



**READ AND SAVE THESE INSTRUCTIONS**

# ADDENDUM MANUAL

Desiccant dryer  
**Condair DA 500-4000 Compact**

# Thank you for choosing Condair

Installation date (MM/DD/YYYY):

Commissioning date (MM/DD/YYYY):

Site:

Model:

Serial number:

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# 1 Introduction

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## 1.1 To the very beginning

We thank you for having purchased a **Condair DA 500 - 4000 Compact desiccant dryer** (for short: Condair DA).

The Condair DA desiccant dryers incorporate the latest technical advances and meets all recognized safety standards. Nevertheless, improper use of the Condair DA desiccant dryer may result in danger to the user or third parties and/or damage to property.

To ensure a safe, proper, and economical operation of the Condair DA desiccant dryer, please observe and comply with all information and safety instructions contained in this addendum manual.

If you have questions after reading this documentation, please contact your Condair representative. They will be glad to assist you.

## 1.2 Notes on the addendum manual

### Limitation

This addendum manual is a supplement to the Condair DA 500-4000 installation and operation manual to cover the special properties of the Compact devices.

This installation and operation manual is restricted to the **installation, operation and maintenance** of the Condair DA desiccant dryer and is meant for **well-trained personnel being sufficiently qualified for their respective work**.

## Symbols used in this manual



### NOTE!

The catchword "NOTE" used in conjunction with the hand symbol designates important notes in this manual that require special attention.



### CAUTION!

The catchword "CAUTION" used in conjunction with the caution symbol in the circle designates notes in this operation manual that, if neglected, may cause **damage and/or malfunction of the unit or other material assets**.



### WARNING!

The catchword "WARNING" used in conjunction with the general caution symbol designates safety and danger notes in this operation manual that, if neglected, may cause to **injury to persons**.



### DANGER!

The catchword "DANGER" used in conjunction with the general caution symbol designates safety and danger notes in this operation manual that, if neglected, may lead to **severe injury or even death of persons**.

## Safekeeping

Please safeguard this addendum manual together with the Condair DA installation and operation manual in a safe place, where it can be immediately accessed. If the desiccant dryer changes hands, the addendum manual and the installation and operation manual must be passed on to the new operator.

If the documentation gets misplaced, please contact your Condair representative.

## Language versions

This addendum manual is available in other languages. Please contact your Condair representative for information.

## 2 For your safety

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Note: It is mandatory that you observe and follow all the safety information in section 2 of the installation and operation manual for the Condair DA 500-4000 desiccant dryer.

### 3 Important notes

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Note: It is mandatory that you observe and follow the information on delivery, transport and storage in section 3 of the installation and operation manual for the Condair DA 500-4000 desiccant dryer.

## 4 Product overview

### 4.1 Product designation

The product designation and the most important unit data of the DA desiccant dryer are found on the specification label fixed below the operation panel (see [Fig. 1](#)):

