

Instruction Manual

Metal Annealing and Hardening Kilns



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1. PREFACE

Congratulations! You have opted for a ROHDE kiln – a high-quality product for highest requirements.

This kiln is the result of our intense research in the improvement of small to medium sized ceramic kilns. It is suitable for firing metal up to 1300° C and is equipped with a reduction resistant lining.

This instruction manual will make it easy for you to get familiar with your new ROHDE – Metal Annealing and Hardening kiln. We have compiled a collection of important information and guidelines in order to make operating your ROHDE kiln as safe and simple as possible.

Please read the instruction manual carefully, before you use your ROHDE - Metal Annealing and Hardening kiln for the first time.

Get familiar with the features and functions of the Metal Annealing and Hardening kiln and the controller.

2. Overview model series ME



| Type | Capacity l | Tmax. °C | Int. Dimensions (mm) | | | Ext. Dimensions (mm) | | | Output kW | Voltage V | Supply A | Weight kg |
|------------------|---------------|-------------|----------------------|------|-----|----------------------|------|------|--------------|--------------|-------------|--------------|
| | | | b | d | h | B | D | H | | | | |
| ME 8/13 | 7,5 | 1300 | 250 | 250 | 120 | 500 | 600 | 700 | 2,5 | 230 1/N | 16 | 75 |
| ME 12/13 | 12,5 | 1300 | 250 | 250 | 200 | 500 | 700 | 700 | 3,6 | 230 1/N | 16 | 85 |
| ME 17/13 | 17,5 | 1300 | 250 | 350 | 200 | 500 | 700 | 700 | 6,0 | 400 3/N | 16 | 85 |
| ME 25/13 | 25,0 | 1300 | 250 | 500 | 200 | 500 | 850 | 700 | 7,0 | 400 3/N | 16 | 95 |
| ME 45/13 | 44,0 | 1300 | 350 | 500 | 250 | 1000 | 1300 | 1400 | 13,0 | 400 3/N | 19 | 250 |
| ME 65/13 | 66,0 | 1300 | 350 | 750 | 250 | 1000 | 1400 | 1400 | 20,0 | 400 3/N | 29 | 330 |
| ME 87/13 | 87,5 | 1300 | 350 | 1000 | 250 | 1000 | 2000 | 1400 | 22,0 | 400 3/N | 32 | 500 |
| ME 105/13 | 112,5 | 1300 | 500 | 750 | 300 | 1350 | 1850 | 1900 | 22,0 | 400 3/N | 32 | 700 |
| ME 165/13 | 165,0 | 1300 | 550 | 750 | 400 | 1400 | 1850 | 2000 | 30,0 | 400 3/N | 44 | 900 |
| ME 333/13 | 330,0 | 1300 | 750 | 1100 | 400 | 1600 | 2200 | 2000 | 48,0 | 400 3/N | 84 | 1400 |
| ME 665/13 | 650,0 | 1300 | 1000 | 1300 | 500 | 1850 | 2400 | 2100 | 70,0 | 400 3/N | 100 | 2200 |

3 IMPORTANT SAFETY INSTRUCTIONS

3.1. General information

Please make sure that you understand both the safety instructions and the safety icons, in order to eliminate potential danger. It is in your own interest to read through the following safety instructions very carefully before you start operating your ROHDE - Metal Annealing and Hardening kiln.

Always keep your instruction manual in a safe place. To your own safety use only ROHDE spare parts!

3.2. Safety instructions



Caution:
Hot surface, do not open
while kiln is hot!



Caution: High voltage –
Danger to Life!



Caution: Plug off mains
supply before opening the
electric switch box!



The certificate for „GS
certified safety“ for this
product range is pending.



The CE icon confirms that the conformity to EC standards has been tested.

3.3. Safety instructions for operation

The safe operation of a ROHDE Metal Annealing and Hardening kiln will only be possible by adhering to the following safety instructions:

- For industrial use a qualified electrician must check if both kiln and controller are in proper and perfect condition prior to first operation and in periods of 4 years (BGV A2 inspection).
- Repair and maintenance of electric components must be carried out by a qualified electrician.
- For safety reasons the power plug must be disconnected before carrying out maintenance or repair work.
- Do not use extension cords!

