Flow rate (%)regulation potentiometer
4. Maximum speed (:5) and dosage impulse LED
5. Maximum frequency selector
6. Maximum frequency and dosage pulse LED

Flow rate range: 4-8 l/h

To turn on the pump put the switch (2) in ON position. Regulate the flow rate with Flow rate (%)regulation potentiometer (3). If necessary it is possible to change the frequency range. There are two available 0-20% and 0-100%. To change frequency range press the Maximum frequency selector. LEDs (4) and (6) indicate which frequency range is chosen.

4 TRANSPORT

In the car transport the polisher EC6 can be laid either vertically or horizontally. In both cases the polisher should be protected against moving during the transport. For the time of the transport, working chamber should be immobilized. In the case of an open transport the machine should be covered with shower-proof cloth.

The transport of the polisher in a hall (production room) can take place in both of the following ways:

- for short distances it can be carried by at least one person
- for further distances it can be transported with a handcart

4.1. FOUNDATION

The polisher must be founded on a hardened leveled ground. Good lighting of the stand, power and water supply should be provided and technological sewage should be channeled to a sewage container.

5 INSTALLATION

- plug the polisher to power grid of the voltage of 230V.
- Provide water to whirlpolishing water system.
- provide technological sludge disposal to the sludge tank

6 STARTING OF THE MACHINE

The principle of the polishing machine work:

Grinding and polishing processes take place in the working chamber. The working chamber is filled with media e.g. polishing pegs, granulated products, paste etc. and items to be processed. Thanks to the rotor's special shape, the specific spiral motion is obtained. Media particles with the processed items move together in a spiral stream and undergo an intensive stream-abrasive processing.

6.1. EXCHANGE RING, MANTLE AND ROTOR

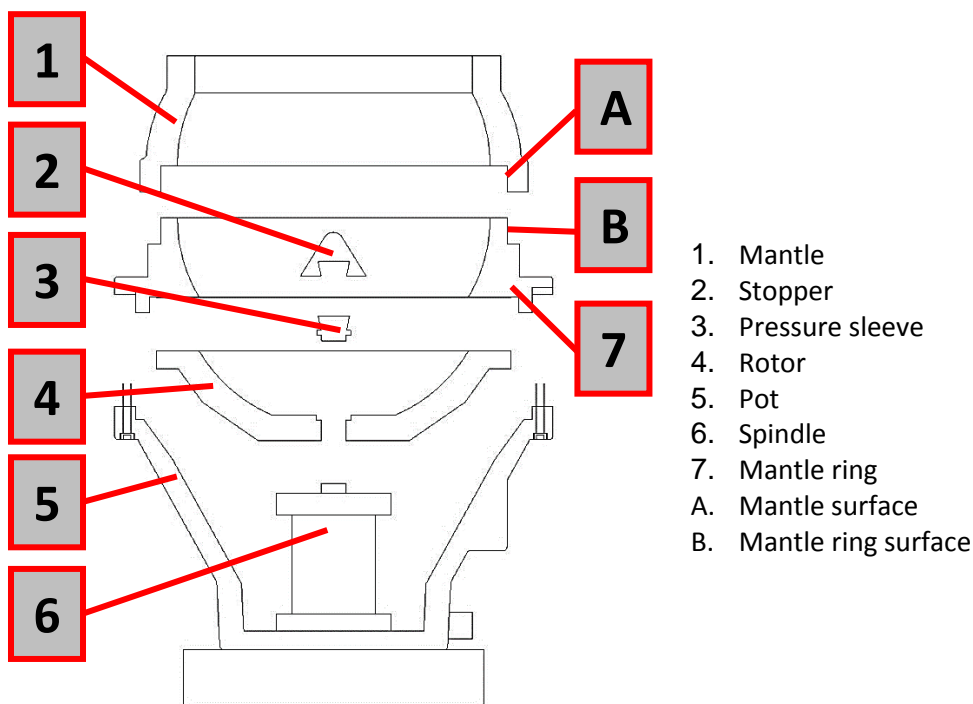


Figure 5. Structure of the working chamber

Instruction for exchange rotor and mantle's ring:

