

Conveyorized Board Dryer AIR 2000

Translation of the Original Instructions



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Leaflet

First the wet board is pre-dried in two squeeze zones. After that the board is completely dried in a hot-air stream. The cross flow fan with integrated heating element generates uniform laminar airflow across the whole working width.

The board runs automatically through the drying zones of the Air 2000.

The speed of the roller drive is continuously adjustable in a wide range. Special beard roller assures a uniform transport of the PCB through the machine. The construction of the rollers allows drying boards with different thicknesses.



Features

- continuous drying
- Variable transport speed
- Suitable for different board thickness
- Low surface temperature
- Short heating-up time
- Huge area capacity
- Table model
- High grade processing

Technical Data

Working width	300 mm
Board thickness	0,2 – 4mm
Minimum board length	80 mm
Speed of passage	2 – 2.5 m/min
Heating-up time	5 s
Depth	362 mm
Width	352 mm
Height	520 mm
Electrical connection	230 V AC 50/60Hz
Power consumption	2000 W

Technical specifications are subject to alteration.

Declaration of Conformity



EG-Konformitätserklärung/Declaration of Conformity

Hersteller / Supplier:	Bungard Elektronik GmbH & Co. KG Rilkestraße 1 51570 Windeck Germany
Bevollmächtigte Person für die Zusammenstellung der technischen Unterlagen: Person in charge	Jürgen Bungard, Geschäftsführer /general director Rilkestraße 1 51570 Windeck Germany

Produkt: Air 2000

Hiermit erklären wir, dass die oben beschriebenen Maschinen allen einschlägigen Bestimmungen der Maschinenrichtlinie 2006/42/EG entspricht.

Die oben genannte Maschine erfüllt die Anforderungen der nachfolgend genannten Richtlinien und Normen:

We hereby declare that the machines described above complies with all relevant provisions of the Machinery Directive 2006/42/EC.

The above machine meets the requirements of the following guidelines and standards:

- **Maschinenrichtlinie 2006/42/EG / Machinery Directive 2006/42/EC**
- **EMV-Richtlinie 2014/30/EG / EMC Directive 2014/10830EC**
- **Niederspannungsrichtlinie 2014/35/EG / Low Voltage Directive 2014/35/EC**
- **DIN EN 60204-1** Sicherheit von Maschinen - Elektrische Ausrüstung von Maschinen - Teil 1: Allgemeine Anforderungen / Safety of machinery - Electrical equipment of machines - Part 1: General requirements
- **DIN EN ISO 14121-1** Sicherheit von Maschinen - Risikobeurteilung - Teil 1: Leitsätze / Safety of machinery - Risk assessment - Part 1: Principles
- **DIN EN ISO 12100-1** Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze, Risikobeurteilung und Risikominderung / Safety of machinery - Basic concepts, risk assessment and risk reduction
- **DIN EN 55014-1 2012-05** Elektromagnetische Verträglichkeit, Anforderungen an Haushaltsgeräte, Elektrowerkzeuge und ähnliche Elektrogeräte, Teil 1: Störaussendung / Electromagnetic compatibility Requirements for household appliances, electric tools and similar electrical appliances Part 1: Emission
- **DIN EN 55014-2-2009-06** Elektromagnetische Verträglichkeit - Anforderungen an Haushaltgeräte, Elektrowerkzeuge und ähnliche Geräte - Teil 2: Störfestigkeit - / Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity
- **Niederspannungsrichtlinie / Low Voltage Directive 2014/35/EG**
- **Maschinenrichtlinie / Machinery Directive 2006/42/EG/37/EG**

Windeck, 10.1.2016

Jürgen Bungard Geschäftsführer

Intended Use of machine

The Air 2000 is designed for the drying and pre-heating of board-like materials in vertical conveyORIZED processes.

All other applications require our written consent or happen on full risk of the user.

Safety Instructions

General





Please read the following instructions carefully and pay particular attention to information on operating safety and set up.

