

Operating Instructions

RETOMAT-Series with COMFORT-controller

LABORATORY EQUIPMENT IN
STAINLESS STEEL



REITEL Feinwerktechnik GmbH
Senfdamm 20 | 49152 Bad Essen
Tel.: +49(0)5472-9432-0 | Fax: +49(0)5472-9432-40
www.reitel.com | info@reitel.com

Dear Customer!

The laboratory furnaces of the RETOMAT series are especially designed for precious and non-precious alloys and partial frameworks. The COMFORT-control offers you 10 programming spaces with up to 30 heating ramps and a speed program for speed investment. Temperature is distributed and stays even in the chamber due to the four-sided heating element and optimal chamber insulation. Upward opening stainless steel furnace door.

Any other use or usage beyond this scope is considered unintended use. The manufacturer shall not be responsible for any damages that may result thereby.

Prior to installation of the device operating instructions and especially the safety instructions must be read and followed by all personnel who use this device.

After having unpacked the device, please check carefully whether transportation damages of any kind have occurred. If that is the case, the carrier or manufacturer must be notified within 3 days. The company will not be responsible for any damages found after that.

These operating instructions must be read and followed by all personnel who use this device.

To ensure quick access we recommend to keep it at a safe place near the device. This documentation is protected by copyright. Transmittal or reproduction of this document in whole or in part and disclosure of its contents is not permitted. If the operation manual gets lost an extra copy can be ordered from the manufacturer.

INDEX

1	TECHNICAL DESCRIPTION	4
1.1	BASIC EQUIPMENT	4
1.2	SPECIAL ACCESSORIES	4
1.3	OPERATING ELEMENTS	4
1.4	TECHNICAL DATA	6
2	SAFETY NOTES	6
2.1	GENERAL SAFETY NOTES	6
2.2	SPECIFIC SAFETY NOTES	7
3	INSTALLATION	8
3.1	INSTALLATION	8
3.2	USE OF A STEAM CATALYST	9
4	OPERATION	9
4.1	OVERVIEW OF THE CONTROL PANEL	9
4.2	SETTING THE TIME AND DATE	10
5	PROGRAMMING AND OPERATION	11
5.1	PROGRAM FOR QUICK EMBEDDING MASSES	11
5.2	PROGRAMMING STEP PROGRAM	12
5.3	DELAYED START	14
5.4	CONTINUOUS HEATING AFTER PROGRAM COMPLETION	14
5.5	AFTER OPERATION	15
6	TROUBLESHOOTING	15
7	MAINTENANCE	16
8	WARRANTY	16
9	DISPOSAL REGULATIONS	19
10	SPARE PARTS LIST	20
11	EU-RICHTLINIEN	21

1 Technical Description

1.1 Basic Equipment

- RETOMAT laboratory furnace with COMFORT-controller

1.2 Special Accessories

- Order-No.: 27301000 Catalyst
- Order-No.: 27302000 Steam ventilator
- Order-No.: 27303000 Casting ring drawer

1.3 Operating Elements

- 1 Power switch
- 2 Oven door
- 3 Handle (furnace door)
- 4 Control panel (COMFORT control)
- 5 Rubber feet
- 6 Socket (for optional steam ventilator or catalyst)
- 7 Circuit breaker
- 8 Cable entry with mains plug
- 9 Opening for exhaust air connection
- 10 Temperature sensor, type K
- 11 Ceramic insert plate (depending on the device)