1. Unscrew the nuts from gap regulation.
2. Take off the mantle (1) with ring (7) from pot (5).
3. Take off the belt from mantle (1).
4. Remove the ring (7) from mantle (1).
5. Remove stopper (2).
6. Unscrew the bolt and take off Pressure sleeve (3).
7. Remove the rotor (4) from Spindle (6).
8. Carefully clean up inside the pot (5) and contact surface of spindle (6) with new Spindle (4).
9. Set up new rotor (4) on Spindle (6) basing on fixing pin.
10. Set up and tighten the Pressure sleeve (3) with the bolt.
11. Put the stopper (2) on Pressure sleeve (3).
12. Surface A and B carefully clean from old silicon and put new silicon on it.

13. Install new ring (7) with mantle (1)
14. Put the clamping belt on mantle (1).
15. Put on the mantle (1) with ring (7) basing on gap regulation bolt (5).
16. Tighten the nuts on gap regulation bolt (5).
17. Set up the gap according to paragraph 6.3.

6.2. EXCHANGE BEARINGS AND SEALANTS

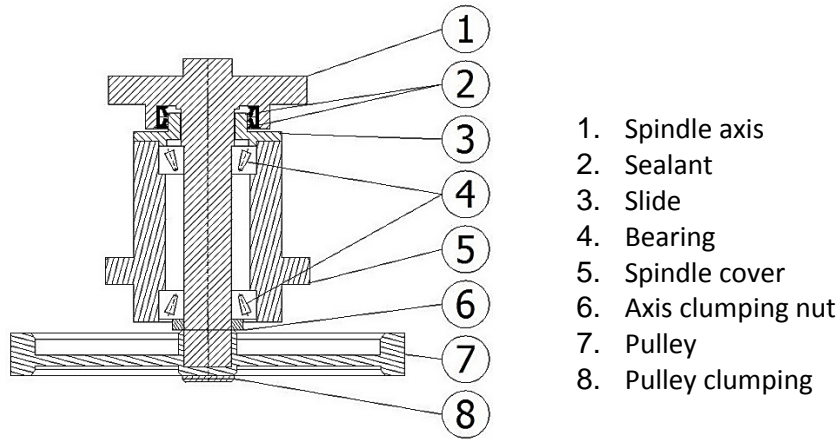


Figure 6. Structure of the spindle

Before exchange Sealant/bearing must take off ring with level raiser and rotor:

Instruction exchange sealant:

1. Loosen pulley clump (8).
2. Take off the pulley (7).
3. Loosen the spindle and take it from the machine.
4. Unscrew the Axis clumping nut (6).
5. Remove axis (1) from Spindle cover (5).
6. Pull off waste sealants and replace in to new one.
7. Assemble group in reverse order.

Instruction exchange bearing:

1. Do the A-E point from the exchange sealant instruction
2. Loosen the Slide (3).
3. Replace the waste bearing (4) new one on the press.
4. Assemble group in reverse order.

