

EWIKON

Valid for
item number:

68070.100



MWB 100

Mini fluidized bed
cleaning device

Operating manual

EWIKON

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General Safety Instructions



Before working on or inside the device, make sure it has been disconnected from the power supply. Set the power switch to OFF and disconnect the mains plug. Connection, repair and maintenance work may only be carried out by qualified skilled personnel.

Before starting up the device, the plant must be checked for perfect condition. The components get very hot. Appropriate precautions must be taken for starting up and operation. Make sure you wear protective gear.

Application range:

This EWIKON mini fluid bed device can be used to clean small EWIKON hotrunner system components in dry industrial rooms using an exhaust unit.



Safety Instructions

Please read these operating instructions carefully before using the product.


The device may be serviced only by qualified personnel. Before opening the housing make sure you have withdrawn the mains plug. Let the device cool down to room ambient temperature!

Only use replacement fuses of the same type (see chapter "*Protection Equipment*").

Check power cable and mould connecting cables for potential defects on a regular basis. Make sure you use a new temperature-resistant cable (silicon) whenever the cable sheath is found to be defective.

The device may be operated only with properly installed side covers to ensure the intended air circulation.

The device intendedly gets very hot inside when being operated. This applies to the cleaning chamber, its cover and the quartz sand inside the cleaning chamber in particular. There is risk of burns.

Covers which give access to the hot parts when they are opened or removed are provided with the warning label "Hot surface"  according to DIN EN ISO 7010/W017.

Hot air exits through the holes on the rear side during operation. The housing components of the device also get hot when operating time is extended.

When extinguishing fire with water steam may be formed. Make sure you use the appropriate fire extinguishing equipment.

Hollow, closed objects must not be cleaned in this device. Do not put fluids or wet parts in the chamber. When lifting the cover always be aware that smoke, hot gases or hot sand may escape.

When loading and unloading the device the hot cleaning chamber lid must be placed on a suitable surface. To avoid burns please make sure you wear protection gloves when handling the hot lid.

Please follow the material manufacturer's processing and safety instructions.

If the cleaning device is used in a way not determined by EWIKON the proper functioning of the protective equipment may be affected.



Intended Use

The device has to be operated in an appropriate place. EWIKON stipulates that the operation must take place under an exhaust system.

The device must only be used to clean small components covered with organic material. The exhaust gases contain the decomposition products of the material and need to be treated properly.

It is very important not to exceed the maximum capacity of the device. The capacity varies depending on the kind of components (their shape and organic pollution). As a rule of thumb the filling level of the sand inside the cleaning chamber should rise by max 1 cm when the basket with the components to be cleaned is put in.

The environment of the device needs to be protected sufficiently to avoid any danger to persons (hot operating parts, outgassing) and provided with the necessary safety signs.

The user should always make sure that the place around the device is clean and tidy. This particularly applies to flammable material (e.g. paper or plastic packaging etc.) which could be ignited by the hot operating parts. Do not store or use flammable liquids in the room where the device is operated. Keep away open flames from the device and its environment.

The device may only be operated by skilled and trained personnel. The basket must be removed using an appropriate tool such as the pair of pliers provided (hot operating parts). The operator should always wear full-length clothing and protective gear such as protective gloves, protective glasses and a fine dust face mask.

Always keep a sufficient distance when operating the device to avoid accidents by touching hot operating parts.

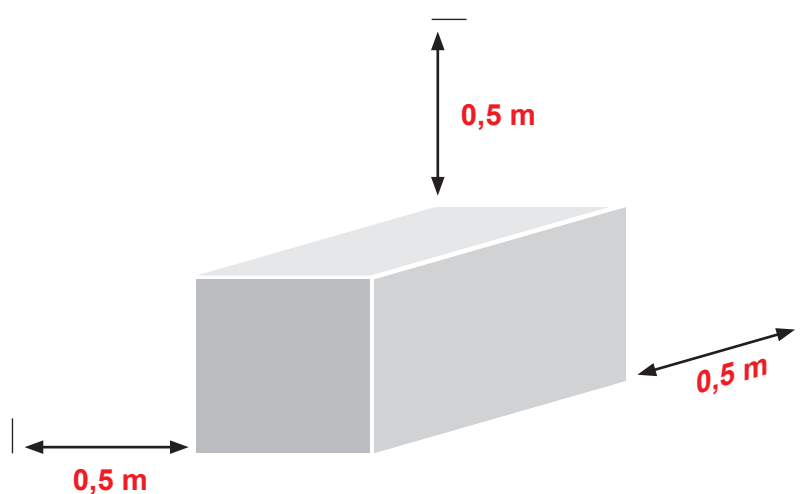
Set-up

Place your **MWB 100** on a stable, flat, non-combustible working surface. The displays should be at eye level with the user.

