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INSTRUKCJA ORYGINALNA BETONIARKA WOLNOSPADOWA

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ORIGINAL MANUAL PADDLE CONCRETE MIXER

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РУКОВОДСТВО ПО ЭКСПЛУАТАЦИИ ОРИГИНАЛ ГРАВИТАЦИОННЫЙ БЕТНОСМЕСИТЕЛЬ

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BWE-150

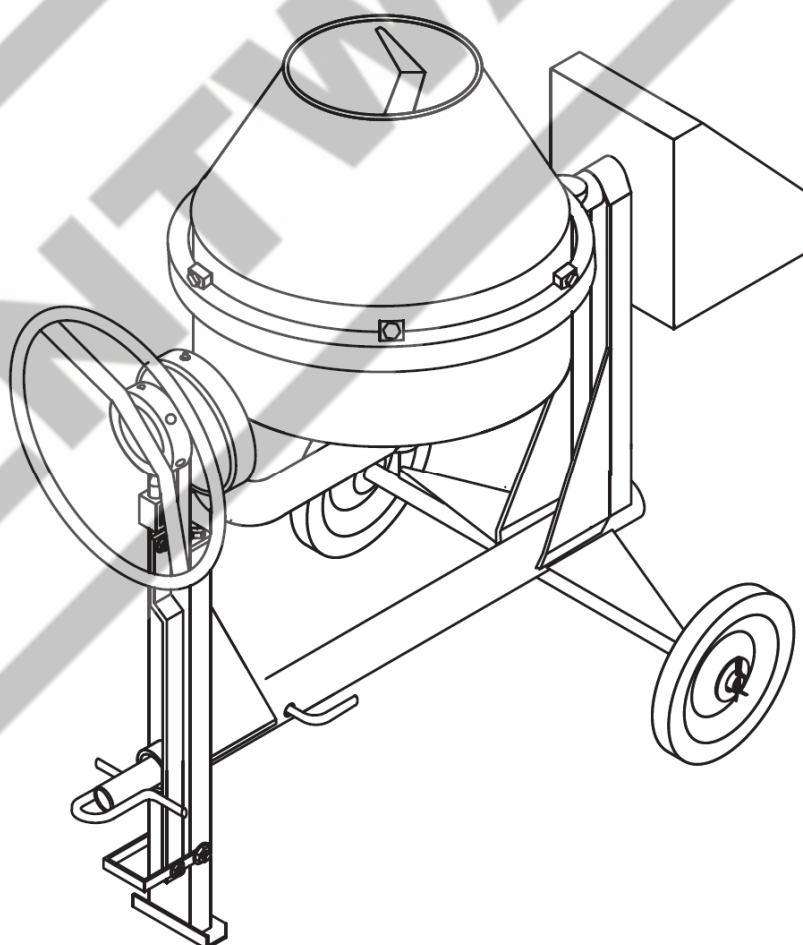
BWE-150J

BWE-200

BWE-200J

BWE-250

BWE-250J



2018 r.



Careful reading of this manual and compliance with its recommendations regarding operation and maintenance will considerably extend the period of the mixer's operation and will contribute to the user's satisfaction of its exploitation.
This manual is an integral part of the mixer's equipment.

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1. Introduction

Congratulations on purchase of a high quality mixer. Please read carefully this manual, paying attention to the recommendations on the use and safety. Before use, during and after the mixer's operation please keep it in good condition and suitable cleanliness.

To repair the mixer, use only original spare parts of the manufacturer. Any possible user's claims will not be accepted if used spare parts are other than the original manufacturer's parts. This manual should be used during the entire period of use.

The meaning of warning symbols and information contained in the manual and on the mixer:
Warning symbols and information included in this manual are provided on the front and side drive cover, except of the symbol for the direction of rotation, which is located on the mixing tank, and the symbol marking places used for lifting with lifting devices, which is placed on the pendulum beam tube.