6.3. ADJUSTING THE GAP BETWEEN MANTLE AND ROTOR

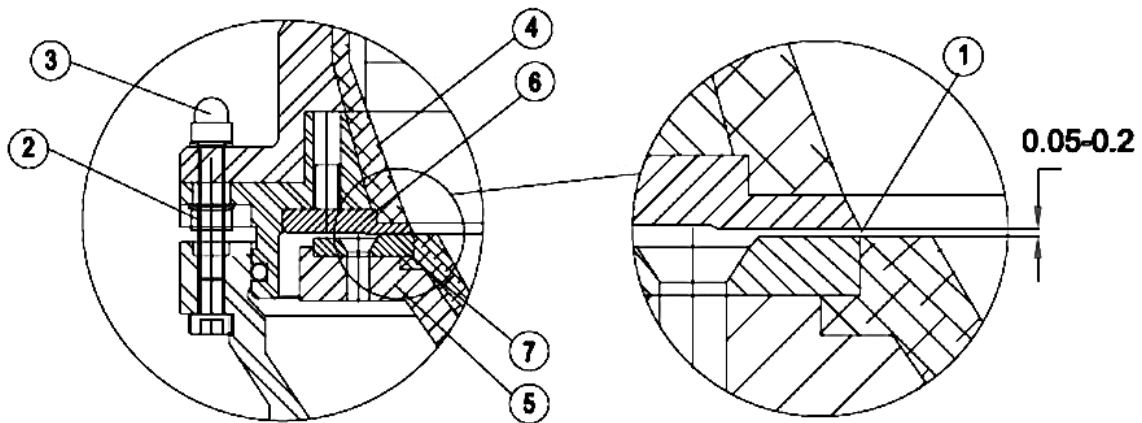


Figure 7. Adjusting the gap between mantle and rotor

1. Gap
 - Wet processing 0,15-0,2 mm
 - Dry processing 0,05- 0,1 mm
2. Adjusting screw (4 pieces)
3. Contra of adjusting screw (4 pieces)
4. Mantle
5. Rotor
6. Mantle's ring
7. Rotor's ring

In order to adjust the gap one must do the following activities using an open ended spanner 13 and the gap gauge enclosed to the machine by the producer.

- A. near to adjusting screw (2) from the inner side of the working container we put the gap gauge plate of the thickness of the adjusted gap(e.g. 0,1 mm) into the gap
- B. we turn the adjusting screw (2) and the contring screw by spanner so that the rings (6 and 7) were close to each other gently tightening the gap gauge plate
- C. next gently loosen to take out the gap gauge plate and carefully contring, holding the adjusting still
- D. we repeat the activity in the other three points of the gap adjustment The adjustment is done correctly if on the whole perimeter of both rings the gap gauge plate (thickness e.g. 0,1 mm) moves with a slight resistance, and a plate thicker than 0,15 mm cannot be put in-between the rings.

The required size of the gaps is:

- for wet processing- 0,15- 0,2 mm
- for dry processing- 0,05- 0,1 mm

When gap's width exceeded 0,2mm between the mantle and the rotor gap must absolutely be adjusted!

6.4. CONDITIONS FOR MANTLE'S RINGS AND ROTOR EXCHANGE

A premature overuse of the mantle's rings and of the rotor can be a result of one of the following:

- Lack of a regular control of the width of the gap between the mantle's ring and the rotor's ring

- Allowing the processing of very fine grinding charge of (diameter less than 2mm) in the wet process, as working with such charge definitely shortens the life span of mantle and rotor's rings causing the damage of the working surfaces of the rings
- Using wrong pegs or preparations etc.

During rough grinding (black and green pegs) the width of the gap must be frequently checked and maintained at the regular level of 0,05- 0,2 mm, depending on the kind of processing. After every wet grinding process the charge needs to be separated so that no pegs smaller than 2 mm are present in the processing.

The rings are not liable to the warranty, so the instruction of operating on the machine must be carefully followed as working with charge smaller than 2mm definitely shortens the life span of mantle and rotor's rings causing the damage of the working surfaces of the rings.

It has been proved that with a correct operation and if following this instruction the mantle's and the rotor's rings work at least 2000 hours

7 WET GRINDING PROCESS

1. Fill the working container of the polishing machine with about 4 kg of pegs, depending on the specificity of the processed details
2. Turn on the dosing pump
3. Set the timer
4. Set the speed of the rotor with the handwheel
 - for products like wedding rings, regular shape rings without sharp sleeves having the weight up to 5 grams, the speed is between 200-250 r.p.m., the quantity of the processed material is up to 700 grams
 - for fine products of regular shape like fastenings up to 1 gram, the speed is between 250-300 r.p.m., the quantity of the processed material is up to 0,6 kg
 - for products that vary in dimensions and having irregular shapes and various weight, the speed of the processing and the quantity of the processed material need to be adjusted experimentally
 - very delicate products with sharp sleeves, of articulated joints or of shapes that may get deformed or damaged during the processing or products having sharp shapes are not to be processed in the whirlpolishing machine. For this type of products AVALON recommends drum polishing machines or vibration polishing machines.
5. Set the liquid metering according to a given type of processing
6. The amount of the liquid should be enough to create distinct foam that muffles the processing noise, when using new pegs the foam may disappear (the grinding sound is then increasing), in that case the
7. preparation should be added again
8. When the set time is over, the polishing machine turns off automatically
9. Rinse out the working chamber with the pegs by means of pure water
10. Tilt the working chamber and separate the products
11. When the work is over empty the working chamber of the whirlpolisher and rinse the device out with pure water
12. For a longer period of stoppage the machine should be carefully rinsed out with pure water next dried and then the rings of the mantle and the rotor should be maintained