Fig.: device view

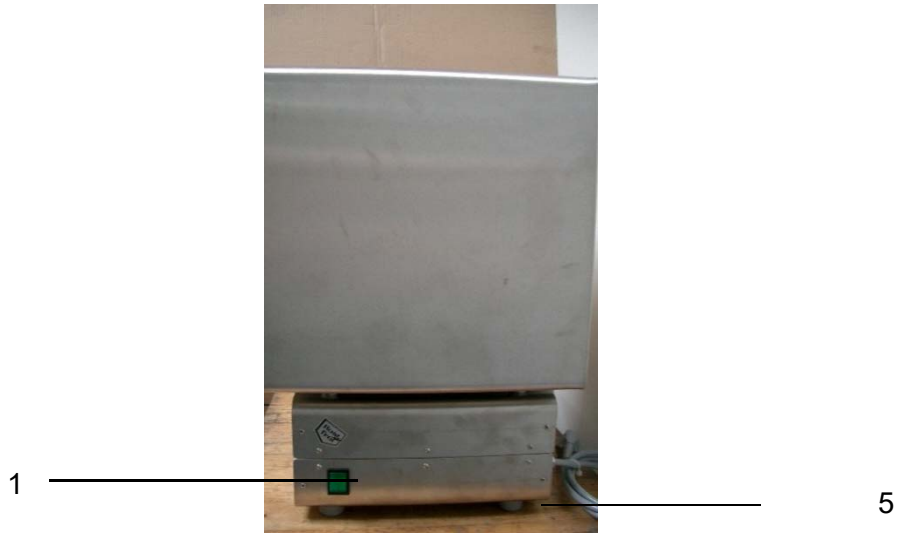


Fig.: Side view



Fig.: back view



Fig.: Oven chamber

1.4 Technica Data

	RETOMAT MINI Comfort
Line voltage	230 V/50-60 Hz
Current consumption	2.500 W
Height/width/depth mm	510 / 390 / 430
Heating chamber Height/width/depth in mm	115 / 165 / 150
Mould sizes	4 x moulds – size 3
Volume	4,6 l
Weight	32 kg
Number of heating ramps	4
Number of storage spaces	30
Heating	four-sided heating
Programming	electronic, individual
Sound level	≤ 70 dB(A)
Housing	stainless steel
Made in Germany (Subject to modification)	

2 Safety Notes

2.1 General Safety Notes

- Each device leaves the factory after final inspection and a test run. However, if the device is damaged or altered due to transportation or other circumstances, it must not be put into operation. Check the device regularly for any damages. Damaged parts must be replaced immediately.
- All electrical and other supply connections must be made according to the technical specifications. The values must not be exceeded or undershot. Observe VDE regulations. Use only approved grounded connections.
- The regulations regarding any necessary inspections (e.g., by employers' liability insurance associations or electrical systems) are solely the responsibility of the buyer/user of the product.
- This device is designed for use according to the technical description and thus should only be used for its intended purpose. Any other use is not permitted for safety reasons – in such cases, the manufacturer's liability is void.
- The device should only be used by persons who have been trained in its operation and explicitly assigned to operate it.

- Place the device only in a heated, ventilated, clean room, possibly under an extractor hood.
- The installation surface should be flat, level, and have appropriate stability for use.
- No objects should be placed on the device.
- To avoid any risk of injury, appropriate protective clothing should be worn, and suitable tools should be used (such as gloves, safety goggles, face mask, safety shoes, ear protection, and pliers).
- If the expected work results are not met, do not continue to work with the device. The owner is liable for any subsequent damage caused by continued use.
- To prevent water, fire, and explosion damage, always shut off all supplying energy sources and secure them against unauthorized operation after work or work interruptions.
- Before performing maintenance, cleaning, or repair work, and before opening the device, always switch off the main switch and unplug the power plug.
- Repairs should only be carried out by qualified and certified personnel. The provisions in Chapter 7 regarding warranty apply.
- If there is suspicion of liquid ingress, stop operation and contact service.
- Check all hose connections for tightness and tighten hose clamps if necessary.

2.2 Specific Safety Notes

Notes:

When inserting the workpieces into the heating chamber, ensure that the temperature sensor, located in the upper right corner, is not damaged. The muffle(s) must have sufficient distance from the muffle chamber and from the exhaust hole to avoid damaging the oven. In case of a power outage during operation, the heating process will be interrupted and not resumed. Opening the flap will also interrupt the heating process, which will resume upon closing the flap.