4. INITIAL OPERATION

4.1. Delivery / removal of packing material

If the ROHDE - Metal Annealing and Hardening kiln is delivered on pallet by freight forwarding, please check the delivery immediately for damages. Should you find any damages on the packing, unpack the pallet together with the driver and check the product for any damages. Write down any damages found on the delivery note and do not forget to have the note countersigned by the driver. Keep a copy of the damage complaint. Notify the forwarding agent immediately about the damage. We regret that later claims cannot be accepted.

4.2. Disposal of packing material

Please contribute to a clean environment by disposing of the wood, cardboard and plastic packing material in your nearest recycling centre. For further information on the disposal of packing material please contact your retailer or community council.

4.3. Operation environment / place of operation

When you choose a suitable place for your kiln, please take note of the following guidelines and prepare the kiln environment accordingly:

- Place the kiln on an even surface.
- The distance to the walls should be at least 25 cm on each side.
- Floor, insulations of the ceiling, walls, dividing walls, panelling, etc have to be made of material which is not easily flammable.
- Make sure that the environment of the kiln can be aired properly. If this is not the case a ventilation system has to be installed. Please consult a qualified ventilation specialist to find out if a ventilation system is necessary.

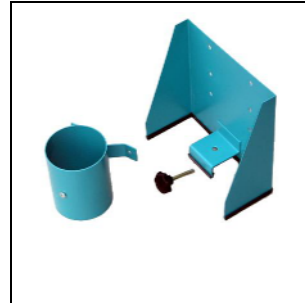
4.4. Mounting of kiln

At first you should check the enclosed accessories (picture 1):

1 metal plate for control unit.

For the models ME 45 to ME 165 you will find additionally 1 exhaust socket and 2 leg pairs inside the kiln.

Please find also enclosed the control unit including instruction manual.



picture 1

4.5. Mounting the kiln on the kiln legs

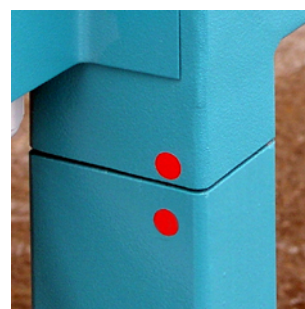
If your ROHDE Metal Annealing and Hardening Kiln has not been mounted on its legs by our ROHDE delivery and assembly service, then you should do so now (only necessary for ME 45 to ME 165).

With the help of a forklift you can lift your Metal Annealing and Hardening Kiln. Insert the fork carefully underneath the kiln door into the direction of the rear wall.

Make sure that you do not damage the power cable or the AMP socket !

You should lift the kiln so high that you can easily push the legs onto the pins.

Caution: Please pay attention to the color-coded markings (picture 2): **red to red** and **green to green** !



picture 2

Fasten the leg pairs to the ME kiln with the enclosed Allen screws. Then you can lower the kiln at the desired operating location.

4.6. Mains connection / connect control unit

The kiln is supplied with a mains connection cable. The specifications are indicated on the type plate. The mains supply has to meet the power requirements of the kiln and has to be accessible in the immediate vicinity of the kiln. Never use an extension cord!

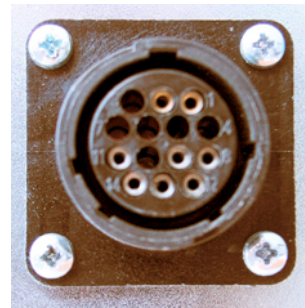
The connection cable must not make contact with the hot kiln.

Regional voltage fluctuations are possible and will lead to fluctuations in the nominal output. If the voltage drops from 400 to 360 under load, the output of the kiln will be reduced by 16%.

If the building is protected by a residual current circuit breaker, the kiln, too, has to be protected and operated using a residual current circuit breaker with 0.03 A nominal current.



picture 3



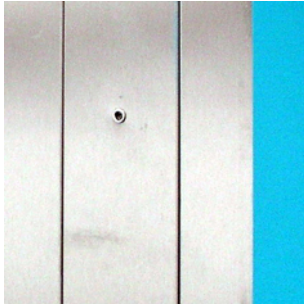
picture 4

The controller (picture 3) is connected to the kiln with a 14-pin plug-and-screw connection. You will find the black plug (picture 4) for this connection next to the electric connection on the rear side of the kiln. Please plug in the black plug of the controller. You might need to turn it a little bit until it locks in place. Then fasten the connection ring, in order to protect the connection.

