

VITA ZYRCOMAT® 6000 MS

Operating manual



VITA shade determination

VITA shade communication

VITA shade reproduction

VITA shade control

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VITA – perfect match.

VITA

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1 Introduction

1.1 General notes

Dear Customer,

Congratulations on the purchase of your new VITA ZYRCOMAT 6000 MS. By choosing this sintering furnace, you have acquired one of VITA's future-oriented, modularly-designed dental furnace systems which you can add extensions to at any time according to your current and future needs. The VITA family of dental furnaces gives you the flexibility and efficiency needed to prosper in the working world of digitized dental technology.

Like all VITA furnaces, the VITA ZYRCOMAT 6000 MS also has a variety of technical features that help you achieve outstanding results over the long term. For example, high-quality temperature control and adjustment ensure an accuracy of $\pm 2^{\circ}\text{C}$ across the entire temperature range of up to 1600°C . Molybdenum disilicide heating elements are used in the VITA ZYRCOMAT 6000 MS, which ensures uniform sintering results for many years. All dental ceramic framework materials based on zirconium dioxide or aluminum oxide can be processed.

This device has been designed in accordance with the latest technological benchmarks and complies with all international safety standards. However, incorrect use can be dangerous – please read this operating manual and bear in mind the information provided.

Reading and understanding this operating manual will help you maintain safety, reduce expenses as a result of repairs and downtime, and increase the reliability and service life of the device. All of the illustrations and drawings in this operating manual are intended for general explanatory purposes and are not authoritative for the detailed construction of the device.

The operating manual must always be kept close to the device. It must be read and followed by all persons responsible for performing tasks such as operation, troubleshooting during operation, and cleaning and servicing (maintenance, inspection, repairs), either with or on the device.

We hope that you will find using VITA VACUMAT 6000 MS to be an enjoyable and successful experience.

1.2 Copyright

Important notes concerning copyrights:

© Copyright 2011, VITA Zahnfabrik. All rights reserved.

This document and/or the software, data and information referenced or contained herein contain confidential and proprietary information of VITA Zahnfabrik.

This document does not convey or represent any right or license to use any software, data or information, any right or license to use any intellectual property rights, or any rights or obligations on the part of VITA Zahnfabrik to provide support or other services in connection therewith. Any right or license to use any software data, information or other intellectual property rights of VITA Zahnfabrik, or any obligation to provide services, must be conveyed by separate written agreement with VITA Zahnfabrik.

2 Scope of delivery

2.1 Device supplied in a special box

- **1 VITA ZYRCOMAT 6000 MS** firing unit, **coated or in stainless steel**
- 1 firing platform
- 1 plug-in status display
- 1 cable for mains power connection
- 1 operating manual
- 1 cable for the control unit
- 2 sintering dishes
- 150 g ZrO₂ pearls
- 1 pair of tongs

2.2 Accessories (not included with standard scope of delivery)

- Side panels, set of 2 pcs. each
- FDS (Firing Data System) firing data administration program for a PC
- Magnetic numbers 1-4, set of 1 pc. each

2.3 Control unit

The VITA ZYRCOMAT 6000 MS can be equipped with the following control units:

- VITA vPad comfort with 7" color touch screen, photo viewer, memory for 500 firing programs for control of 1 or 2 VITA VACUMAT 6000 M / 6000 MP / ZYRCOMAT 6000 MS
- VITA vPad excellence with 10" TFT display, photo viewer, memory for 1000 firing programs for control of 1 to 4 VITA VACUMAT 6000 M / 6000 MP / ZYRCOMAT 6000 MS

i An additional switchbox and connection cable is required for the operation of 2 or more VITA VACUMAT 6000 M / 6000 MP ZYRCOMAT 6000 MS with a VITA vPad comfort or VITA vPad excellence control unit.

Please read the information in the operating manual of the corresponding control unit.

2.4 Sintering dish

Place the sintering dish in the center of the firing platform. Double-stacked sintering by stacking crucibles and sintering dishes is not possible. The maximum volume capacity is set at 40 units. Whenever you open the furnace, always ensure that all doors and windows are closed to prevent the dish from being exposed to any cold drafts.