To extend the life of the heating chamber, it is recommended to use a ribbed ceramic fleece as a pad. Overfilling the chamber can lead to stress cracks.

The oven is not suitable for continuous use in the high-temperature range.

Never use the device for sintering materials such as zirconia or others.

Always check the connection values in principle. Due to the power values, the oven must be connected to a separately secured power supply.

The oven does not need to be burned out before commissioning.

The RETOMAT oven may only be operated by professionally trained personnel:

- In dental laboratories for burning out muffles and other thermal processing;
 - In tool manufacturing companies for thermal processing of steel;
 - In industry;
 - In goldsmiths;
 - In research laboratories.
- The radiant heat on other objects or persons must not exceed 50°C. Please use insulation plates if necessary.
 - The RETOMAT MINI is not intended for operation with inflammable, explosive, or chemically aggressive substances without special protective or additional devices.
 - Do not use substances/liquids with health-damaging vapor development. Use melting substances with protective vessels.
 - In the immediate vicinity of the RETOMAT oven, no inflammable or explosive substances should be stored.
 - No objects should be placed on the device. If the oven is placed in a closed fume hood, ensure adequate ventilation. Please ensure appropriate air extraction options (e.g., through an extractor hood).
 - A clearance space of at least 1 meter must be maintained in front of the oven.

3 Installation

The electrical equipment is being delivered fully installed. The sealed plug can be connected directly to the mains supply 230 V/16 A. For installation please refer to safety notes in chapter 2.

3.1 Installation

1. Place the RETOMAT oven on a stable, fireproof workbench of suitable height and on a level surface (minimum width 450 mm). Provide a fireproof underlay for placed firing goods if necessary, and optionally use the muffle storage plate.
2. Maintain a minimum distance of 50 mm on all sides of the RETOMAT oven due to the lateral cooling openings to allow air circulation.
3. Do not place any other devices or products on the RETOMAT oven to prevent local heat build-up.

3.2 Use of a steam catalyst

Notes:

Please note that the ceramic filter can become clogged due to heavy soot development (depending on the fuel used). To clean it, loosen the screw on the side of the chamber and lift the filter insert upwards. The catalytic converter insert can be burned off for one hour in the preheating oven at 700°C. After cooling down, it must be reinserted as described above.

1. Screw the extraction unit to the back of the device, each with the pipe connection.
2. Insert the device plug into the socket (6) of the oven (back).
3. Please ensure to keep the pipe length short. If the desired suction effect is not achieved, additional fans may need to be incorporated into a longer pipe construction. This is the responsibility of the customer.
4. Never place the catalyst freely in the room, but always lead it out of the building. Please consult your building installer.
5. The socket (6) is connected to the main switch

4 Operation

4.1 Overview of the Control Panel

After turning on the main switch (1), a self-test is first performed. The version number appears on the lower display (as shown in the control panel diagram).



Fig.: control panel

Once the self-test has been completed, the current time and day of the week appear on the upper display. The current temperature is displayed on the lower display (see Start field diagram). The control can now be programmed.



Fig.: Start on control panel

Pressing the P button allows you to access the desired program. Once all parameters are known and settings are correct, the program can be started by pressing the Start/Stop button.

4.2 Setting the Time and Date

Press and hold the P button for several seconds.

After displaying "Config," the upper display shows S91, and the lower display shows the current time.

Adjust the time using the + and - buttons. Holding the button down for longer will adjust the setting faster.

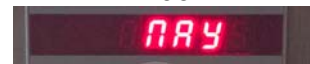


Press the right arrow button to navigate to S92 for setting the date. Use the + and - buttons to adjust the day (S92), month (S93), and year (S94), each time advancing with the right arrow button.

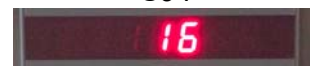
End the setting by saving, holding down the program button "P" until the display shows "SAUE.CFG."