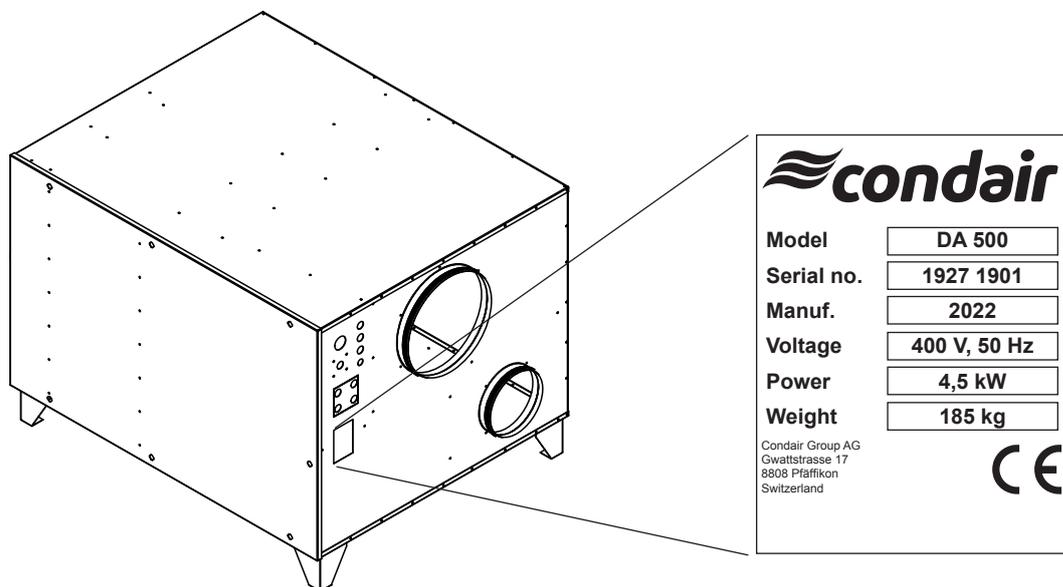


Fig. 1: Specification label

## 4.2 Applications

The Condair desiccant dryers are based on the sorption principle (see description of the operating principle in the installation and operation manual for the Condair DA 500-4000 desiccant dryer), which removes unwanted humidity from the air at normal atmospheric pressure.

The desiccant dryer can be used at air temperatures from 0 °C to 40 °C and humidity values of up to 100 %RH.

Typical fields of application for desiccant drying are:

- Control of humidity in production processes.
- Drying of temperature-sensitive products.
- Maintaining the correct humidity in storage rooms.
- Protection of corrosion-sensitive equipment.
- Humidity control in museums and archives.
- Drying after water damage and drying buildings during construction.
- Climatic improvements in humid rooms.

Compared to the normal design, DA 500-4000 Compact desiccant dryers are characterized by a single-walled housing without any insulation material. This particular construction offers an excellent solution for applications where there are not large temperature differences, e.g. with heavily pre-cooled process air and where noise emissions do not have top priority. In addition, this construction leads to a more compact device with a significantly lower weight.

## 4.3 Operation principle

The operation principle of the DA Compact desiccant dryer is identical to that of the Condair DA 500-4000 standard devices. Please note the information in section 4.3 of the installation and operation manual for the Condair DA 500-4000 desiccant dryer.

## 4.4 Product description

The Condair DA 500-4000 Compact desiccant dryers with applied ducting meet the requirements of IEC protective class IP23. The electrical panel meets the requirements of IEC protective class IP44.

### 4.4.1 Casing

The housing is powder coated in RAL7035 and is made from 1 mm thick Magnelis®. The construction with sealing material on the panel and internal construction achieves high tightness.

The service-friendly design allows easy access to internal components via a removable front panel. All air duct connections are prepared for the connection of standard spiral ducts.

### 4.4.2 Rotor

The desiccant dryer has a drying rotor made of 82% desiccant silica gel, 16% fibreglass and 2% adhesive sealant. The rotor has a matrix of corrugated and flat heat resistant sheets, which houses the Silica Gel desiccant agent. This matrix creates a large number of axial flutes through the rotor, which together builds up an immense surface area for moisture adsorption in a small volume. The rotor is manufactured and processed to be able to withstand moisture-saturated air without being damaged. Furthermore, the rotor will not be damaged even if the fan or the heater for reactivation should fail during operation. The desiccant rotor is tested according to ASTM E84-18b, and the results are Flame Spread Index (FSI) 0 and Smoke Developed Index (SDI) 0.

#### Rotor sealings

The rotor has two peripheral seals (PTFE/Silicone) on the rotor casing and four radial seals (PTFE)

#### Rotor drive system

An electrical gear motor and a belt drive achieve the slow rotation of the rotor. The belt sits on the outer rim of the rotor and is driven by a pulley on the drive motor. A belt tension device keeps the belt in place and maintains tension to prevent belt slip. Correct operation of the drive system, and direction of rotation can be checked by opening the front panel.

The centre hub of the rotor is equipped with ball bearings. The rotor shaft is made from stainless steel.

### 4.4.3 Air filters

Two separate air filters class ISO coarse  $\geq 65\%$  are installed on the inlet of each air flow. These filters protect primarily the internal components from dust.

### 4.4.4 Fans for process- and reactivation air

The device is equipped with two directly driven centrifugal fans, IP54 and ISO F, installed in the device. The exact type can be found in the respective wiring diagram.

#### **4.4.5 Heater for reactivation air**

For the units with electrical reactivation air heating, the reactivation heater is of the PTC-type (Positive Temperature Coefficient). These special PTC heating elements offer the usual protection against overheating.

From the DA 1400 onwards, the electrical reactivation heating has a 2-stage control as standard. A modulated control of the reactivation heater is available as an option.

#### **4.4.6 Electrical cabinet**

The electrical cabinet is located in a separate compartment on the service side of the desiccant dryer. The main switch and PLC display are located on the front on the right-hand side.