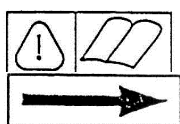
- marking of places used for lifting with lifting devices,



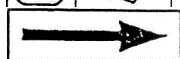
- operating the mixer by children is prohibited,



- danger warning symbol. Points to the important information contained in the instruction concerning safety issues. If you see this symbol, carefully read the information located below,



- read the instruction manual before operating or repair,



- direction of rotation of the mixing tank,



- switch off the engine and remove the plug before maintenance or repair works,



- CE symbol



- thrown or flying objects –Face threat



- do not open or remove safety guards, if the motor is in motion



- screwing your hand or fingers – rotating gears



- do not touch the machine's elements until all units come to a stop



Keep the safety signs legible and clean. Replace lost or unreadable signs with new ones, which can be purchased from the manufacturer of the mixer.

2. Purpose

Mixer is designed for the production of concrete, mortar and plaster. Mixer should be used for its intended purpose.

Mixer is not designed for mixing flammable substances or explosives!!!

Mixer must not be used in explosive atmospheres!!!

3. Technical Characteristics

Model	BWE-150		BWE-200		BWE-250		BWE-250	
Type	Handwheel / Crank				Handwheel		Crank	
Nominal Voltage (v)	230	400	230	400	230	400	230	400
Nominal Power (kw)	1.5	1.1	1.5	1.1	2.2	1.5	2.2	1.5
Nominal Current (amp)	7.9	1.9	7.9	1.9	10.0	2.5	10.0	2.5
Power Consumption (w)	1100	750	1100	750	1500	1100	1500	1100
Frequency (Hz)	50		50		50		50	
Protective System	IP44		IP44		IP44		IP44	
Motor RPM	2800		2800		2810		2810	
A - Overall Length (mm)	1900		1900		1950		1950	
B - Overall Width (mm)	1100		1100		1150		1200	
C - Overall Height (mm)	1500		1560		1600		1600	
Mixed Batch Output (Ltr)	150		200		250		250	
Max Drum Capacity (Ltr)	300		350		400		400	
Drum Speed (rpm)	22		22		22		22	
Weight (Kg)	185		190		240		240	
Sound Power Level (dB(A))	103		103		103		103	



4. Safety of work

All persons operating, assembling, handling, controlling, maintaining or repairing the mixer should be familiar with this manual.

Mixer can be handled only by persons who are qualified in accordance with the Decree of the Minister of Economy of 20.09.2001. (J.A.01.118.1263 of 15.10.2001) on safety and health at work during the operation of machines and other technical equipment for earth, construction and road works 823 with an Appendix No 1. 6r II item11, not under the influence of alcohol, drugs, and physically fit.

OWNER'S RESPONSIBILITY

The owner must know that only qualified personnel can operate, maintain or repair the mixer. Execution of works by unqualified persons could result in a reduction or withdrawal of the guarantee.

Before starting the mixer:

- make sure the power cord is not damaged,
- check that all guards are in place and are properly secured,
- do not wear loose clothing or jewelry when operating the mixer,
- appropriate clothing, as stated above, shall be in accordance with the applicable safety requirements on construction sites,
- make sure that loose cables are adequately protected against damage and can not be caught by the rotating mixing tank or disturb the operator,
- we recommend the use of residual-current protection for electrical supply.

During mixer's operation:

- get acquainted with the controls of the mixer before starting work,
- renew any damaged safety signs,
- make sure that the mixing tank rotates while emptying the mixer,
- when leaving the mixer unattended always turn it off and remove the plug from the socket,
- before moving, disconnect it from the power supply,
- you should be aware of danger zones,
- there should be no objects around the mixer that may cause the fall of the operator.

Residual risk and ways to eliminate it

Mixer was produced according to the best technical knowledge and safety requirements currently in force.

The factory ALTRAD POLAND S.A. takes full responsibility for its making (construction and marking) and safe use, if it is operated according to manual.

Despite of this, there are some elements of the residual risk, which may result from improper handling or accidental situation that can not be predicted.

Possible dangers of residual risk and ways to eliminate it are listed in the table below.