S93



S94



5 Programming and Operation

5.1 Program for Quick Embedding Masses




After turning on and completing the self-test, the current time is displayed in the display. Use the P button to select the program slot, and start programming by pressing the right arrow button. Press the program button "P" multiple times to cycle through the different program slots.

In the upper display, "01" indicates the first ramp in the program slot. You can increase the heating rate of the oven in degrees Celsius per minute using the + button. The heating curve in the upper display (up, down, hold) indicates the direction.




Once the maximum limit of 15 degrees is reached, pressing the + button again will display "SKIP" for immediate rapid heating at maximum speed (15 degrees/minute).




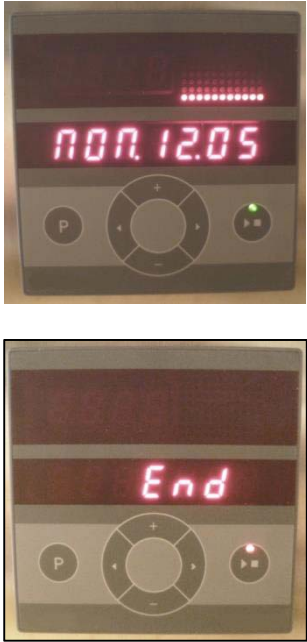


<p>Press the right arrow button to move to the next menu item for setting the target temperature using the + and - buttons. Holding down the + or - buttons will adjust the setting faster.</p>	
<p>Press the right arrow button to proceed. The programming of the program is complete.</p> <p>Start the heating program by pressing the Start/Stop button. It will illuminate green when pressed.</p>	
<p>The display will countdown, and the oven will start at the programmed time.</p>	

5.2 Programming Step Program

After turning on and completing the self-test, the current time is displayed in the display. Use the P button to select the program slot, and start programming by pressing the right arrow button .

<p>In the upper display, "01" indicates the first ramp in the program slot. You can adjust the heating rate of the oven in degrees Celsius per minute using the + or - buttons (maximum setting 15 degrees/minute).</p>	
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<p>Press the right arrow button to navigate to setting the target temperature. Use the + and - buttons to adjust the temperature. Holding down the + or - buttons will increase the setting faster.</p>	
<p>Press the right arrow button again to proceed. The setting for the "hold time" of Ramp 1 will appear. Here, you can enter the time in hours (before the decimal point) and minutes (after the decimal point) using the + or - buttons. Holding down the + or - buttons will increase the setting faster.</p>	
<p>Press the right arrow button to enter Ramp 2. Similar to setting Ramp 1, use the + and - buttons to set the heating rate per minute, the end temperature of the ramp, and the hold time, and confirm each setting with the button.</p>	
<p>At the end of the ramp settings, exit the programming by pressing the "Minus" arrow button until reaching the "End" setting. Pressing the right arrow button once more acknowledges the programming.</p> <p>Start the program by pressing the Start/Stop button, which will then illuminate green. After the heating time has elapsed, an alarm will sound, which can be confirmed by pressing the Start/Stop button once.</p>	

5.3 Delayed start

To set a delayed start, you must first set the time and date as described in Chapter 4.2.

Press the "P" button to select your desired program. Pressing the "P" button multiple times will cycle through your programs. Once you are in your desired program, press the left arrow button twice to access the control panel shown on the right.

Use the + and - buttons to set the desired start time in the display column below. If the set time is already in the past, the program will automatically start the following week. For example, if you want the program to start in 3 days (on a specific weekday), hold down the + button until the day name to the left of the time changes. The day names are displayed in English. By pressing the + or - buttons slowly, you can also preset the appropriate time for the selected day. You can pre-program a delayed start for up to 6 days. Confirm your input by pressing the right arrow button. After a few seconds, the display will automatically switch back to the main control panel..