The device includes a built-in fan on the front side as well as ventilation slots on the rear side. Make sure that air flow through these openings is not obstructed.

Keep a distance of min 0.5 m in all directions around the device to other equipment and parts of buildings.

The device has to be operated under an exhaust system suitable for drawing off the exhaust gas and vapour emissions.



Cleaning

Before cleaning please make sure that the device and all operating parts are cooled down to room temperature. Only water with appropriate additives may be used for cleaning. The external surfaces of the device may be cleaned with a soft, humid cloth. Please do not use acid cleaners or scouring agents.

Do not use easily flammable or combustible substances under any circumstances!

The display may be cleaned with usual washing, rinsing and cleaning agents. Please only use compressed air and a brush to clean the inside of the device. Do not blow compressed air directly into the cleaning chamber as either sand might be whirled up or the nonwoven fabric at the bottom might be damaged.



Service

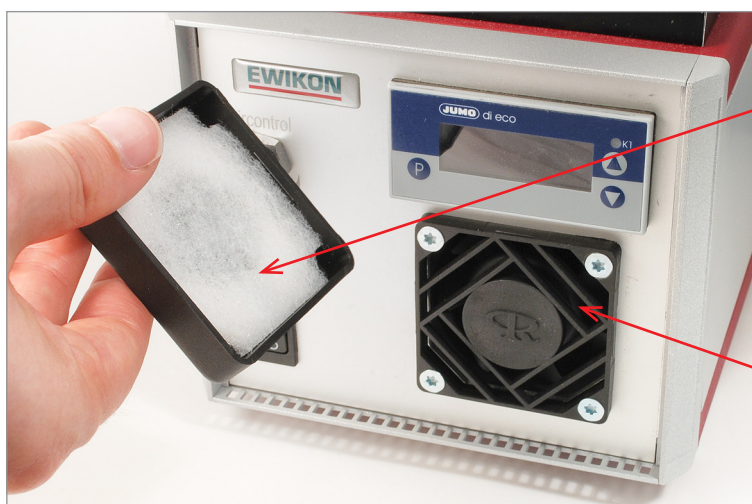
The device must be regularly subjected to a safety check complying with BGV A3 requirements (protection against accidents).

Filter Replacement

It is recommended to clean the dust protection filter at regular intervals. The filter should be replaced depending on the operating period and working condition. Always make sure you only use the filter type specified (see spare parts list), to ensure sufficient air circulation.



Remove the fan with protective grid and filter by pulling it towards you



Replace the non-woven filter fabric FL 100, 3.3 mm (for type see spare parts list)

Put the protective grid with the non-woven filter fabric on the fan; press it on until it clicks into place.

In addition, the ventilation slots should be checked for obstruction and cleaned regularly.

How to Remove Sand

Check sand for contamination and replace if necessary. Allow the used sand to cool down before disposing of it with the household rubbish.

- Remove sand by quickly turning the device upside down (make sure you wear protective gloves)
- Only use heat-resistant containers to fill hot sand in (fire hazard)
- Use compressed air to remove remaining sand from the inside of the housing
- **Please note: Do not damage the non-woven fabric at the bottom of the cleaning chamber**
- Use a tea strain to clean sand from residues
- Fill sand in cleaning chamber, if necessary top up with new sand to the fill level mark (**EWIKON item no. 19950, 180 g**)