#### **4.4.7 Operation Options**

The operation of the desiccant dryer with a description of the built-in PLC can be found in the separate PLC controller manual.

## 5 Installation

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Note: For the installation of the DA desiccant dryer observe and follow the information on installation in section 5 of the installation and operation manual for the Condair DA 400-5000 desiccant dryer.

## 6 Commissioning

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Note: For the commissioning of the DA desiccant dryer observe and follow the information on commissioning in section 6 of the installation and operation manual for the Condair DA 400-5000 desiccant dryer.

## 7 Maintenance

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Note: For the maintenance of the DA desiccant dryer observe and follow the information on maintenance in section 7 of the installation and operation manual for the Condair DA 400-5000 desiccant dryer.

## 8 Troubleshooting

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Note: For the troubleshooting, observe the information on troubleshooting in section 8 of the installation and operation manual for the Condair DA 500-4000 desiccant dryer.

# 9 Product specification

## 9.1 Technical Data

|   |         | DA 500           | DA 700 | DA 1000 | DA 1400 | DA 2400 | DA 3400 | DA 4000 |
|---|---------|------------------|--------|---------|---------|---------|---------|---------|
| Drying capacity at 20°C - 60%rh             | kg/h    | 3.3              | 5.1    | 7.1     | 10      | 13.5    | 14.5    | 20      |
| Process air flow nominal                    | m³/h    | 500              | 700    | 1000    | 1400    | 2400    | 3400    | 4000    |
| Reactivation air flow nominal               | m³/h    | 150              | 220    | 350     | 400     | 500     | 550     | 850     |
| Static pressure process air side            | Pa      | 300              | 200    | 300     | 200     | 300     | 300     | 200     |
| Static pressure reactivation air side       | Pa      | 300              | 250    | 200     | 300     | 250     | 200     | 200     |
| El. power consumption                       | kW      | 4.5              | 7.5    | 11      | 13.6    | 19      | 20.6    | 28.7    |
| El. power consumption reactivation heater   | kW      | 4                | 7      | 10.2    | 13      | 17.5    | 18      | 26      |
| Admissible temperature                      | °C      | 0 to 40          |        |         |         |         |         |         |
| Admissible humidity                         | %rF     | 0 to 100         |        |         |         |         |         |         |
| Power supply                                | V/Ph/Hz | 400/3/50         |        |         |         |         |         |         |
| External fuse                               | A       | 16               | 16     | 16      | 35      | 50      | 50      | 50      |
| Connection diameter process air             | mm      | 400              |        |         |         |         |         |         |
| Connection diameter dry air                 | mm      | 315              |        |         |         |         |         |         |
| Connection diameter reactivation air        | mm      | 200              |        |         |         |         |         |         |
| Connection diameter wet air                 | mm      | 200              |        |         |         |         |         |         |
| Filter class process air <sup>1)</sup>      |         | ISO Coarse 65%   |        |         |         |         |         |         |
| Filter class reactivation air <sup>1)</sup> |         | ISO Coarse 70%   |        |         |         |         |         |         |
| Dimensions (H x W x D)                      | mm      | 886 x 1145 x 941 |        |         |         |         |         |         |
| Weight                                      | kg      | 120              | 125    | 125     | 130     | 135     | 135     | 140     |