No.	Description of risk	Elimination of risk (description)
1	Electric shock	• System against the electric shock is zeroing. • Attached instruction manual and warning labels affixed to the mixer inform: - o it is forbidden to use the mixer with open drive cover - o it is forbidden to connect the mixer with damaged cable - o disconnect the power supply before opening the drive cover - o for repair use only original parts - o the repair of installation can only be performed by electrician with the required electrical permission
2	Damage of limbs and body	• Rotating elements (drive – circle) have the cover protecting from being pulled in, eg hand. - o Applied breaker protects the mixer from restarting after power failure - o Attached to the mixer instruction manual and warning labels affixed inform: - o do not insert hands or objects into the rotating tank, - o before performing repairs or cleaning, disconnect the mixer from the power.
3	Risks arising from repair and maintenance	• According to the manual, any adjustments and repairs can be carried out on the mixer when disconnected from the power supply and only by the service or by persons with appropriate training. • For repairs, use only genuine parts • It is forbidden to make any modifications of the mixer by the user.
4	Various hazards arising from misuse	• User manual specifically indicates that: - o the mixer should be used only for its intended purpose - o the mixer can only be used by adults who are familiar with the content of the instruction manual and have received the necessary training on the use of concrete mixer. - o it is forbidden the move the working mixer or being under voltage. - o it is prohibited to make any alterations in the design of the mixer.
5	Loss of stability	• In accordance with the manual, the setup of the mixer to work should be done on a dry, flat and stable surface. - o Permissible inequality of the ground up to 2°
6	Risks during transport	• Mixer can be moved only on hard and equal surface, after disconnecting the power supply. The movement may be carried out by one or two people, after exiting and securing the drawbar. • Loading (unloading) on the means of transport should be conducted by a crane (slings hooked to the bars inside the drum of the mixer), a lift or by a team of 4 people.

5. The sound pressure level affecting the service

5.1 Concrete mixers BWE150, 150J:

- maximum equivalent pressure level measured on the drive side, while mixing is – **$L_{pAeq,T} = 74,5 \text{ dB} \pm 2,5 \text{ dB}$**
- equivalent sound pressure level, measured on the side of loading the concrete mixer, during its filling, mixing and emptying is - **$L_{pAeq,T} = 73,5 \text{ dB} \pm 2,5 \text{ dB}$** .

5.2 Concrete mixers BWE 200, 200J, 250, 250J

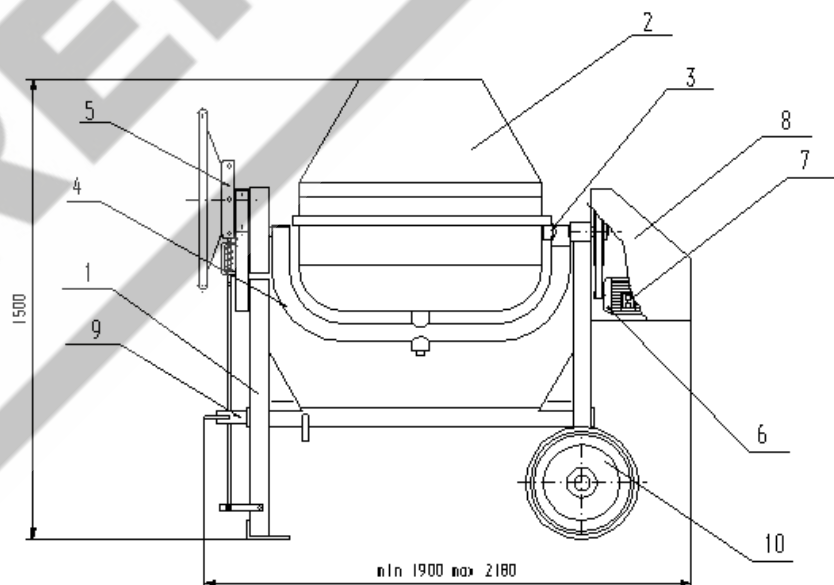
- maximum equivalent sound pressure level, measured on the side of loading, with empty mixer is – **$L_{pAeq,T} = 90,0 \text{ dB} \pm 2,5 \text{ dB}$**
- equivalent sound pressure level, measured on the side of loading the concrete mixer, during its filling, mixing and emptying is - **$L_{pAeq,T} = 78,5 \text{ dB} \pm 2,5 \text{ dB}$** .