Remarks and reservations:

- In wet processing chips of the maximum diameter that does not exceed 2 mm must be sifted, because the work with particles smaller than 2 mm definitely shortens the life-span of the mantle's and the rotor's rings by damaging the working surface of the rings
- During the grinding process the fluid must be continuously metered, dry processing with chips should be avoided because in such a case the temperature in the working chamber rises rapidly and the machine may get damaged. This kind of damage is not covered by the warranty.
- It is strictly forbidden to let the pump work dry
- It is recommended to use the chips and the liquids distributed by AVALON
- It is forbidden to use very caustic liquids nor brine. In the case of using very caustic liquids or brine's the warranty is not valid.
- In case of any failure, turn the machine off with the emergency stop switch and call a factory/company manager.
- It is obligatory to follow the rule of periodic checks of the technical condition of the dosing pump seal
- It is strictly forbidden to put any strange objects into the working chamber while the runner rotates in the chamber
- Do not move the polishing liquid hose while the pump is working in order not to wet the engine or the control panel
- While the machine is running it is forbidden to tilt the working container
- The working chamber must not be tilted for more than 30 minutes, due to the possibility of a leakage of the liquid on the hub's bearings
- In wet processing the fluid sensor MUST be plugged to the polishing machine
- When the work is over the machine should be carefully rinsed out with pure water
- For a longer period of stoppage the machine should be carefully rinsed out with pure water and dried. The rings of the mantle and the rotor should be maintained. Maintenance involves spreading (with a brush) any machine oil near the gap and running the machine for a while.

8 DRY GRINDING AND POLISHING PROCESS

If dry processing takes place in the same working chamber as wet processing, then after every wet process the chamber must be carefully cleaned.

1. Fill the working chamber with about 12kg of granulated walnut or wooden pegs, depending on the specificity of the processed products
2. ·Set the timer
3. Set the speed of the rotor with the handwheel
 - for products like wedding rings, regular shape rings without sharp sleeves having the weight up to 5 grams, the speed is between 200-250 r.p.m., the quantity of the processed material is up to 500g
 - for fine products of regular shape like fastenings up to 1 gram, the speed is between 250-300 r.p.m., the quantity of the processed material is up to 600g
 - for products that vary in dimensions and having irregular shapes and various weight, the speed of the processing and the quantity of the processed material need to be adjusted experimentally
 - very delicate products with sharp sleeves, of articulated joints or of shapes that may get deformed or damaged during the processing or products having sharp shapes are not to be processed in the whirlpolishing machine. For this type of products AVALON recommends drum polishing machines or vibration polishing machines.
 - The rotary speed of the rotor should be selected in the way that the whirlpool can be distinctly visible. If during the rotor's work any metallic noise is heard, the speed of rotation

should be lower or the amount of the products in the working container should be decreased

4. When the set time is over, the polishing machine turns off automatically
5. Tilt the working chamber and separate the products
6. When the work is over clean the working chamber carefully
 - in order to obtain the best results It is recommended to use the pegs distributed by AVALON
 - In case of any failure turn the machine off with the emergency stop switch and call a factory/company manager.
 - Under no condition can one put any strange objects into the working chamber while the runner rotates in the chamber
 - when the machine is running one must not tilt the working container
 - do not use dry processing with resin stones, ceramic stones or steel pegs because it may cause a quick temperature increase or a damage of the machine
 - During dry processing with walnut pegs, blocks, the chamber must be cooled by means of a fan of at least 3m³/h capacity.