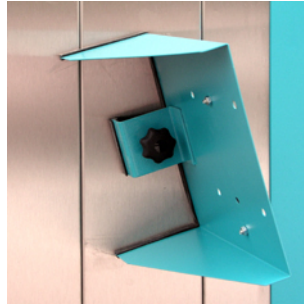
4.7. Mounting of the controller

Mounting of the controller onto the kiln

Place the enclosed controller plate (picture 6) onto the kiln so that you can screw the enclosed star-grasping screw into the supplied drill hole (picture 5). Once the controller plate is fastened onto the kiln wall you can fasten the controller onto the plate (picture 7). Please find the precise instructions for the mounting of the controller in your controller instruction manual.



picture 5



picture 6



picture 7

Mounting the controller on the wall

Please choose a protected and easily accessible position on the wall next to the kiln. Detach the fixation elements from the controller. Mount the fixation elements with two wall plugs and two screws onto the wall. Now you can push the controller from above into the fixation elements.

4.8. Burn in the kiln

CAUTION: Please remove the polystyrene plates which have protected the SIC base plate during transport.

Before you start using your kiln for regular service you should run a firing with the empty kiln. The “burning-in” is necessary to eliminate the remaining moisture from the kiln walls and to produce a protective oxide layer on the heating elements, which will significantly increase their service life.

Power settings for the process of “burning-in”:

- heat up with 100°C/h
- end temperature 1050° C
- dwell time 1 h. 30 min.

5. GENERAL INSTRUCTIONS FOR OPERATION

5.1. Instructions for controller operation

Please read the applicable instructions for your controller carefully first! After connecting the mains supply cord as well as the controller the kiln is ready for operation.

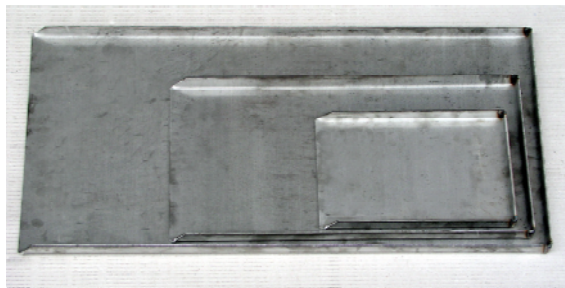
5.2. Instructions for correct firing

- Do not place flammable objects near the kiln.
- The kiln may be placed and operated only in well aired rooms. To guarantee reliable operation, the kiln may be operated only up to a surrounding temperature of 40°C.
- The kiln may not make contact with any other object. Make sure that the heat release is not blocked. Do not place objects on top of or around the kiln.
- Never open the kiln during operation or before it has entirely cooled down. Heat released from the kiln might cause damage and injuries and leads to premature wear of the kiln.
- When firing materials which release hazardous gases and fumes it is essential that you install an exhaust fume system which directs the exhausts into the open air.
- Never place flammable materials or food in the kiln.

6. FURTHER EQUIPMENT

6.1. Charging panel

As additional equipment we offer charging panels (optional equipment). The edges of the panels are turned upwards on three sides and are inserted into the kiln in order to protect the kiln floor. Charging panels can be supplied for all ME kilns.



picture 8

6.2. Hardening case

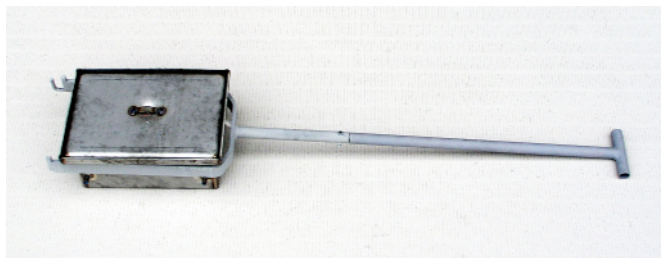
The Rohde hardening cases (optional equipment) with integrated sand seal box are exceptionally suitable for annealing, hardening, nitrogen hardening, case hardening and boriding. Filling the sand seal box with sand or insulation material will provide you with a close to sealed atmosphere.



picture 9

6.3. Manipulation fork

A simple tool for working with hardening cases (optional equipment). It can be supplied in different sizes for annealing and hardening operations up to max 1100° C.



picture 10

6.4. Hardening table

The hardening table (optional equipment) allows you to put down parts or tools. It can be delivered with an oil or water container. An integrated cooling system can be supplied as special equipment.



picture 11

7. MAINTENANCE / CLEANING

Please take care that no clays or glazings make contact with the heating elements. This would result in the failure of the elements during the next firing. Should nevertheless the heating elements be stained by any substance please clean them immediately, as burned-in glazings etc. will damage the heating elements and bricks. In the case of substantial damage please contact us or your retailer.