Keep these instructions at a safe place. It contains information which also refer for later maintenance and cleaning.

The machines are intended for chemical-physical treatment of printed circuit boards.

The machines are not designed to be embedded or interconnected with other machines or systems. They may only be used in specially equipped rooms and be operated only by qualified staff. Children and pets are to be kept away!

Warning signs

	The symbol in the manual indicates special instructions.
	The symbol means: ATTENTION HOT!
	The symbol means that there are live, uninsulated parts inside this unit that may give you a dangerous electric shock if touched. TAKE OFF MAIN PLUG BEFORE OPENING!
	This flash symbol is intended to alert the user that inside of the machine there is high current, which might lead to a dangerous electric shock.

Transport

Only use suitable lifting and transport equipment such as forklifts or pallet lifts. Secure the machine against sliding / tilting.

Place of installation

The machine must be standing level on a table and around the machine there has to be sufficient space for operation and maintenance work (approx 0,5m on all sides)

Do not put the unit anywhere near sources of heat, such as radiators, hot air shafts. oven etc.

Electricity

The machine is made from certified parts according to standard practice for electrical safety. This does not relieve the user of his duty of care when handling electrically powered devices.

The green main switch disconnects the machine from the power supply. We presuppose that the safety fuses of the circuit and the residual current circuit are provided by the building's power supply.

After completion of work, the main switch should always be turned off.

Connect the unit only to the power source indicated in the operating instructions or on the unit.

Run the flex so that no one can step on it and nothing can rest on or against it. The flex is particularly at risk in the area of the plug, the socket and where it comes out of the unit.

Before all maintenance work on the machine (filling, emptying, cleaning, etc.) turn off machine and pull the plug.

To avoid hazards caused by electrical current, the housing may neither be opened nor removed. Inside there are no parts that can be serviced by the user. Refer servicing to the experts! To prevent fire or hazards by electrical current, this device may not be exposed to rain or moisture.

Personal protection

Boards leaving the unit may be hot. Wear suitable cotton gloves.

Ventilation:

Wherever you put the unit, always ensure there is sufficient ventilation.

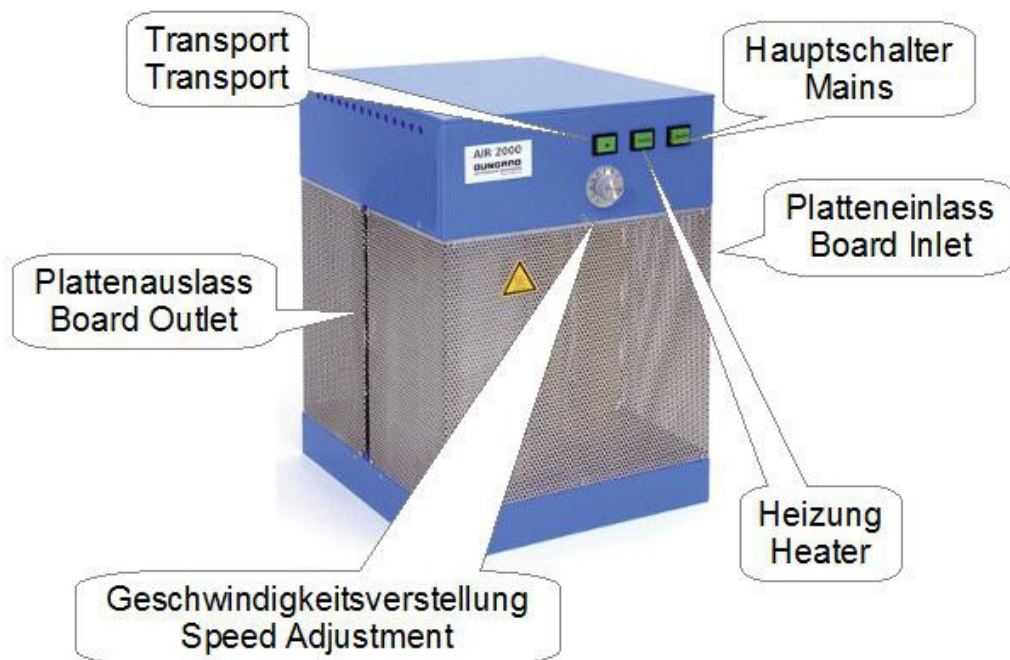
Cleaning:

Follow the manufacturers recommendations for cleaning the unit

Foreign bodies:

Take great care to ensure that no liquids or other foreign bodies can find their way inside the unit through the openings in the casing.

Composition



Setup

Examine the machine for possible transport damages. If you encounter any problems inform sand the carrier immediately.

Carefully transport the machine to its operation site.

Strip off the packing. Put the machine horizontally on a stable table or underframe.

Operation

Take over from the transport agent

After receiving and unpacking, check the machine for possible transport damages. In case of transport damage, please inform your insurance, the transport company and the manufacturer / supplier.

Transport to the place of installation:

Only use suitable lifting and transport equipment such as forklifts or pallet lifts. Secure the machine against sliding / tilting.

Place of installation:

The machine must be standing level on a table and around the machine there has to be sufficient space for operation and maintenance work (approx 0,5m on all sides).

Electrical connection




Bring all switches on the control panel to OFF position. Turn the potentiometer for the transport speed to the left.

When connecting the dryer to the power supply, the national regulations must be observed.

Inside of the machine are a T250V 8A and a T250V 1.5A fuse.

Connect the power cord of the machine to the wall socket. We presuppose an on site fuse protection of the electric circuit.

After switching on the power switch, the device is ready.

	<p>Please note that the oven is not protected against explosion. Do not use any oven to dry varnishes or similar products. Organic solvents can form an explosive mixture together with air.</p>
	<p>Aggressive stream or dust can give a deposit in the inner part of the apparatus and can result in either short-circuits or damages to the electronic parts.</p>
	<p>ATTENTION! The apparatus especially the housing will become hot during operation.</p>

Test run

Check now please the functions of heating and transport.

Clearance to use:

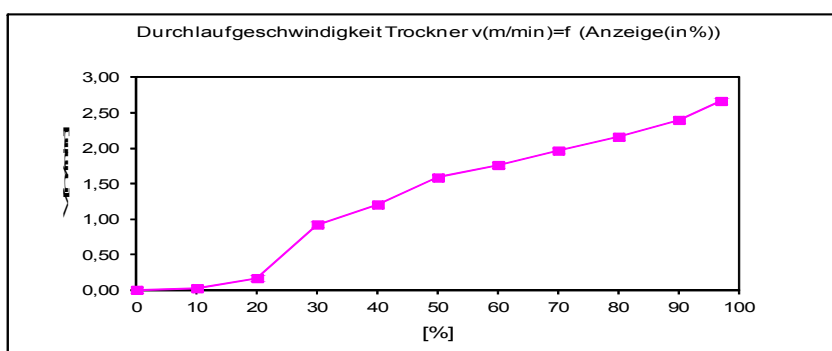
If during commissioning problems or irregularities have occurred that are not covered in this manual, please contact us.

Speed of passage

The speed of the roller drive is continuously adjustable between 0-100%. The speed of passage is indicated in the following table:

% Anzeige	v [m/min]
0	0,00
10	0,02
20	0,17
30	0,92
40	1,20
50	1,59
60	1,76
70	1,97
80	2,16
90	2,40
97	2,67

Heating rate



To increase or decrease the heating rate and by this the surface temperature, the power consumption of the heating element can be changed. Leave servicing to the experts! If necessary, please contact us.

Cleaning and Maintenance

The apparatus is made of plastic or metal. Cleaning of the housing is done with a wetted cloth. Please note that any changes in constructions are not allowed.