6. Description of the design and operation

Concrete mixers are characterized by simple construction and easy and safe operation. They consist of the following units (Drawing1)

- Chassis (Item1) with two street wheels (Item10)
- Mixing tank (Item 2) mounted on the axis of the sleeve mounted in pendulum beam (Item 4)
- Pendulum beam (Item 4)
- Tilt mechanism (Item 5)
- Drive of mixing tank received from electric motor (Item 6) by conical gear (Item 3)
- Breaker (Item 7)
- Motor and driver covers (Item 8).
- Draw bar (Item 9).

Components of the mixtures in the appropriate proportions are poured into the mixing tank. The corresponding slope of the vessel during mixing is achieved by rotating the crank of the tilt mechanism. In a similar manner the contents of the tank is emptied.



Drawing.1 General view

Mixing tank is made of steel sheet. Mixing blades are welded inside. Mixing tank is mounted on the beam pendulum. Drive from the engine to the mixing tank is transmitted through gear cooperating with the ring gear attached to the mixing tank. Gear wheel achieves drive with an electric motor with pulley belt.

Draw bar and pendulum mechanism are part of the mixer control deflection. The angle of inclination of the tilting mechanism is provided by the tilt wheel lockable by the foot brake.

Support frame with trolley unit in a both cases is the welded construction, which is mounted on a pendulum beam with bushings, and the wheels on the axle secured by cotter pins. Trolley unit makes it easy and efficient to set up the mixer in the desired place of work.



7. Electric installation

The electrical system of concrete mixers consists of:

For mixers with single-phase motor (**BWE-150J; BWE-200J; BWE-250J**):

- single-phase electric motor with a power 1,5/2,2kW, voltage 220-230V, frequency 50Hz, insulation class F, rotation speed 2800 rev/min, degree of engine protection IP54, marked with CE safety mark,
- single phase switch with plug produced by Klinger & Born or Tripus, with protection for power loss,

Mixer's power supply diagram is shown on drawing 2.

For mixer with three – phase motor (**BWE-150; BWE-200; BWE-250**):

- three-phase electric motor with a power 1,1/1,5kW, voltage 380-400V, frequency 50Hz, insulation class F, rotation speed 2800 rev/min, degree of engine protection IP54, marked with CE safety mark,
- three-phase switch with plug produced by Klinger & Born or Tripus, with protection for power loss,

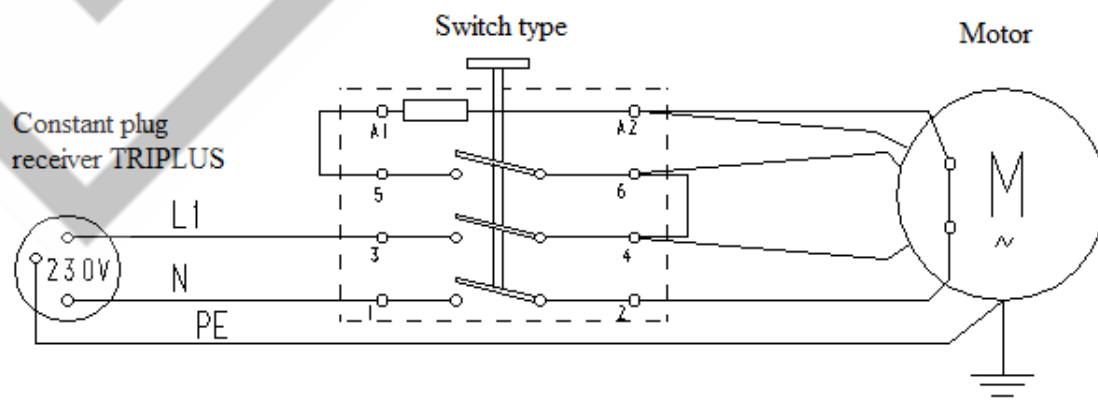
Mixer's power supply diagram is shown on drawing 2a.