3 Technical Information

3.1 General description of the firing unit

- High-performance technology – ultra-accurate temperature control for optimized sintering
- Time-saving, user-friendly convenience and a small footprint
- Casing made of coated or stainless steel plate
- Fold-away cooling trays
- Optical operating status display
- High-quality material used to insulate firing chamber
- 2 temperature sensors (platinum/rhodium-platinum)
- Automatic temperature calibration in advance of every program startup
- Temperature accuracy +/- 2°C

4 Technical Data

4.1 Dimensions/weights

- Width: 315 mm
- Depth: 500 mm
- Height: 470 mm
- Weight: 27 kg, stainless steel 30 kg
- Firing chamber inner diameter: 90 mm, height: 70 mm
- Firing chamber temperature: max. 1600°C

4.2 Electrical data

- Electrical connection: 230 Volt AC, 50Hz
- Power consumption: max. 1450 watt / 2200 watt

5 Intended use

5.1 Basic information on the device design

The device is designed according to both state of the art and recognized safety standards. However, if it is used inappropriately, hazards for the health and safety of the user or third parties may arise, as well as the risk of damaging the device and other material property.





5.2 Unauthorized modes of operation

The operation of the device with power sources, products, etc., which are subject to hazardous materials regulations or could have any negative impact on the health of the operating personnel, and using equipment modified by the user, are not permitted.

5.3 Authorized modes of operation

The operation of the device is only permitted if this operating manual has been completely read and understood and the procedures described in it have been observed. Any other or additional use, such as the processing of products other than those intended, as well as handling of hazardous materials or substances injurious to health, is considered to be contrary to the recommended use. The manufacturer/supplier will not be liable for any damage resulting from such unauthorized use. The risk of such use is borne exclusively by the user.

6 Safety information

Pictograms		
Hazardous voltage	This pictogram warns the user about hazardous voltage. Before opening the unit, always disconnect the device from the mains current by unplugging the AC adapter.	
Hot surface	This pictogram warns the user about hot surfaces that can cause burns.	
Separate disposal	Dispose of electrical and electronic equipment separately, not with household waste. The black bar under the "wheeled bin" symbol indicates that the device was placed on the market after August 13, 2005. Please note that the device is subject to European Community Directive 2002/96/EG (WEEE) and the national laws valid in your country and must be disposed of accordingly. Contact your dealer if you need to dispose of the device.	
Information	This pictogram points to useful pieces of advice, explanations and supplements regarding the handling of the equipment.	

7 Ambient conditions

- Use indoors
- Ambient temperature: 2°C to 40°C
- Relative humidity: 80% at 31°C
- Max. altitude: 3800 m above sea level sea level (standard elevation zero, NHN).
- Fluctuations in nominal voltage: not greater than plus/minus 10% of the nominal voltage.

8 Safety functions

The furnace is operated with a

**VITA vPad comfort or
VITA vPad excellence**

and has the following safety and monitoring features:

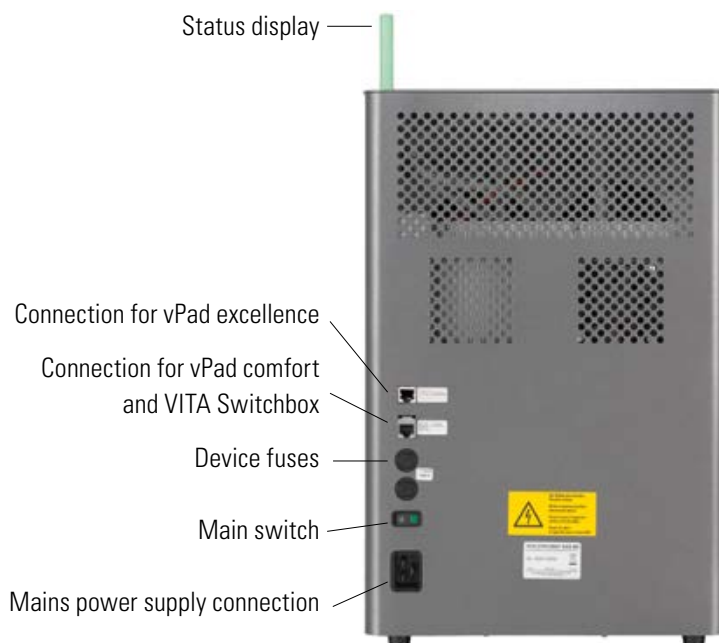
- Temperature sensor monitoring
- Temperature monitoring
- Power supply failure protection
- Lift monitoring
- Fan monitoring