5.4 Continuous heating after program completion

To ensure continuous operation of the oven, hold down the + button for the time programming in the last ramp until the maximum limit of 99 hours and 59 minutes is reached. Further pressing of the + or - button sets the "hold" function. The oven



continues to heat after reaching the end temperature. Press the right arrow button to confirm your program.



5.5 After Operation

The molded parts of the oven door cannot withstand rapid temperature changes well. If the oven is turned off and left open after use at high temperature, the hot oven door is exposed to room temperature and cools down too quickly. This significant and rapid temperature change can lead to delamination of material layers on the oven door. Please ensure to avoid these separations by closing the oven door during the cooling phase. Slow cooling does not lead to material tensions.

6 Troubleshooting

Device doesn't start.	<ul style="list-style-type: none"> a. Check domestic fuses. b. Check the device's fuse.
Humidity in the chamber; fuse has blown	In case of humidity problem burning out at 200 °C is recommended.
Device not heating.	Tür geschlossen und Türkontakt hörbar geschaltet? Bitte Tür noch einmal öffnen und schließen. Service kontaktieren, wenn Fehler nicht behebbar.
Gases are inadequately vented from the room.	Use catalyst. If in use, ensure short pipe length and consider adding additional fans through building installer.
Alarm sounding and cannot be silenced.	Press Start/Stop once. Pressing again ends the program.
Error code EB2: Temporary power outage during the program phase.	<ul style="list-style-type: none"> a. Confirm with Start button b. Firing process continues
Error code EA3: Excessive deviation from set temperature (overtemperature).	<ul style="list-style-type: none"> a. Let the device cool down and restart the program once the temperature is below the set point. b. Do not manually increase the temperature, but save it in a program sequence; it determines set/actual values and regulates autonomously. c. Set temperature is too high/low for the specified time; the oven does not reach the desired set temperature in the specified time. Extend heating/cooling

	<p>time and retry. Allow the oven to cool down before restarting.</p> <p>The reason for the error is excessive deviation from the setpoint.</p>
Error code EA4: Heating power is not provided.	<p>a. Check if too many consumers are connected to the network.</p> <p>b. Contact service if necessary.</p>
Further malfunctions.	Contact service.

7 Maintenance

- Regularly check the appliance for visible damage to the housing or the power cord.
- Clean the housing regularly with a damp cloth and use REITEL stainless steel care spray.

Note:

Clean and protect your device at regular intervals with the REITEL stainless steel care spray (order -no.: 90405000) to remove lime, plaster and dust as well as other contaminants from the surface of the equipment and to prevent corrosion. The spray creates a lasting, water repellent protective film which helps keep the equipment clean.

8 Warranty

We, REITEL Feinwerktechnik GmbH, offer a 1 year's warranty beginning from the proven date of purchase. This warranty covers all defects traceable to materials, design or workmanship. The following warranty regulations are applicable:

Within the warranty period Reitel Feinwerktechnik GmbH or an authorized distributor agrees at its sole option, to perform repair or replace this product at no charge covering all defects traceable to materials, design or workmanship. Warranty only applies to appropriate use and regular maintenance of this product according to the operating instructions. Claims under warranty are restricted to complementary performance. Additional claims, especially claims for indemnifications, are not covered by this warranty.

1.

Warranty claims have to be addressed to the distributor the product was purchased from or directly to our service department.

Contact:

REITEL Feinwerktechnik GmbH

Senfdamm 20

49152 Bad Essen

Germany

Phone: +49(0)5472-9432-32 (Service Department)

Phone: +49(0)5472-9432-0 (Reception)

Fax-No: +49(0)5472-9432-40

2.

In case of warranty claim application the sales receipt or your purchase invoice showing the date of purchase of the product and the serial number must be furnished. Securely pack and ship the device, freight charges prepaid, at your own risk to us, along with a report describing the defect. We reserve the right to decline warranty if this information has been removed or modified after purchase of the product or if they are not included in case of warranty claims.

3.