Heating elements are subject to wear. Their resistance (Ohm) increases with every firing. In the course of time this will lead to delay in the firing cycle due to a drop in output, especially in the upper temperature range. In the case of excessive wear we recommend to replace all, rather than only individual heating elements, as individually replaced elements might lead to differences in temperature within the kiln.

Consult a qualified electrician for the replacement of the heating elements!

A tip for the firing professional:

Store a complete set of additional heating elements! In case of an emergency this will spare you unnecessary delay and will enable you to continue firing as quickly as possible.

8. TIPS FOR TROUBLE SHOOTING

The controller cannot be switched on.

- Check if the controller has been connected to the switch box of the kiln.
- Check if the kiln is connected to the mains supply.
- Check the micro-fuse on the switch box of the kiln. It is fused with T 2A.
- Have your house mains supplies (plugs), fuses and the current consumption of your kiln checked by a qualified electrician.

The controller displays an error message between “F1” and “F9”.

You will find the respective approach described in your users manual for the controller.

The kiln heats very slowly.

The kiln does not reach the chosen temperature. The controller displays an error message. Check the heating elements for visible damage.

**Each ROHDE kiln is switched on and checked for
function before it leaves our factory!**

9. GUARANTEE REGULATIONS

We guarantee the faultless workmanship and function of the delivered kiln and grant a 24-month guarantee.

Along with the heating elements (subject to wear and tear) the following instances are excluded from the guarantee:

- Damages which have been caused by the customer.
- Damages which have been caused by the fired material, e.g. due to exceeded temperature limits.
- Damage caused by inappropriate transport(s).
- Damages due to chemical reactions during firing for which the kiln is not designed (e.g. salt glazed ceramics).
- The manufacturer is not liable for any damage caused by inappropriate operation and resulting damages.

Important: Please fill in the GUARANTEE CARD and send it back immediately! Please note: If you do not send back the Guarantee Card, we will not be able support you quickly and free of charge in an event of damage

Caution: The fire bricks of the lining are exposed to heavy temperature fluctuations. This can cause crazings in the firebrick lining. This process is normal and does not affect the functions of the kiln. It therefore cannot be a reason for reclamation.

What to do in the event of guarantee/damage:

Please notify your retailer - before any costs arise. Your retailer will then talk to us, the manufacturer, how to proceed.

In the case of a reclamation, please state the **kiln type**, **product number** and the **date of purchase** or the **year of construction** (see **type plate** on the kiln side).

| | | | |
|--|--|---|---------------|
| ROHDE  | | <small>HELMUT ROHDE GmbH Brennöfen und Maschinen ROSENHEIMER STR. 89 D – 83134 PRUTTING</small> | |
| Model | ME 45/13 | Leistung Load | 13 kW |
| Serial No. | 17298 | Stromaufnahme Supply | 19 A |
| Spannung Electricity | 3N/PEAC 400V | Baujahr Y.O.M | 7/2005 |
|  | Maximaltemperatur Maximum operating temperature | | 1300°C |

10. INDUSTRIAL PROPERTY RIGHTS / TRADE NAMES / DISCLAIMER

The content of the instruction manual are purely informative. It may be changed without prior notice and may not be seen as a liability of Helmut Rohde GmbH. We do not guarantee or take over responsibility for the correctness or precision of the contents in this instruction manual.

We mention names, trade names, product identifications etc. without special identification, as they are commonly known. Those names and identifications, however, may be the property of companies or institutes.

EC Declaration of Conformity
According to EC LOW VOLTAGE DIRECTIVE 72/23 EEC

Firma Helmut Rohde GmbH
Rosenheimer Str. 89
83134 Prutting

Name of electric unit:

Metal Annealing and Hardening Kilns

Kiln type:

ME 8/13, ME 12/13, ME 17/13, ME 25/13, ME 45/13, ME 65/13, ME 87/13

ME 105/13, ME 165/13, ME 333/13 and ME 665/13

Kiln number:

According to type plate

Essential EC Directives:

EC - LOW VOLTAGE DIRECTIVE (73/23/EEC, 19 February 1972)
in the version revised by Directive 93/68 EEC,
22 July 1993