9 Installation and first use

9.1 Installation location

- Install the device in a dry, heated room.
The distance to the closest wall should be at least 50 cm, see also Section 7. Ambient conditions.
- When the temperature is below 15°C (e.g. after transport), leave the device to stand for approx. 60 minutes at room temperature before using it for the first time.
- Ensure that the surface where the device is installed is heat-resistant and non-flammable. The radiation and heating of the device is within a non-hazardous range. Nevertheless, heat sensitive surfaces of furniture and veneers could become somewhat discolored over time due to the constant influence of heat (minimum distance apart 50 cm).
- Prevent direct sunlight from coming into contact with the device.
- Do not place any flammable objects in the vicinity of the device.
- Do not place the control unit directly in the heat radiation area of the firing chamber. Keep a distance of greater than 20 cm.
- Do not set up the device in such a way that makes it difficult to press the main switch and pull out the power supply cord. Before using for the first time, read the corresponding operating manual for the control unit.

9.2 Device connections



9.3 Status display





The status display shows the following operating modes:

- Blue – program active
- Red – error – blinking mode
- Blinking green / red – update is running

9.4 Fuses

On the back of the device (see Section 9.2) there are two device fuses. The identification plates show information about the fuse ratings used in the device. Fuses with other ratings must not be used.

230-volt model: **T 10 H 250 V/TH 16 H 250 V**

9.5 Information about the identification plates		
Hazardous voltage	<p>This pictogram warns the user about hazardous voltage. Before opening the unit, always disconnect the device from the mains current by unplugging the AC adapter.</p> <p>The manufacturer is not liable for accidents to the user occurring when the device is open!</p>	
Residual voltage	<p>After the back plate has been removed, a residual voltage of up to 400 volts may still be present in components in the area of the power supply unit on the circuit board, even when the device is switched off.</p>	
Note	<p>Do not place any objects in the area of the lift plate.</p> <p>When the device is switched on, the lift will move down to the lower position. For setting down firing objects, use the laterally extendable storage plates.</p>	
Note	<p>In continuous operation (max. final temperature, max. firing time), some parts of the firing chamber may reach high temperatures (above 70°C). Do not reach into the open firing chamber when the device is switched on. There is a risk of touching electrically live or hot components.</p>	

9.6 Connecting the device to the mains voltage.

Before first use, please read Section 6 Safety Information!

For information about the connections, refer to Section 9.2.

- Attach the connection cable to the control unit and the furnace.
- Plug in the status display.
- Connect the device to the mains power supply using the mains power cable supplied.

Avoid connecting to multiple-outlet power strips with extension cords. In the event of overloading, a risk of fire exists.

- Switch on the device at the main switch. The lift moves to the lower position (see Section 9.2)
- Clean or wipe the lift plate and the lift plate gasket (dust particles from the insulation are deposited during transportation of the device).
- Attach the firing socket to the lift plate.

| ⚠ Never start up the program without the firing socket attached!

9.7 Switching off the device, or stopping its operation.

When the device is not in operation, the lift should be moved into the firing chamber and the device must be switched off at the main switch (see Section 9.2). Closing the firing chamber protects the insulation and prevents moisture absorption.

10 Cleaning the furnace

Before each cleaning operation, remove the power supply plug!

It is not necessary to clean the inside of the firing chamber.

Cleaning the casing of the firing chamber at regular intervals with a damp cloth contributes to its operating safety.

In all cleaning work, you must never use any detergents or flammable liquids.