The opened housing has a protection grade of IP 00. There is danger of live by opening the housing caused by touching parts under electrical tension.

Dipping water

The bottom of the apparatus is constructed to collect dipping water. Drain off collected water periodically by means of opening the plastic screw placed on the recipient.


Squeeze zone

To get a high drying results keep the cloth wetted.

After a certain operation time the cloths can become dirty and brittle..

Changing the cloths:

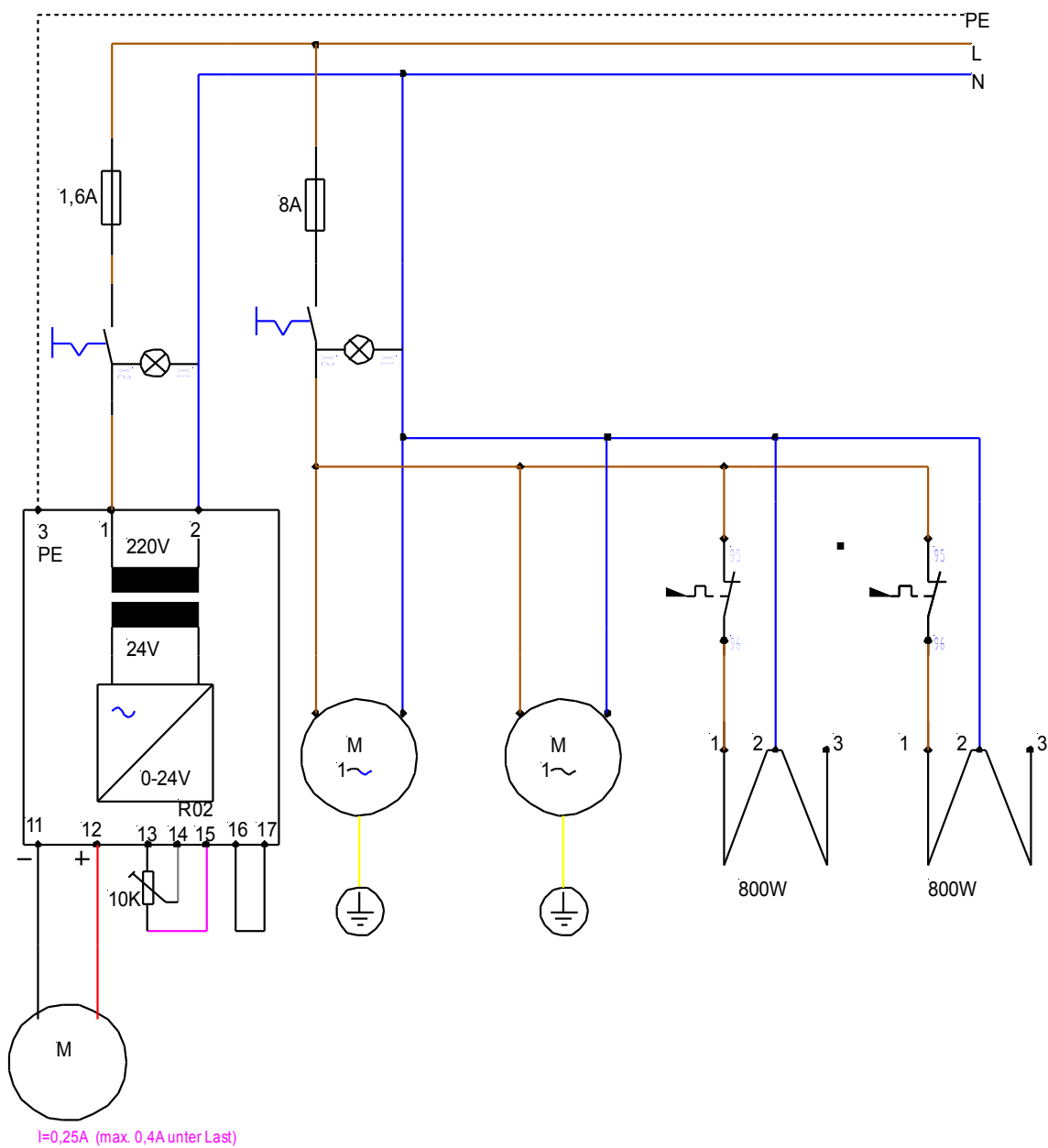
- Take off main plug!!!
- Remove the housing of the apparatus by opening the screws.
- First remove the cloth of the axe that is not connected with the driving device.
- After that the cloth of the driving axe is removed by rolling it by hand around the axes.
- First put the new cloth around the rolls placed in the back.
- Pay attention to the direction of running. During covering the cloth must be rolled clockwise.
- The new cloth is fixed with a tape on the axes. First fix the free running axes and afterwards the driving roll. To install the cloth of the driving roll switch on the main switch. Take the cloth with both hands at the end and keep it carefully. Switch on the driving and at lowest speed the cloth will be rolled on the axes. Afterwards take off the main plug.