EC - ELECTROMAGNETIC COMPATIBILITY DIRECTIVE
(89/336/EEC) version 93/31/EEC

Applied
Harmonised Standards
especially:

DIN EN 60335 part 1

Applied
national standards and
technical specifications
especially:

DIN VDE 0700 part 1/ 02/81
DIN VDE 0700 1A2/0488
DIN VDE 0700 part 244/05.87

Date/signature of manufacturer: 09 January 2004

Details of undersigned:

B. Bolde

signed: Benjamin Rohde, Managing Director

CE

Filing:

Inspection reports (sorted by production numbers)

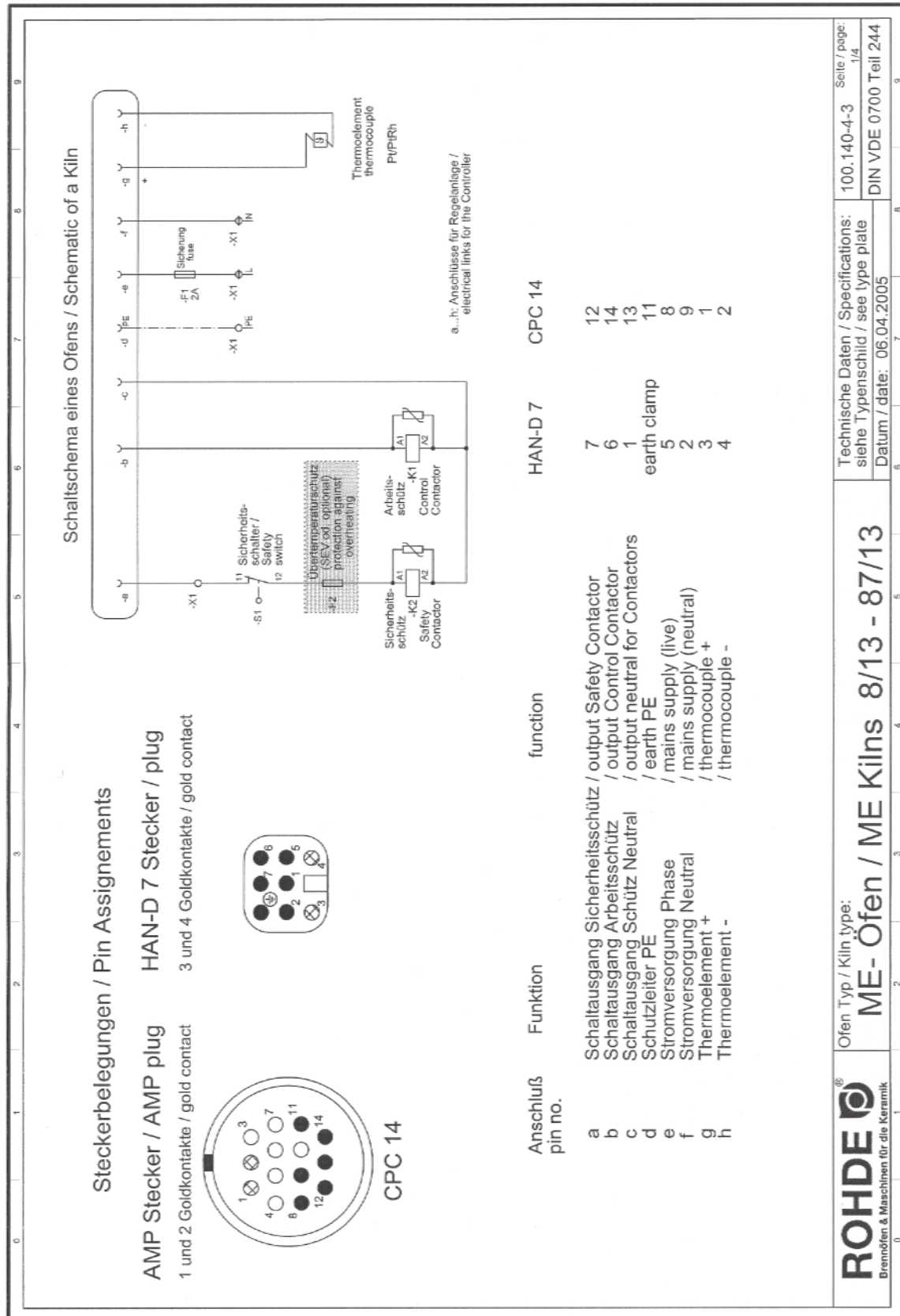
12. KILN PASSPORT / SPARE PARTS

On the last pages of this instruction manual you will find the kiln passport for your purchased kiln. This kiln passport displays all the relevant data which will ensure the quick and precise ordering of spare parts.