<sup>1)</sup> Classification according to ISO 16890

## 9.2 Dimensions DA 500-4000 Compact

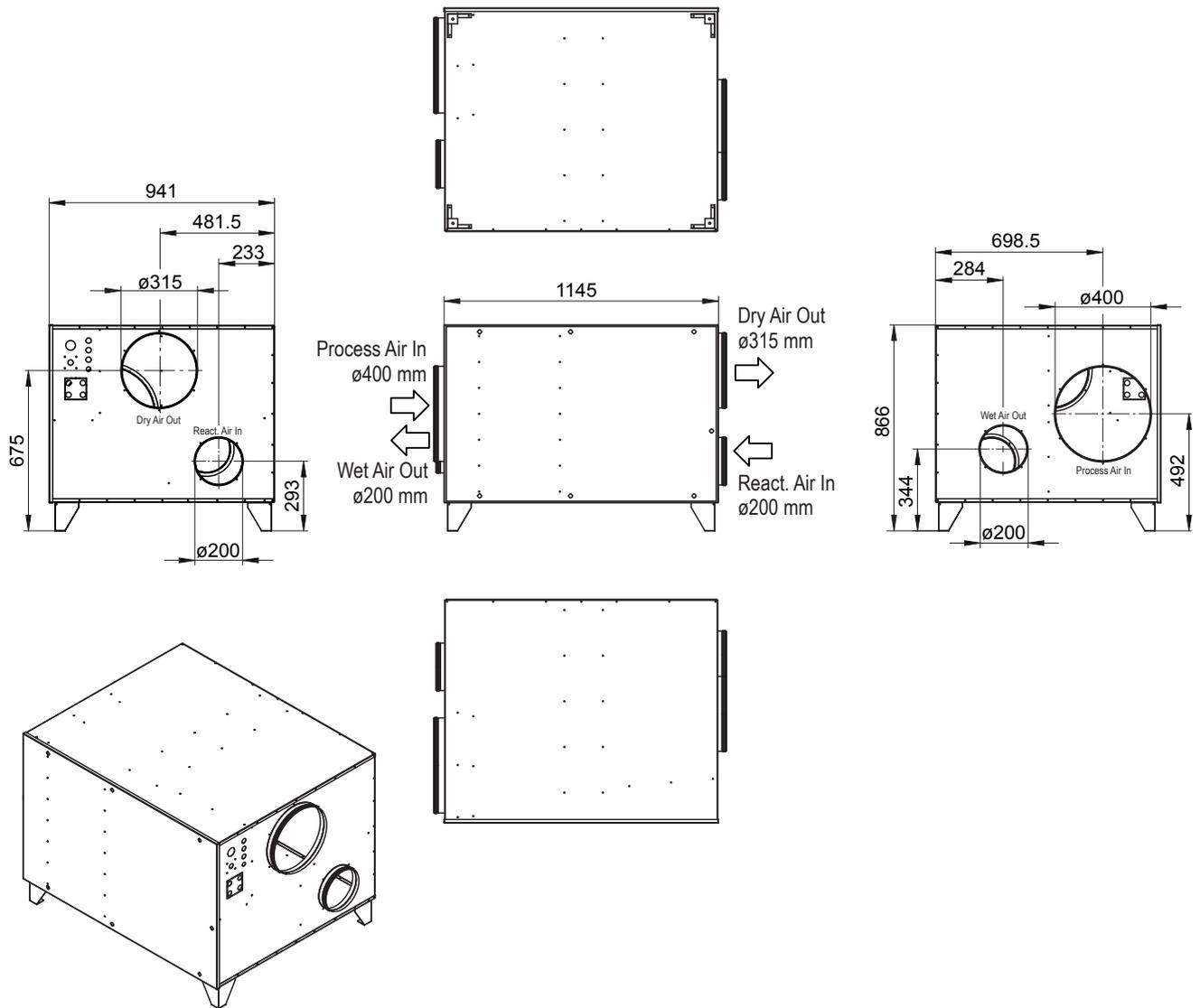


Fig. 2: Dimensions DA 500-4000 Compact

## 10 Spare parts

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Note: Information on spare parts for the DA adsorption dryer can be found in section 10 of the installation and operation manual for the Condair DA 400-5000 desiccant dryer.

# 11 Built-in components

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Note: Information on built-in components of the DA adsorption dryer can be found in section 11 of the installation and operation manual for the Condair DA 400-5000 desiccant dryer.

## 12 EU declaration of conformity

### EU declaration of conformity

Condair Group AG  
Gwattstrasse 17  
8808 Pfäffikon SZ  
Switzerland

declare under own responsibility that the product:

**Condair Dehumidifier DA 500, DA 700, DA 800, DA 1000, DA 1100, DA 1400, DA 2400, DA 3400, DA 4000, DA 4400, DA 6000, DA 6400, DA 7400, DA 8000, DA 9400, DA 13000, DA 19000 and DA 27000 from unit no 128 1512**

which is detailed in this declaration complies to the following harmonized European standards and technical specifications:

|  |   |
|--|---|
| <b>EN ISO 12100:2010</b>                 | Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)   |
| <b>EN 60204-1:2018</b>                   | Safety of machinery - Electrical equipment of machines - Part 1: General requirements   |
| <b>EN 61000-6-3:2007/A1:2011/AC:2012</b> | Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments |
| <b>EN 61000-6-2:2005/C1:2005</b>         | Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments  |

according to conditions in directive:

|                    |  |
|--------------------|--|
| <b>2006/42/EC</b>  | Machinery Directive  |
| <b>2009/125/EC</b> | Ecodesign requirements for fans driven by motors with an electric input power between 125 W and 500 kW |
| <b>2014/30/EU</b>  | Electromagnetic Compatibility (EMC) Directive  |