9 TECHNICAL INSPECTIONS

The whirlpolishing machine should be subjected to some technical inspections described in this instruction manual, and if necessary, to repairs. The decision of the necessity of immediate repair is made as a result of a technical survey conducted together with the personnel (or when submitted by the operator).

It is advised to do repairs by means of the exchange of the damaged elements or units. A rigorous following of the established service-repair system will allow to maintain the polishing machine in a high technical efficiency.

All the service- repair activities must be conducted after previous stoppage of the machine and turning off the electric power! The base for estimating the number of the working hours of the machine are the recordings done in the “Whirlpolishing machine, type EC6 Service Book”.

There are the following types of technical inspections and repairs:

1. Daily technical inspection- DTI
2. Temporary technical inspection- TTI
 - One- TTI 1- done every 1000 working hours
 - Two- TTI 2 – done every 3000 working hours
3. Running repair - the term as well as the kinds of repairs are not planned forward
4. Major repair- done after 15 000 working hours.

9.1. DAILY TECHNICAL INSPECTION DTI

The aim of the daily technical inspection is to prepare the whirlpolishing machine for doing the everyday tasks efficiently. The inspection is done by the machine operator.

DTI inspection includes:

1. Cleaning the outer part of the machine with clean cloth,
2. Checking the sealing of working chamber
3. Check the gap between ring and mantle
4. Check the sealing of dosing pump
5. Check the work of all the control buttons before starting to operate on the machine,
6. Tighten all loose screws and nuts.

9.2. TEMPORARY TECHNICAL INSPECTION ONE - TTI 1

This kind of inspection should be done by a machine operator every 1000 work hours of the machine. All the maintenance and repair work should be done by the personnel previously trained in a given type of the machine.

As a part of the inspection TTI 1 the following activities from the DTI inspection must be done and additionally:

1. Inspection and maintenance of dosing pump
 - Turn off the power of dosing pump
 - Take off the filter casing from mounting on the motor
 - Remove the filter cartridge and rinse in water
 - Install the filter on the motor
2. In case of incorrect work of dosing pump motor:
 - Take off the filter casing from mounting on the motor
 - By means of rotating remove the rotor lid from motor casing
 - Remove rotor and rinse and clean the dirt from all elements.
 - In otherwise order mount the dosing pump
3. Check the condition of transmission belt
4. Check the condition of electric system
5. In case of leaks exchange the simmerings and bearings (recommended regeneration at AVALON)

9.3. TEMPORARY TECHNICAL INSPECTION TWO – TTI 2

This kind of inspection should be done by a machine operator every 3000 work hours of the machine. All the maintenance and repair work should be done by the personnel previously trained in a given type of the machine.

As a part of the inspection TTI 2 the following activities from the DTI and TTI-1 inspections must be done and additionally check and if necessary exchange used elements of the machine.

9.4. MAJOR REPAIR

As a part of this inspection one must:

- after turning off the master switch, remove the dust and dirt from the electrical and electronic control systems of the machine,
- check the condition of the electronic system,
- clean the joints and electrical system's contacts,
- check the condition of the bearings, if necessary- exchange.