The individual elements of the electrical system contained in a metal housing are connected by wires through stifled cable outlets.

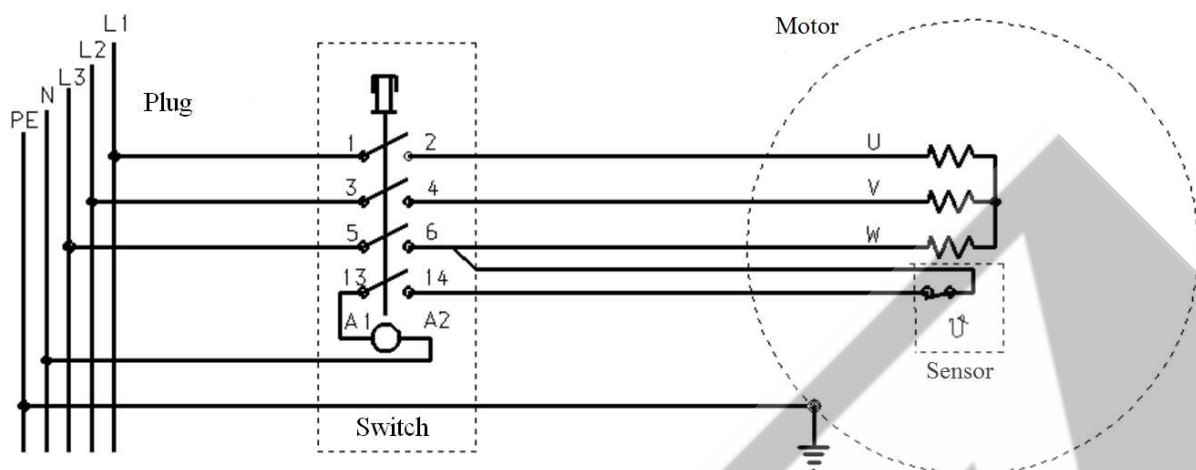
The electrical installation provides an IP54 degree of protection against ingress of solids from liquid and provides first-class protection against electric shock.

The start of the engine follows after pressing the green button (ON), turn off by pressing the red button (OFF).

Before connecting to the power supply, make sure the engine is off. In the event of current loss the mixer is activated again by pressing the green button (ON).



Drawing 2. Single-phase wiring diagram



Drawing 2a. Three-phase wiring diagram

Concrete mixers are made in the first class isolation and have an IP54 degree of protection. When using extension cord of the cross-section „p” core of conductor the length should not be greater than the value in the table drawing 3. Cross-section of extension cord conductors should not be less than $1,5\text{mm}^2$. Use rubber sheathed cables for power supply of the mixer. Cable used may not have a lower level of protection than the engine cover. The circuit which supplies the mixer should be made of a copper conductor with cross-section, at least $3 \times 1,5\text{mm}^2$. It is recommended to use protection with a value of overload protection 10A (for three-phase motor), and 16A (for single-phase motor).

Before starting work make sure the extension cord is properly positioned, is not in the water or on objects with sharp edges. No vehicles can be driven where the extension cord is placed. Before turning power on, make sure the extension cord connections are dry and properly secured. It is recommended to connect the device to the network by connector type H07RN-F with cross-sections cores according to the table (Drawing 3), completed with plug with protection degree IP54 and network socket 16A with protection degree IP54.

Failure to follow these instructions could result in serious injury or death to operator !!!

Motor (single-phase) Length [m]	Motor (three-phase) Length [m]	Cross-section [mm ²]
do8	do12	1,5
8÷13	12÷30	2,5
13÷21	30÷50	4,0

Drawing.3.Recommended cross-sections „p” core of the extension cable.