Non-woven fabric at the bottom of the chamber



Tea strain

Checking the protection equipment against excessive temperature

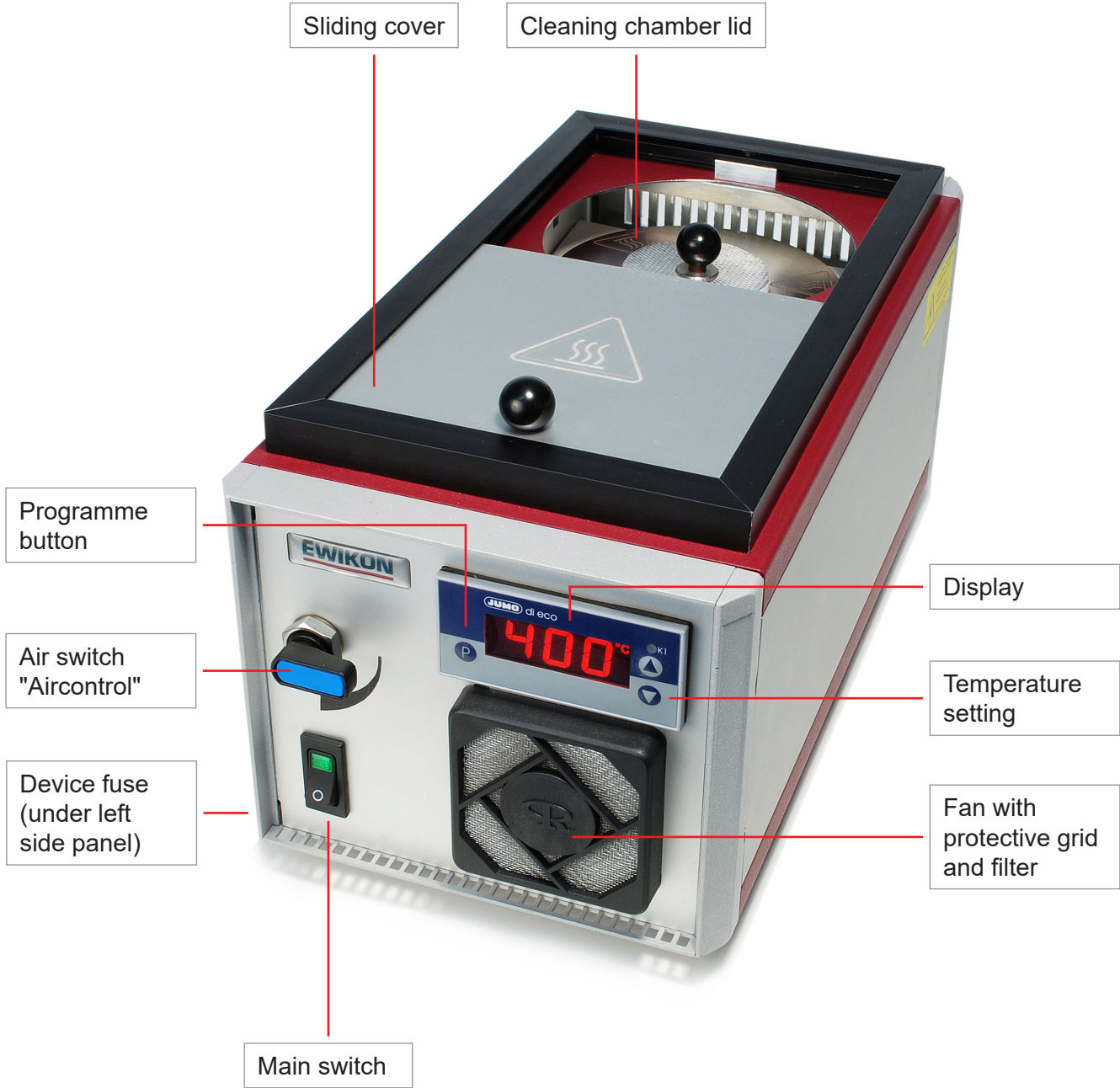
The temperature controls mounted in the device to prevent excessive heating need to be checked for proper functioning by EWIKON at regular intervals. EWIKON recommend that you adhere to an inspection cycle of 2 years.

No further maintenance work is required. Should malfunction occur, please contact EWIKON.