Warranty repairs have to be performed by REITEL Feinwerktechnik GmbH or by authorised distributors. Repairs performed by non-authorised companies will void the claim for refund since damages to the product resulting hereof are not covered by warranty.

4.

If the unit sent in for repair or replacement is still under the original warranty then warranty is to the end of the original 1 year warranty.

5.

If the unit is destined to be operated in another country than originally intended and manufactured for, modifications to the product might be necessary to comply to special technical and /or safety standards of that specific country. Such modifications are no defects traceable to materials, design or workmanship. and are therefore expressly excluded from warranty claims.

Modification costs or damages arising from operation of the product under deviating conditions are not covered by warranty.

6.

Exclusions from warranty:

- Service and maintenance work as well as repair and replacement of consumables according to our consumables' list

- Transportation cost of the machine or installation and dismounting expenses incurred
- Damages due to use of the product other than for its intended purpose
- Damages due to faulty installation or insufficient maintenance of the product (e.g. decalcification)
- Damages due to natural disaster e.g. lightning, water, fire, act of nature beyond control, war, inadequate line voltage, insufficient ventilation, no decalcification, insufficient care and cleaning or non-adherence to operation and maintenance instructions according to the accompanying operation guide.
- Damage due to use of the product other than in accordance with the instructions provided by REITEL Feinwerktechnik GmbH;
- The warranty does not cover the cost of removal and replacement of parts and accessories, unless supplied as original equipment by REITEL Feinwerktechnik GmbH
- All kind of damages occurred not directly at the device as well as consequential damages (e.g. damages to furniture due to a lack of water, downtime of the machine, material, lost working hours, wages and other consequential damages).

This warranty shall be rendered null and void if:

- the product has been subject to any modification, repair or replacement other than as authorised by REITEL Feinwerktechnik GmbH
- the product is continued to be operated despite a functional defect

7.

The warranty is device specific and may be claimed, within the warranty period, by any person who has legally acquired the device.

8.

Consumables are excluded from warranty. Spare parts are subject to a warranty coverage of 6 months against all defects traceable to materials, design or workmanship according to these warranty regulations.

9.

Legal default claims on the part of the purchaser remain unaffected by this warranty.

10.

We reserve the right to charge a fee if repair of the device is rejected and the device is destined to be sent back unrepaired.

11.

Please note:

Upon repair or replacement of this unit, personal data and settings might get lost or damaged. We don't accept liability for all kind of data loss. The customer is advised to backup essential programs and data before sending for service.

12.

This warranty shall be interpreted in accordance with German law to the exclusion of UN sales law. Place of jurisdiction is our business location.

13.

If any provisions of this warranty are judged to be illegal or unenforceable, the continuation in full force and effect of the remaining provisions will not be prejudiced. The provisions of this warranty judged to be illegal or unenforceable shall be construed so as to give effect to the intent manifested by the provision held invalid, illegal or unenforceable and to give effect to section 13 hereof.

14.

Should you need to borrow a device while your device is being repaired, please contact Messrs. REITEL or your distributor. These loans are a service for which availability cannot necessarily be guaranteed. After the warranty period, a fee may be charged for loan equipment as well as for shipping and packaging.

9 Disposal Regulations



According to valid laws our devices are disposed of properly according to B2B-regulations for proper disposal. Pls. contact your local dealer for information on local disposal guideline.