8. Operation and maintenance

8.1 Operation

- a. Before starting the mixer the external inspection should be made to assess its completeness and technical condition. To this end, visually check if:
 - road wheels are protected against falling with cotter pins
 - mixing tank is screwed by nut and secured with cotter pin
 - mixing tank has no clearances; grab by hand the tank inlet and do some vigorous two-way movements along the longitudinal axis of the mixer.
 - checking the status and completeness of the security guarding drive and the rotating parts.

By visual inspection, check that:

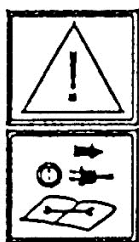
- fixing plate is firmly attached to the chassis frame.
- the engine cover is firmly attached
- the cover of gear is mounted.

check the electrical system in accordance with item 7 of this manual.

- b. Set mixer on as flat as possible surface
- c. Adjust the mixing tank to the working position by pressing the latch by foot and turn the wheel pendulum in the right direction with the right angle.
- d. **Start the mixer** is in following sequence:
 - check if the switch is turned off (the red button is above the level of the green button).
 - insert the plug into the electrical outlet.
 - run the mixer by pressing the green button.
 - fill the tank with components in accordance with the formula provided
 - check the correct direction of rotation of the mixing tank. Standing in front of the mixer, and with the mixer motor on the left side, mixing tank must rotate in the direction opposite to the clockwise direction.
- e. Mixing time 60-90 seconds.
- f. Remove ready concrete with activated mixer through the appropriate deviation of tank with worm gear crank.
- g. **To switch off** press the red button.
- h. After removing the concrete turn off the power supply and thoroughly wash tank.

8.2 Maintenance

The maintenance of concrete mixers includes:



- cleaning the mixing tank after use,
- inspections and controls of all major parts and immediate removal of defects observed.
- temporary protective paint coating surface in case of flake
- periodic lubrication with grease LT-42 bearings and cooperating parts according to table 1.
- check the status of bolted connections and tighten loose nuts.
- The periodic adjustment of inter loose between the gear wheel Z15 item1 in a subassembly (5 **Drive**) and ring gear Z 122 item2 in a subassembly (2 **Complete drum**) with regulatory washer item9 in a subassembly (2 **Complete drum**). Adjusting most commonly concerns the recognition of washer.

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S.n.	Lubrication points	Frequency of lubrication
1	Front bearing	every 100 h
2	Rear bearing	every 100 h
3	Shaft bearings	every 1500 h
4	Bearing of tank	every 200 h
5	Bearings of road wheels	every 50 h
6	Worm gear	every 200 h

Table1.Periodical lubrication

- **Damage and Repair:**
- Motor does not rotate:
 - there is no voltage on the network
 - engine too warmed up (let it cool down)
 - faulty switch
- The engine is running, the tank does not rotate:
 - damaged (broken) V-ribbed belt,
 - wedge cut from the side of the drive shaft gear
- Faulty engine:
- repair in specialist service.

9. Storage

Concrete mixers should be stored under conditions preventing damage and corrosion. During long-term storage of mixer the store room should be covered with the ground hardened, tanks set in upside down position.

10. Delivery

Concrete mixers are supplied to the user in a fully assembled state.

11. Transport

Mixer can be transported on any mode of transport platform. For transport, mixer must be secured against movement and mechanical damage. Mixer can be towed on a small distance by other vehicles at speed not more than 10 km/h (grafting to the transport draw bar provided with a coupling).

12. Dismantling and scrapping

In case of total consumption of the mixer, it should be partially dismantled for possible use of good parts. Particular caution should be handled when removing the blender due to its weight. This operation must be carried by two people. To dismantle it remove the cover, remove the cotter pin and unscrew the nut M24. Turning the crank tilt mechanism set mixing tank horizontally. In this position it should be removed from the frame.

Most frequently the engine and cover can be of further use. Worn steel parts should be used for scrap. They pose no danger to the environment. Attention ! Removed engine and switch come under separate collection of waste electrical equipment for utilization.