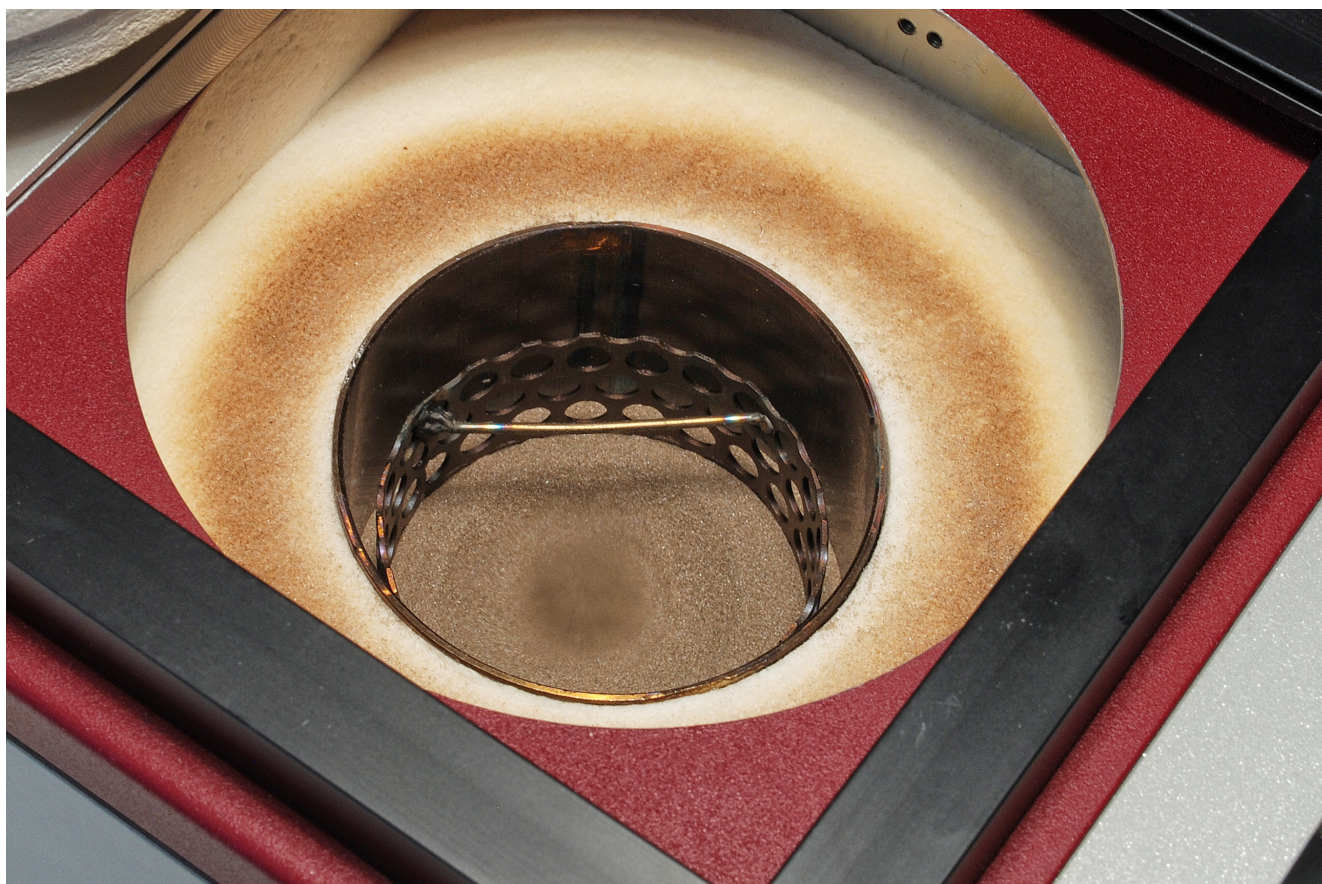
Disposal

Once the device has reached the end of its service life, please feel free to return it to the manufacturer for proper disposal.

Front View



Operation



The cleaning chamber is filled with calibrated sand which is set in motion by blowing air in (suspended articles). Place the parts to be cleaned in the basket. Use the pliers to put the basket in the cleaning chamber in such a way that the parts are completely covered with the bubbling sand. Before placing the parts in the cleaning chamber it is heated up to an even standby temperature of 380 °C. Now the cleaning chamber is a strong cleaning device where a complex oxidation process takes place. Once the sand has reached its standby temperature the basket can be loaded. In the first phase of the cleaning cycle the light organic compounds as well as the binder agents vaporise quickly because they are in close contact with the hot quartz sand.

The remaining heavy hydrocarbons continue oxidizing and the gases being generated are removed by the air blown in.

The bubbling sand initiates a slight mechanical cleaning, therefore supporting the cleaning process during the second part of the cycle.

The duration of the cycle and the temperature required to remove the different sorts and quantities of organic materials have to be determined in trials.

Remove the basket from the bubbling sand using the pliers provided after the cleaning process has been finished.

Start-up



Please remove transport lock before start-up

Please remove the transport lock before connecting and starting up the MWB 100. It is located under the sliding cover to lock the cleaning chamber lid into position.