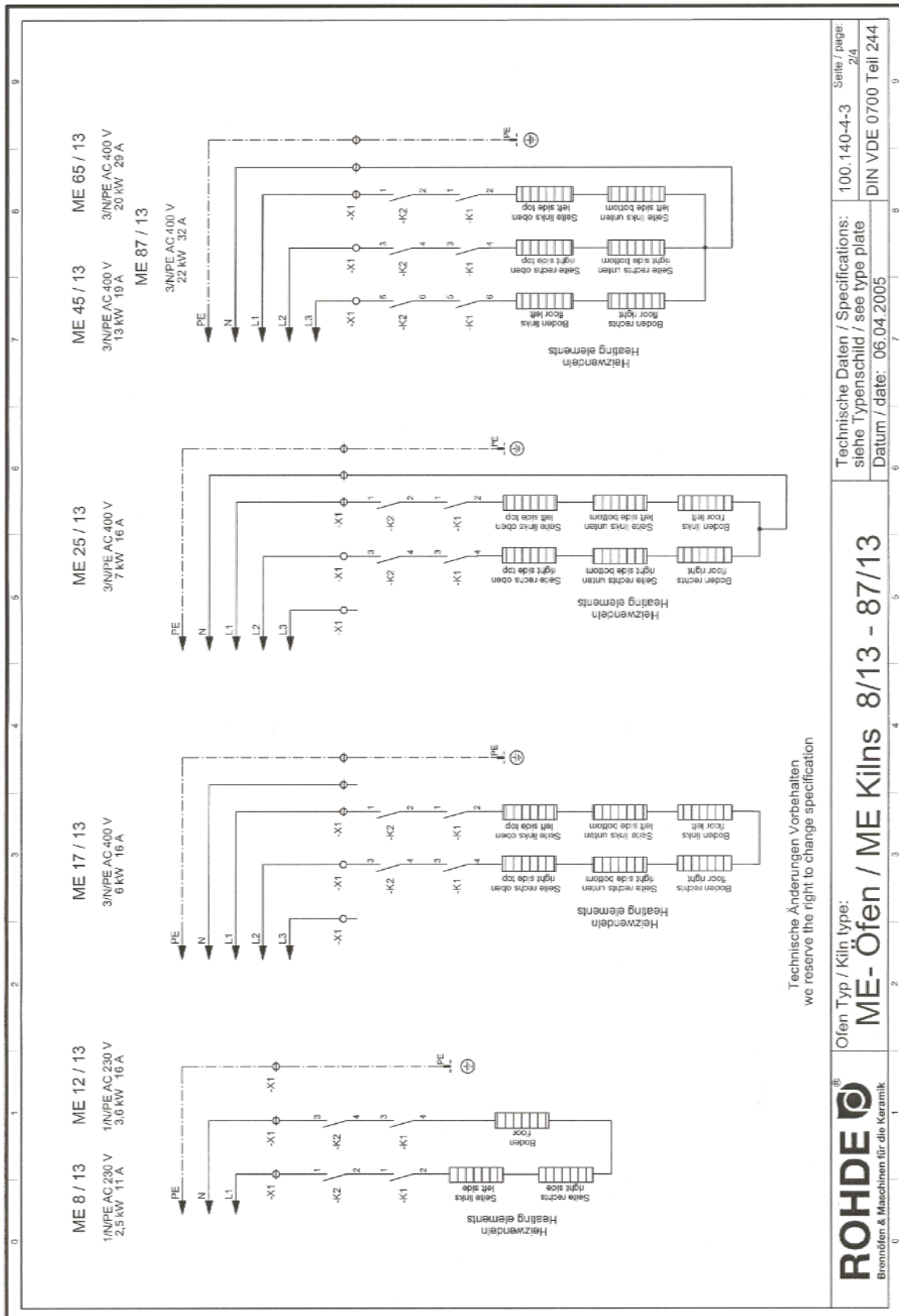
When ordering spare parts please have your kiln passport and your invoice of purchase ready at any time.