10 ELECTRIC SYSTEM DIAGRAM

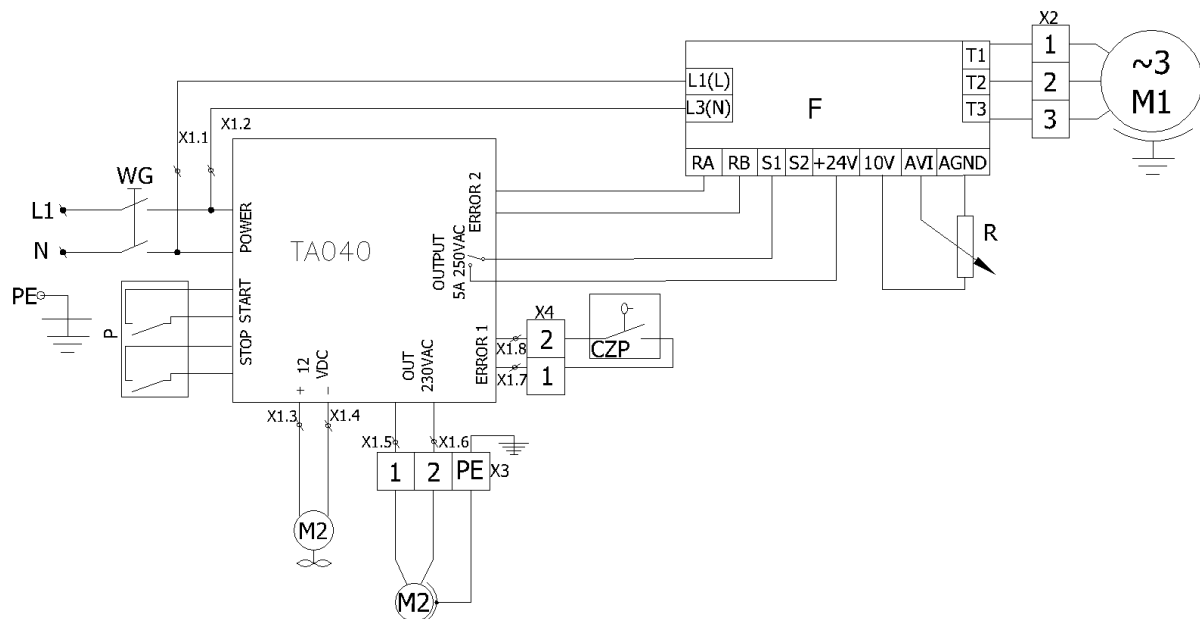


Figure 8. Electric system diagram

CZP	Fluid sensor	TA040	Timer
F	Inverter	WG	Main switch
M1	Electric motor	X1.1..8	Clamps on terminal
M2	12V Fan	X2	Electric motor socket
P	START/STOP button	X3	Dosing pump socket
R	Speed regulation knob	X4	Fluid sensor socket

11 EVALUATION OF SAFETY AND WORK CONDITIONS

11.1. INTRODUCTION

11.1.1. THE AIM OF DRAWING UP

Work on the assessment of the whirlpolishing machine type EC6 as far as Industrial Safety is concerned, have been conducted in order to pass The CE Declaration of Conformity with the 2006/42/WE Directive as well as with the Polish Harmonized Standards regarding Industrial Safety.

The structure of the device has been analyzed with regard to construction conformity with the current law and with the effectiveness of the security system as well as the probability of a risk.

11.1.2. LEGAL BASE

When evaluating the machine guided by the requirements of the following provisions:

- European Parliament and European Council 2006/42/WE of 17 May 2006 the laws of the Member States relating to machinery.
- European Parliament and Council Directive 2004/108/WE 15 December 2004 the laws of the Member States relating to electromagnetic compatibility.

- European Parliament and Council Directive 2006/95/WE of 12 December 2006 on the harmonization of laws relating to electrical equipment designed for use within certain voltage limits.
- Decree of the Minister of Economy of 21 October 2008 Dz. U. Nr.199 poz.1228 dated 7 November 2008 on essential requirements for the machines.
- Minister of Economy of the 30.10.2002 Dz. U. Nr. 191 pos.1596 dated 18 November 2002 before commissioning the unit.
- Act on general product safety Acts U. No .229 pos.2275 dated.12.12.2003r. as amended Dz. U. Nr. 35 pos .215. dated.12.01.2007r.
- PN-EN 60204-1: 2001 Safety of machinery. Electrical equipment of machines. General requirements.
- PN-80/M-49060 machinery and equipment. Inputs and handles. Requirements to enter and cause of machinery and equipment used to perform work activities, maintenance and repair.
- PN-EN 1088+A2:2011 Safety of machinery. Locking devices for machinery and production equipment. General requirements.
- PN-EC 60364-4-41:2000 Electrical installations in buildings. Protection for safety. Protection against electric shock.
- PN-EN 292-1,PN-EN 292-2 Protection of work. Machinery and equipment production. General safety requirements.
- PN-EN 953+A1:2009 Safety of machinery. Covers mechanical machinery and equipment General requirements.
- PN-EN 981+A1:2010 Safety of machinery - System of auditory and visual danger and information signals.
- PN-EN 1037+A1:2010 Safety of machinery – Prevention of unexpected start-up.
- PN-EN ISO 12100-2011 Safety of machinery- Part 1- Principles of risk assessment
- PN-EN ISO 13850:2008 Safety of machinery – Emergency Stop – Design properties.
- PN-EN ISO 4413:2011 Hydraulic drives and control - General principles and safety requirements for systems and their components.