10.1 Cleaning firing of the sintering chamber

In the speed mode, the fast heating puts an extreme burden on the heating elements. Fast heating may also cause the smooth gray oxide layer on the heating elements to exhibit cracks.

If this oxide layer peels off, it can reduce the operating safety of the heating elements. At the same time, splintered off particles of glass can contaminate the sintering socket or sintering dish.

It is imperative to visually check for deposits of glass particles or glass dust at regular intervals. Use a vacuum system to suction off these contaminants.

For health safety reasons, never use compressed air.

If chipping of the gray oxide layer of the heating elements are discovered during the visual inspection, it is imperative to carry out a cleaning firing. The cleaning firing reinstates the oxide layer and gives the surface back its smooth gray appearance.

The cleaning firing is described in the operating manual of the VITA vPad comfort or excellence control unit. Consult the operating manual of the control unit for information about the cleaning firing.

10.2 Firing chamber insulation

The firing chamber contains insulating material comprised of ceramic mineral fibers (index no. 650-017-00-08) that have been classified as category 2 carcinogens (Annex VI, EC 1272/2008). When working with the firing chamber or exchanging the firing muffle, fiber dust may be discharged. Exposure to this dust can potentially be carcinogenic on inhalation, as well as result in irritation of the skin, eyes and respiratory organs. When exchanging parts of the firing chamber, proceed as follows:

- Wear long-sleeved protective clothing
 - Wear safety goggles as well as protective gloves
 - Use a dust vacuum system or wear a FFP 2 respirator.
- Once work has been completed, rinse dust from unprotected skin using cold water. Wash workwear separately from everyday clothing.

Due to the high temperatures and the fast temperature changes, crack formation in the insulation cannot be avoided, but has no effect on the sintering result.

11 CE mark

With the CE mark, a legally binding declaration is made to the effect that the device corresponds to the fundamental requirements of European Community Directive 2006/95/EC (Low-Voltage Directive).

12 Fan

The device is equipped with a fan. The fans are temperature-controlled, Activation, deactivation and speed of the fan are controlled automatically. The fan prevents excessive heating of the device and contributes to its general operating safety.

If the fan fails, an error message is shown on the display.

(For information about this, refer to the Error Messages section of the control unit's operating manual).

For safety reasons, the device must not be operated without a fan.

The upper cover of the firing chamber and the openings in the rear cover must not be closed or blocked.

13 Mains power supply failure

The VITA ZYRCOMAT 6000 MS is equipped with power supply failure protection. This component prevents a program interruption and any incorrect firing in the event of a brief failure of the mains power supply. The power failure protection is activated as soon as the mains power supply fails when a firing program is running.

Mains voltage failure time less than approx. 2 minutes.

The program continues to run and is not interrupted. The display is out of order during this period. Once mains power is supplied again and the program interruption is over, the running program reappears in the display.

Mains voltage failure time longer than approx. 2 minutes

The program is interrupted and the display is out of order. Once mains power is supplied again, the display indicates that there was a power failure. Once mains power is supplied again, the time required for the control unit to switch back on again is approx. 20 seconds.

14 Warranty and liability

The warranty and liability are based on the terms and conditions stipulated in the contract. In the event of software modifications without the knowledge and approval of VITA Zahnfabrik H. Rauter GmbH & Co. KG, all liability and warranty claims are invalidated.

Exception

VITA only grants a 6-month warranty on the heating elements of the VITA ZYRCOMAT 6000 MS.

14.1 Spare parts

Spare parts must comply with the technical requirements specified by the manufacturer. This is always ensured when using original VITA spare parts.

14.2 Service

Further information on this device is available on our homepage:

<http://www.vita-zahnfabrik.com>

Software updates are available for download under **Documents & Media / Download Center / Product Information / Software Updates.**

An option to register is also provided via the **Service / Update Messenger** so that the latest information on the device is automatically emailed to you.

In case of technical queries regarding the device or regarding repair services and warranty provisions, contact us at:

Email: instruments-service@vita-zahnfabrik.com

Tel. +49 (0) 7761 / 562 -104, -105, -106



15 Switching on the device

Switch on the device using the **main switch**. The lift moves to the lower position. The software boots up, the lift moves to the upper position and then back to the lower position (lift test run).