13. CONNECTING DIAGRAM / CIRCUIT DIAGRAM

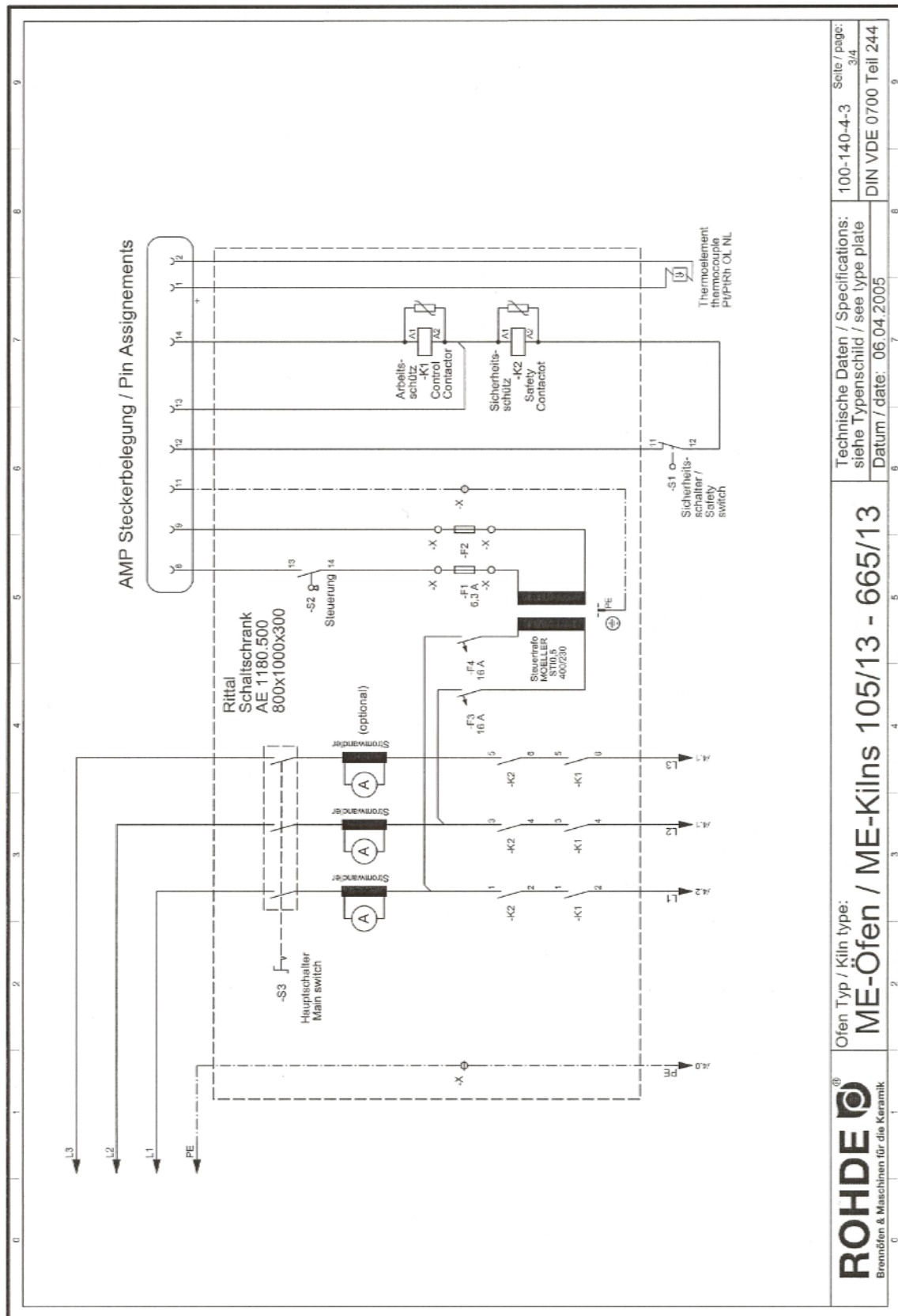
13.1. Connecting diagram Metal ME 8/13 – 87/13



13.2. Circuit diagram Metal ME 8/12 – 87/13



13.3. Connecting diagram Metal ME 105/13 – 665/13



14. SERVICE CONTACT DETAILS

Should you have any questions regarding your kiln, spare parts or additional equipment please contact your retailer.

We hope you will enjoy working with your new ROHDE kiln and wish you
much success and excellent firing results at all times!
Your ROHDE-Team

**Helmut Rohde GmbH • Rosenheimer Str. 89 • D-83134 Prutting
info@rohde-online.net • www.rohde-online.net**