11.2. RISKS DESCRIPTION

Accident and health risk may be caused by the following noxious and dangerous agents occurring with the work connected with operating the machine.

- Service-repair works
- Electric shock

11.2.1. MEANS OF PROTECTION AGAINST RISKS

After the inspection of the whirlpolishing machine, it has been proved that the producer has used the following means of protection against risks:

- A worker operating the whirlpolishing machine has the opportunity of a visual control of the working area. Taking into consideration the technology of work and the scale of the risks, the operator comply certain health requirements and undergo a special training in order to get machine operating qualifications. The access to moveable driving elements is limited by a still shield.
- All the service- repair activities must be conducted after previous stoppage of the machine and turning off the power supply.
- The solutions regarding the construction of the work stand of the operator, the control buttons workspace meet the requirements of the Polish norms in this matter.
- The electrical system meets the safety requirements against the electric shock.

11.2.2. FURTHER NOTICE AND RECOMMENDATIONS

The user is obliged to:

- Before admitting an employee to operate the machine, the employer is due to train them in safe machine operation and inform of the occupational risk connected with operating the machine.
- Work out an operation and industrial safety instruction and make it available to the employee.

Ergonomic report sheet WHIRLPOLISHING MACHINE Type EC6 Manufacturing no.....				
Subject of assessment	Evaluation of the solution			Remarks
	Correct	With reservations	Incorrect	
1	2	3	4	5
1. Operation safety				
1.1 Strength/Resistance	X			
1.1.1 mechanical	X			
1.1.2 thermal	X			
1.1.3 chemical	X			
1.1.4 other				
1.2. Stability	X			
1.3 Protection against infringing the operation requirements	X			
1.4. Protection against the risks caused by	X			
1.4.1 moveable and loose elements	X			
1.4.2 sharp and outstanding elements	X			
1.4.3 moving of people	X			
1.4.4 electric shock	X			
1.4.5 burns				
1.4.6 fire and/or explosion	X			
1.4.7 other				
1.5 Safety and convenience of the installation	X			
1.6 Safety and convenience of maintenance and repairs	X			
1.7 Other	X			
2. Conditions and responsibility of work	X			
2.1 Spacial conditions of activities connected with physical movement	X			
2.1.1 body position	X			
2.1.2 freedom of movements	X			
2.1.3 freedom of controlling	X			
2.1.4 seat				
2.2 Conditions for sight maneuvring	X			
2.2.1 Working process visibility	X			
2.2.2 Informative and controlling elements visibility	X			
2.2.3 graphic and colour signs visibility				
2.2.4 visibility of surrounding	X			
2.3 Conditions of using aural, tactile information.	X			

2.4 Impact on human and surrounding	X			
2.4.1 volatile matters	X			
2.4.2 non-volatile matters (especially poisonous, allergenic, carcinogenic)				
2.4.3 micro-climate	X			
2.4.4 vibration	X			
2.4.5 noise	X			
2.4.6 ultrasounds and infrasounds				
2.4.7 electromagnetic field of high and low frequency	X			
2.4.8 optical and thermal radiation				
2.4.9 ionizing radiation				
2.4.10 biological factors				
2.4.11 other factors (overpressure, underpressure, overload)				
2.5 Physical strain	X			
2.5.1 arms strain	X			
2.5.2 legs strain	X			
2.5.3 dynamic load	X			
2.5.4 static load	X			
2.6 Mental strain	X			
2.6.1 activity (over- or under-activity)				
2.6.2 monotony				
2.6.3 work consequences	X			
2.6.4 environment influence	X			
3. Industrial safety requirements	X			
3.1 Requirements of safety and convenience of work	X			
3.2 Requirements of safety and convenience of work during installation and first starting	X			
3.3 Safe operation of the machine instruction	X			
3.4 recommendations regarding maintenance and operation	X			
3.5 Others				
4. Esthetics	X			
4.1 Spacial composition	X			
4.2 Colors and informative graphics	X			