The start screen is displayed:

VITA vPad comfort or excellence with 1 device

The display shows that a VITA ZYRCOMAT 6000 MS is connected

Important!

After the lift test run, attach the firing socket.



Figure 1 Start screen when one VITA ZYRCOMAT 6000 MS is connected.



Figure 2 Start screen when two VITA New Generation devices are connected

VITA vPad comfort or excellence with two devices

For further information on operation of the device, refer to the operating manual of the control unit.

16 Programs and materials

16.1 Predrying programs

Programs	Details	Processing time
Pre-Dry YZ SOLUTIONS	for all manually colored VITA YZ T/HT/ST/XT materials	33 min

16.2 Sintering programs

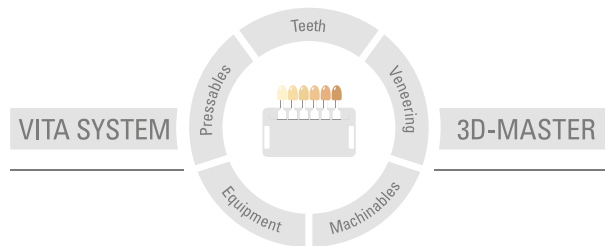
Programs	Details	Processing time
YZ T Universal or YZ HT Universal	Conventional sintering programs for all non-manually colored VITA YZ T or VITA YZ HT materials.	4 h 40 min (incl. cooling time)
YZ T Speed or YZ HT Speed	HighSpeed sintering program for all manually colored VITA YZ T or VITA YZ HT materials	80 min (incl. cooling time)
YZ T Universal Pre-Dry CL or VITA HT Universal Pre-Dry SL	Conventional sintering program for all manually pre-colored VITA YZ T or VITA YZ HT materials incl. pre-drying	5 h 20 min (incl. cooling time)
YZ T Speed Pre-Dry CL or YZ HT Speed Pre-Dry SL	HighSpeed sintering program for all manually pre-colored VITA YZ T or VITA YZ HT materials incl. pre-drying	100 min (incl. cooling time)
YZ ST Universal Pre-Dry SL or YZ XT Universal Pre-Dry SL	Conventional sintering program for all manually pre-colored VITA YZ ST or YZ XT materials incl. pre-drying	6 h 39 min or 9 h 09 min (incl. cooling time)
YZ ST Universal or YZ XT Universal	Conventional sintering program for all non-colored VITA YZ ST or YZ XT materials incl. pre-drying	6 h 22 min or 9 h 06 min (incl. cooling time)

16.3 Materials

All VITA YZ T or VITA YZ HT materials are approved for use both for the Universal and the Speed program. The YZ T Speed or YZ HT Speed program enables you to sinter bridges with up to 14 units in 80 minutes.

Before manually colored VITA YZ T or YZ HT materials can be sintered using the YZ T Speed or YZ HT Speed program, they need to be pre-dried. Various options are available for this purpose (see item 16.1 or 16.2). All other materials need to be processed or sintered in accordance with the special instructions of the manufacturers.

With the unique VITA SYSTEM 3D-MASTER, all natural tooth shades can be systematically determined and perfectly reproduced.



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After the publication of these information for use any previous versions become obsolete. The current version can be found at www.vita-zahnfabrik.com

VITA ZYRCOMAT® 6000 MS is CE marked within the meaning of EC Guideline 2006/95/EC, 2004/108/EC and 2011/65/EC.

VITA

VITA Zahnfabrik H. Rauter GmbH & Co.KG
Spitalgasse 3 · D-79713 Bad Säckingen · Germany
Tel. +49 (0) 7761/562-0 · Fax +49 (0) 7761/562-299
Hotline: Tel. +49 (0) 7761/562-222 · Fax +49 (0) 7761/562-446
www.vita-zahnfabrik.com · info@vita-zahnfabrik.com
 facebook.com/vita.zahnfabrik