	<p>If the apparatus is open and the rolls are running there is high danger of squashing one's finger. Do not touch the rolls or the heating element (high voltage)!</p>
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Spare Part List

Article No.	Description	A10	Holding device motor
A1	Driving wheel	A12	Steel housing
A2	Motor 403033	A13	Power device motor
A3	Driving wheel motor, d52	A14	Switch, 1 pole green
A5	Driving roll 18mm	A15	Switch, 2 poles green
A6	Driving roll 20mm	A16	Switch, 2 poles orange
A8	Vileda Cloth	A17	Fuse T 8A 250 V
A9	Cross flow fan with heating element	A18	Fuse T 1.6A 250 V

Electrical Circuit



Guarantee

All machines are submitted before distribution to examination on function and continuous operation firmness. On the machine we grant a work warranty of 12 months to our customers starting from purchase date on accuracy in material and processing. We warrant at our choice by exchange of incorrect parts or by repair of the machine in our house. Old parts change into our possession.

Disclaimer of Warranty

Bungard GmbH & Co. KG reserves the right to change or enhance its machines or machine specifications according to its judgement, if necessary. Bungard cannot be held responsible to implement aforesaid changes into machines sold already.

Bungard products and services are liable to the current prices and conditions, which are subject to change.

The instructions and definitions in this document are also subject to change and mark no assurance on the part of Bungard.

This manual contains informations of the Bungard Air 2000 and is the translated English version.

Please regard the "Sales terms and delivery conditions". These are available after fulfilment of the contract. We don't furnish a guarantee or warranty in cause of damages at material or hurts of people because of

Incorrect use of the machine

Wrong setup, installing and operating of the machine or incapable service

Use of the machine with defective safety equipment

Non-observance of the service manual in regard to transport, stocking, setup, installation and service of the machine

Unlicensed modifications at the machine

Incorrect or incomplete repairs

Destructive force effect at the machine in cause of foreign objects or external use of force

Use of non-original spare parts

normal wear parts.

We cannot accept subsequent claims from damage or destruction of work pieces worked on in the machine, because we have no knowledge or control over the operating conditions at your site. This is valid in a general manner also for requirements from damage to articles, buildings and persons as well as the environment.

We do not warrant that the function of the machine will meet the customer's requirements or that the operation of the machine will to this regard be error free.

In no event will we be liable to the customer for any incidental, consequential, or indirect damages of any kind, including loss of profit and prosecution for environmental pollution, even if we could have been aware of the possibility of such damages.

All information was arranged with great care. We reserve ourselves however mistake and technical changes without previous announcement.

Running the machine in corroding, humid, dusty, extremely hot or explosive atmosphere happens at the operator's own risk and responsibility.

We explicitly exclude any warranty for damages resulting from running the machine in in corroding, humid, dusty, extremely hot or explosive atmosphere.

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