12 CERTIFICATE OF CONFORMITY WE



Zakład Mechaniki Maszyn „AVALON”
ul. Grunwaldzka 38
84-351 Nowa Wieś Lęborska

We declare with full responsibility that product to which this declaration relates:

Product (name):	WHIRLPOLISHING MACHINE
Type or model:	EC6
Manufacture number:
Production year: r.
The year of marketing in the EU: r.

is compatible with the following:

- The Directive of the European Parliament and the European Council 2006/42/WE of 17 May 2006 of the Member States relating to machinery.
- The Directive of the European Parliament and European Council 2004/108/WE of 15 December 2004 on the approximation of laws, relating to electromagnetic compatibility.
- The Directive of the European Parliament and European Council 2006/95/WE of 12 December 2006 on the harmonization of the laws relating to electrical equipment designed for use within certain voltage limits.
- Regulation of the Minister of Economy of 21 October 2008 (Dz.U.Nr. 199 pos.1228) dated November 7, 2008 on essential requirements for machinery and safety components.
- The Act of 13 April 2007 on electromagnetic compatibility. (Dz.U.Nr. 82, pos. 556).
- Regulation of the Minister of Economy of 21 August 2007 on essential requirements for electrical equipment (Dz. U. Nr. 155, poz.1089).

and with the following standards:

- The Act on general product safety Acts. Dz. U. Nr.229 poz. 2275 dated 12.12.2003 as amended Dz. U. Nr. 35 poz.215 dated 12.01.2007,
- PN-EN 60204-1,2+AC: 2011 Safety of machinery. Electrical equipment of machines. General requirements.
- PN-80/M-49060 machinery and equipment. Inputs and handles. Requirements to enter and reach of machinery and equipment used to perform work activities, maintenance and repair.
- PN-EC 60364-4-41:2000 Electrical installations in buildings. Protection for safety. Protection against electric shock.
- PN-EN 292-1: 2000, PN-EN 292-2: 2000. Protection work. Machinery and equipment manufacturing. General safety requirements.
- PN-EN 953+A1:2009 Safety of machinery. Covers mechanical machinery and equipment. General requirements.
- PN-EN 981+A1:2010 Safety of machinery – System of auditory and visual danger and information signals.
- PN-EN 1037+A1: 2010 Safety of machinery - Prevention of unexpected start.
- PN-EN 12100-2011 Safety of machinery - Part-1. Principles of risk assessment.
- PN-EN ISO 13850:2008 Machine tools – Safety - Emergency stop equipment, functional aspects. Principles of design.
- PN-EN-982+A1: 2008 Safety of machinery. Safety requirements for hydraulic and pneumatic systems and their components. Hydraulics.

procedures:

- Testing program.
- Procedure for inspection and testing.
- Validation of the product.

Nowa Wieś Lęborska; _____
(date)

(signature of authorized person)

13 THE GUARANTEE CERTIFICATE

Producer:

ZAKŁAD MECHANIKI MASZYN „AVALON”
UL.GRUNWALDZKA 38
84-351 NOWA WIEŚ LĘBORSKA

gives a one-year guarantee on:

EC6 whirlpolishing machine
Manufacturing number.....

We guarantee a failure-free work of the polisher under the condition of following all the requirements included in the hereby operating instruction.

In the guarantee period we provide free repairs of the defects caused by hidden manufacturing flaws.

The user loses the right to free repairs in case of: using the machine without accordance to purpose, disassembly or modification of the machine without the producer's permission, mechanical damage caused by the user or during the transport.

Guarantee does not apply to elements directly involved in the abrasive treatment, ie. The pot and mantle

Stamp and signature
of the quality control

stamp and signature
of the seller

date: _____

date: _____

Number of the repair	Description of the repair	Date and stamp of the service

The producer reserves the right to introducing changes in construction without including them in the operating instruction.