Pfäffikon 2018-12-12

The manufacturer:



Condair Group AG  
Robert Merki



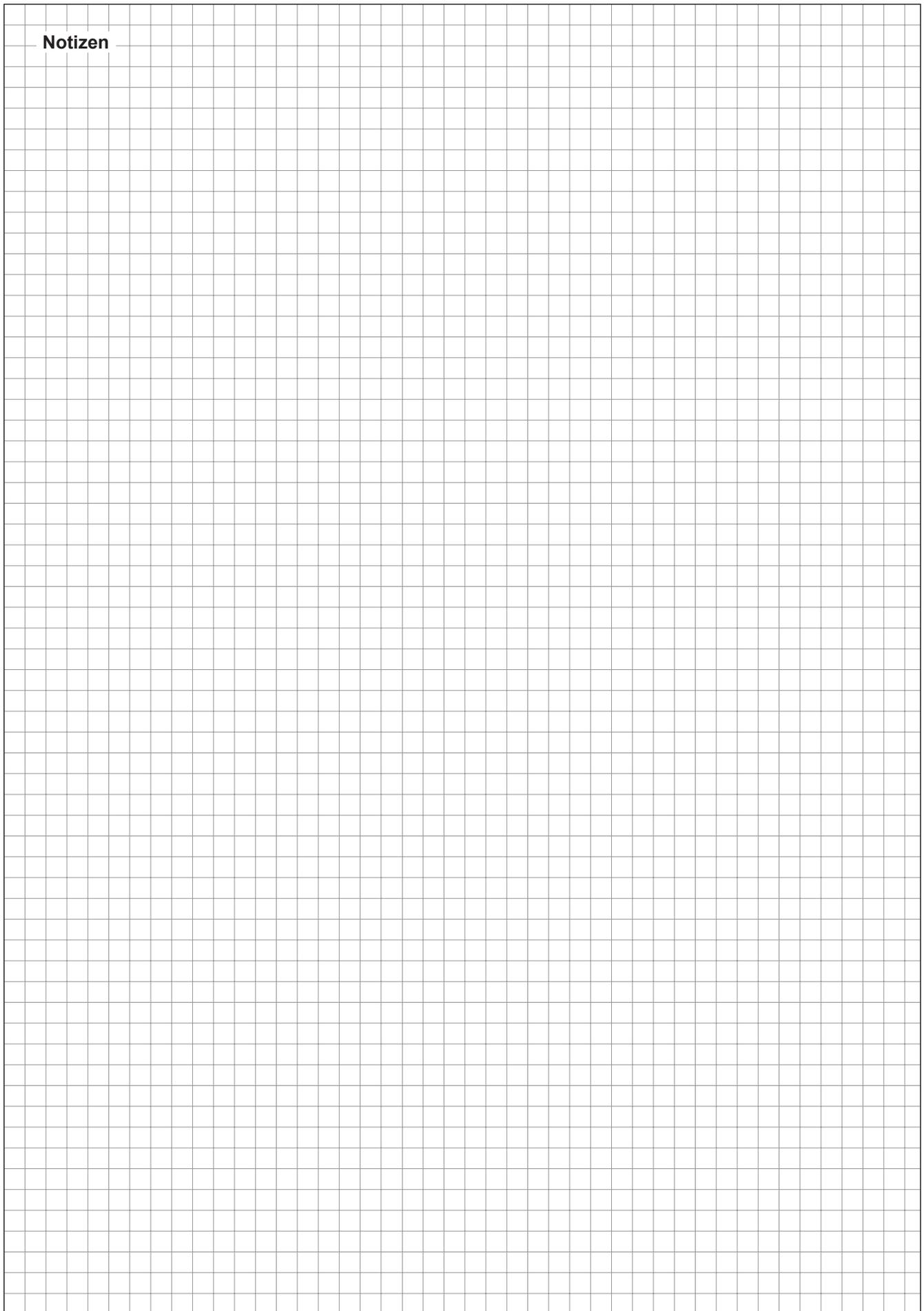
## 13 Appendix 1 – electrical wiring diagram

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The electrical wiring diagram for the appropriate desiccant dryer will be completed about 2 weeks before completion of the unit and is delivered together with the unit.

As every dehumidifier is uniquely manufactured to client specification the wiring diagram is unique to the particular unit consequently the specific electrical wiring diagram.

**Notizen**





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