Transport lock

By opening the sliding cover the cleaning chamber lid is accessible. Lift off the lid carefully and top up with the sand provided to the fill level mark. Before starting a cleaning process please make sure that a sufficient quantity of sand is in the chamber.

Turn the main switch on. The device is now heating up the cleaning chamber to the set temperature of 380 °C. LED K1 indicates when the chamber has reached the setpoint temperature. After a heating-up time of 10 minutes the device is ready for the parts to be cleaned. During operation the heater is hooked on when more heat is required to keep the sand at the requested temperature in the cleaning chamber. These switching operations are displayed optically by LED K1 (temperature reached = LED on).

How to place the parts to be cleaned into the cleaning chamber:

- Set air switch "Aircontrol" to minimum
- Open sliding cover
- Remove cleaning chamber lid (attention, hot surfaces! Please wear protective gloves. Put lid only on temperature-resistant surfaces!)
- Remove basket using the pliers provided
- Place parts to be cleaned carefully in the basket
- Put the basket in the cleaning chamber. Use the pliers to rotate the basket until it reaches the bottom of the chamber
- Close cleaning chamber lid (should close easily)
- Close sliding cover
- Set air switch "Aircontrol" to maximum

Setting Options

By pressing the button **P** shortly the display switches to the parameter level where the requested cleaning chamber temperature can be set.

The display alternates between parameter name (AL) and current value. Using the **▲** and **▼** keys the value can be set within a range of 250-400 °C.

The new setting needs to be confirmed by pressing the **P** button.

Time out: The device automatically switches back to the actual value display, unless the user presses any button for 30 seconds.

Protection Equipment

The device fuses are positioned under the left side panel of the housing.



Remove the cover using a tool according to the photo.



Please always use replacement fuses of the same type:

**5 x 20 mm medium time delay fuse, 2,5 A
(EWIKON item no. 18243)**

Two temperature controls prevent the device from overheating; one of them is located on the front side close to the electric components in the front section of the housing, the other one is mounted on the cleaning chamber.

When the front temperature control is triggered, all electrical components will be switched off, only the power switch lamp will keep lighting up. One reason may be insufficient air circulation (e.g. spoiled air filter or defective fan). Before letting the device cool down to room temperature (< 30 °C in the front area) to eliminate possible causes of error make sure to have switched it off. The device is then ready for operation again.



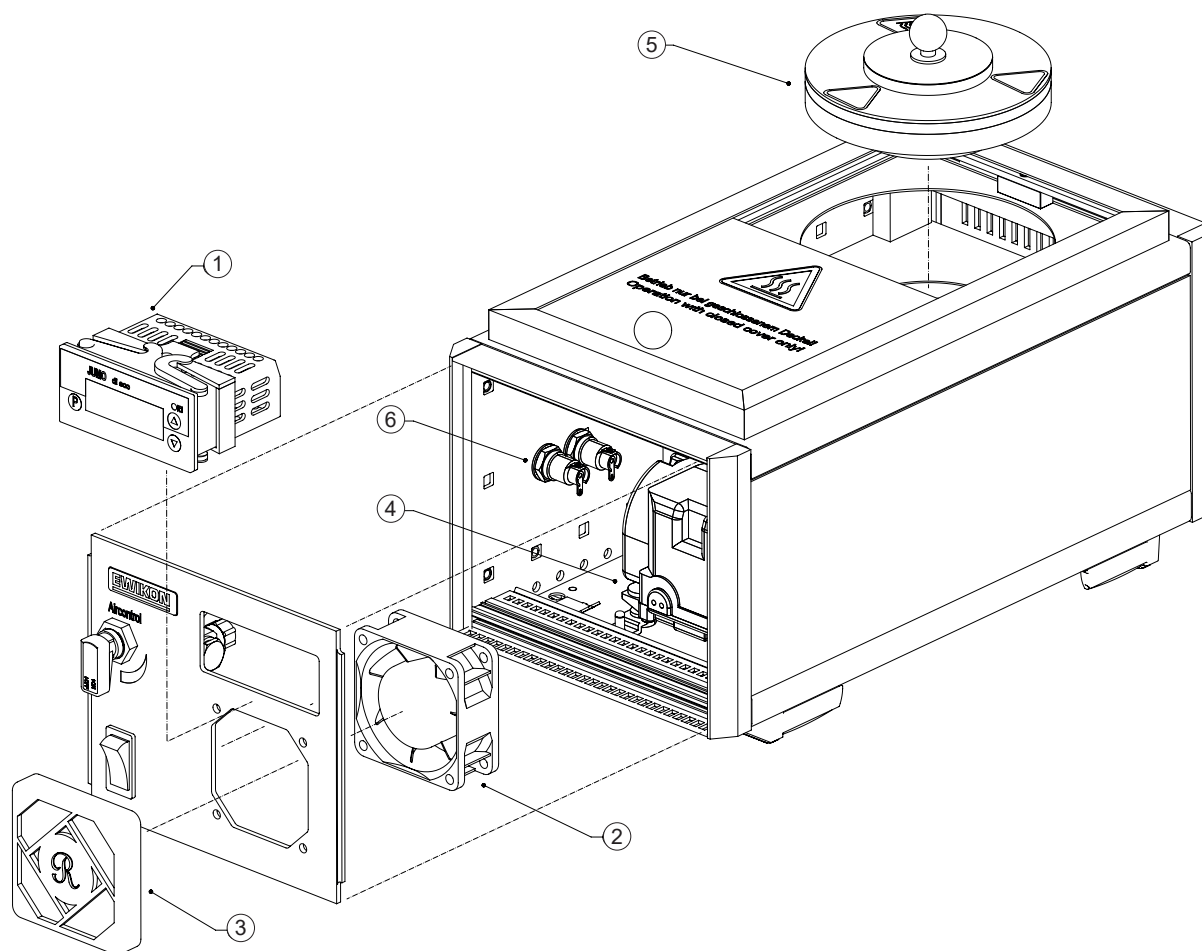
PLEASE NOTE:

When switching off the device after a longer period of operation the temperature control may be triggered due to missing ventilation. We therefore recommend letting the device be switched on, if the cleaning work is interrupted shortly or if the device is loaded or unloaded.

When the rear temperature control is triggered, only the heater of the device will be switched off. This is recognizable by the temperature drop and the active warning light of the temperature control behind the right side cover. A reason for this may be a malfunction of the temperature controller or the sensor. In this case please return the device to EWIKON for repair.

Spare Parts List

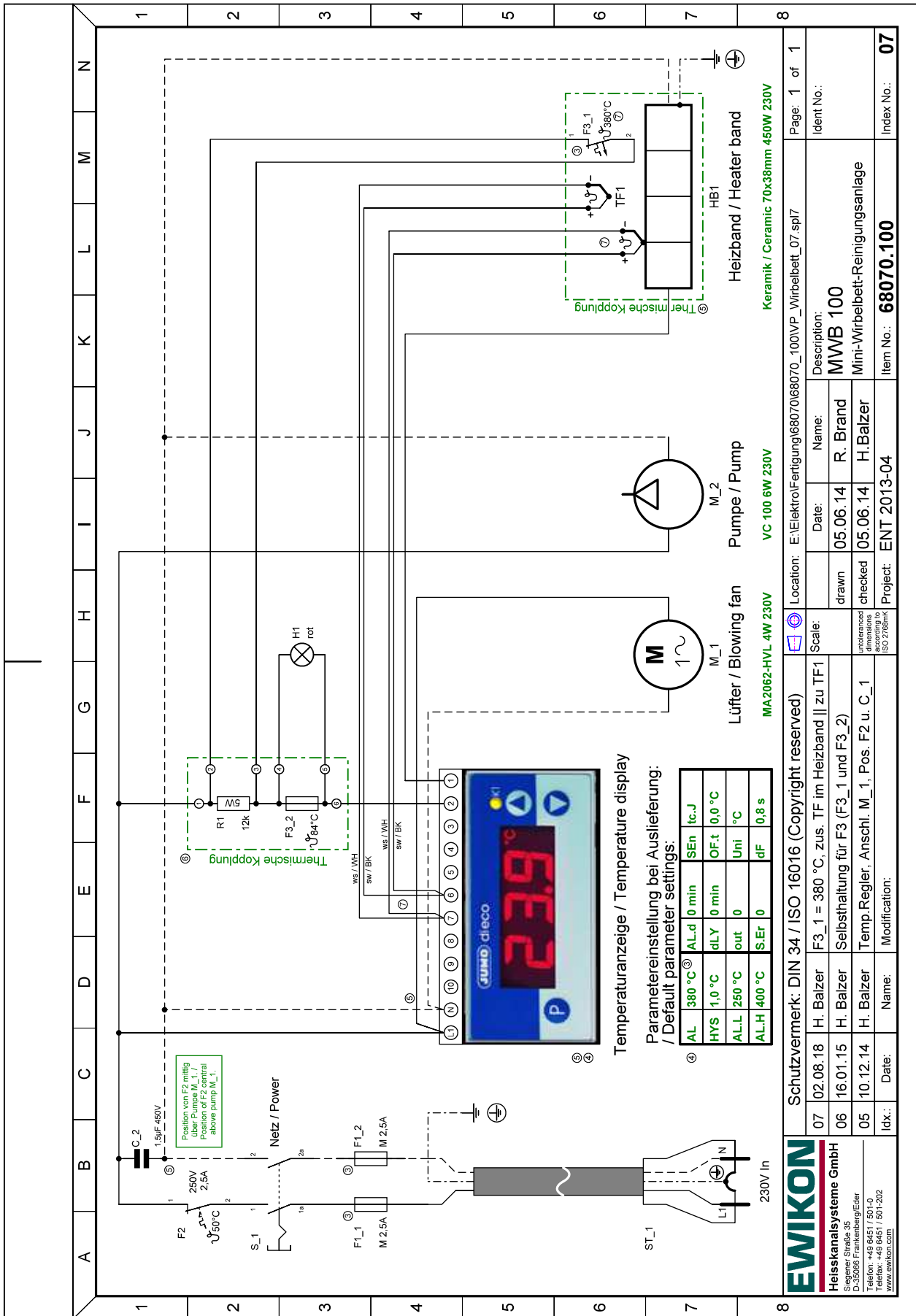
Number	Component	Item no.
1	Display	18216
2	Fan	18217
3	Fan cover with filter	18218
	Non-woven filter fabric FL 100; 3.3 mm (5 items per unit)	18233
4	Diaphragm pump	18223
5	Cleaning chamber lid	19900
6	Fuse 2.5 A (M); 5 x 20 mm	18243
	Brush	19930
	Quartz sand (180 g)	19950
	Temperature control 50 °C / 5 A	18219
	Temperature control 380 °C / 10 A	18268
	Pliers	19920
	Cable 3 x 0.75 mm ² (running meter), silicon insulation, temperature-resistant up to 180 °C	18221



Technical Specifications

Voltage:	AC 230 V	+5 % / -15 %	48-63 Hz
Output:	about 500 W		
Ambient temperature:	when operated	when stored	
	+5 to +40 °C	-40 to +70 °C	
Relative air humidity:	max. 80 % up to 31 °C linear decreasing to max. 50 % at 40 °C		
Contamination level:	2		
Protection class:	IP 20 (when sliding cover is closed)		
Weight:	5.8 kg		
Dimensions:	180 mm x 170 mm x 330 mm (H x W x D)		