10 Spare Parts List

Best.-Nr. Ref.:	Retomat mini, Retomat, Retomat MG Ersatzteilliste / Spare parts list 03/2019	St. Qty	ME Unit
E8101500	Feder Spring	1	Stck piece
E8101300	Holzgriff Wooden handle	1	Stck piece
E5010600	Katalysator (Keramik) für 73.1 Catalyst (ceramics) for 73.1	1	Stck piece
E7814200	Keramik Einlegeplatte 067 (Retomat Mini) 130 x 135 mm Ceramic inlay 067 (Ret. Mini) 130 x 135 mm	1	Stck piece
E7814300	Keramik Einlegeplatte 073 (Retomat) 190 x 195 mm Ceramic inlay 073 (Retomat) 190 x 195 mm	1	Stck piece
E7814400	Keramik Einlegeplatte 074 (Retomat MG) 208 x 218 mm Ceramic inlay 074 (Retomat MG) 208 x 218 mm	1	Stck piece
E8101800	Keramikrohr Ceramic tube	1	Stck piece
E6094010	Mikroschalter - Doppelkontakt (für Mini/Retomat/MG) Micro switch - double contact	1	Stck piece
E6064800	Schalter grün beleuchtet Green illuminated switch	1	Stck piece
E6221210	Sicherung, superflink, KLK- 15A Super quick fuse, KLK-15A	1	Stck piece
27304000	Temperaturfühler Temperatur control	1	Stck piece
E8102300	Türschalter komplett Door switch, cpl.	1	Stck piece

11 EU-Richtlinien

EU-Konformitätserklärung EC Conformity Declaration CE-Déclaration de Conformité

im Sinne der Niederspannungs-Richtlinie 2014/35/EU (Anhang III B)
according to Low Voltage Directive 2014/35/EU (Appendix III B)
au sens de la Directive Basse Tension 2014/35/EU (Annexes III B)

Name und Anschrift des Herstellers/Name and address of manufacturer/Nom et adresse du fabricant:

Reitel Feinwerktechnik GmbH
Senfdamm 20
49152 Bad Essen

Diese Erklärung bezieht sich nur auf das Gerät in dem Zustand, in dem es in Verkehr gebracht wurde; vom Endnutzer nachträglich angebrachte Teile und/oder nachträglich vorgenommene Eingriffe bleiben unberücksichtigt. Die Erklärung verliert ihre Gültigkeit, wenn das Produkt ohne Zustimmung umgebaut oder verändert wird./This declaration relates exclusively to the machinery in the state in which it was placed on the market and excludes components which are added and/or operations carried out subsequently by the final user. This declaration will become invalid if any unauthorized modification is made to the product./Cette déclaration concerne exclusivement les machines dans l'état dans lequel elles ont été mises sur le marché et exclut des composants ajoutés et/ou les opérations effectuées par la suite par l'utilisateur final. La présente déclaration perd sa validité si des modifications non-autorisées ont été apportées à la machine.

Hiermit erklären wir, dass nachstehend beschriebenes Gerät/We hereby declare that the machine described below/
Nous déclarons que la machine ci-dessous

Produktbezeichnung/Product name/Nom du produit:

Vorwärmöfen/
Preheating Furnaces/
Fours de chauffe

Typenbezeichnung/Type/Type:

RETOMAT MINI, RETOMAT COMFORT

allen einschlägigen Bestimmungen der Richtlinie 2014/35/EU und 2014/30/EU und 2011/65/EU (RoHS 2) entspricht.
is in conformity with all applicable requirements of the Directive 2014/35/EC and 2014/30/EC and 2011/65/EC (RoHS 2).
est conforme aux dispositions applicables de la Directive 2014/35/CE et 2014/30/CE et 2011/65/EC (RoHS 2).

Angewandte harmonisierte Normen/Harmonised standards applied/Normes harmonisées appliquées:

DIN EN 61010-1:2020

DIN EN 61000-6-3:2011

DIN EN 61000-6-1:2019

11.02.2021

Ort, Datum
Place, Date
Lieu, Date

Daniel Reitel, Geschäftsführender Gesellschafter/Managing Director/
Directeur Général



Unterschrift/Signature/
Signature

We adhere to the quality management system of ISO 13485:2016, ensuring consistent process standards.



REITEL Feinwerktechnik GmbH
Senfdamm 20 | 49152 Bad Essen
Tel.: +49-(0)5472-9432-0 | Fax: +49-(0)5472-9432-40
www.reitel.com | info@reitel.com