Connection Diagram



Schutzvermerk: DIN 34 / ISO 16016 (Copyright reserved)		Location: E:\Elektro\Fertigung\68070\100VP_Wirbelbett_07.sp17		Page: 1 of 1	
07	02.08.18	H. Balzer	F3_1 = 380 °C, zus. TF im Heizband zu TF1	Description:	Ident No.:
06	16.01.15	H. Balzer	Selbsthaltung für F3 (F3_1 und F3_2)	MWB 100	
05	10.12.14	H. Balzer	Temp.Regler, Anschl. M_1, Pos. F2 u. C_1	Mini-Wirbelbett-Reinigungsanlage	
Idx.:	Date:	Name:	Modification:	Item No.:	Index No.:
				68070.100	07

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We hereby confirm that the product described below conforms to the essential protection requirements of the following European Directives

2014/35/EU „Low Voltage Directive“

and

2014/30/EU „EMC Directive“

with respect to its design type. This requires that the product is used for its intended purpose and that the assembly and operating instructions are observed.

Alterations made to the product will void the declaration of conformity.

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Product: **MWB 100 Mini fluidized bed cleaning device
for cleaning small hotrunner system components**

Type: **68070.100; Mini fluidized bed cleaning device**

Applied standards: DIN EN 61010-1: 2011-07 “Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1”
DIN EN 61010-2-010: 2013-01 “Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-010: Particular requirements for laboratory equipment for the heating of materials”

Frankenberg, 29 August 2018



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