

VITA ZYRCOMAT® 6000 MS

Operating manual



VITA shade taking

VITA shade communication

VITA shade reproduction

VITA shade control

Last updated: 01.12

VITA shade, VITA made.

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 a future-oriented, modularly designed system of VITA's New Generation which you can add extensions to at any time in accordance with your current and any future needs. The VITA family of New Generation 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 up to 1600°C . The Kanthal-brand, molybdenum disilicide heating elements used in VITA ZYRCOMAT 6000 MS are one guarantee that you will achieve consistent sintering results for many long years. All types of dental ceramic framework materials based on zirconium dioxide or aluminum oxide can be processed.

Please read this operating manual carefully before use.

This operating manual is an important aid for operating the device successfully and safely.

The operating manual contains important information on how to use the device safely, appropriately and efficiently. Adherence to the information contained in this manual helps to prevent risks, reduce repair costs 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.

This operating manual must always be kept close to the device. It must be read and followed by all persons responsible for working with/on the device, for example in relation to:

- Operation,
- Troubleshooting work routines
- Care and cleaning
- Servicing (maintenance, inspection, repairs).

1.2 Copyright

Important notes concerning copyrights:

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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 obligation 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-Perlen
- 1 tongs
- 1 USB flash drive incl. sintering programs for VITA vPad comfort /excellence / clinical (only when furnace is delivered separately)

2.2 Accessories (not included with standard scope of delivery)

- Side panels, set of 2 pcs. each
- Cooling trays for firing object, 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
- Temperature test molds

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 units
- VITA vPad excellence with 8.5" color touch screen, photo viewer, memory for 1000 firing programs for control of up to 4 VITA VACUMAT 6000 M / 6000 MP / ZYRCOMAT 6000 MS units
- VITA vPad clinical 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 units

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 units with a VITA vPad comfort, VITA vPad excellence or VITA vPad clinical 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 middle of the firing platform. Double-stacked sintering by stacking crucibles and sintering dishes is not possible. The maximum volume capacity is set at 25 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 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, 50 Hz
- Power consumption: max. 1450 watt / 2200 watt

5 Intended use

5.1 Basic information on the device design

The device is designed according to the 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

Operating 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, e.g. 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 (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
- Fluctuations in nominal voltage:
not greater +/- 10% of nominal voltage

8 Safety functions

The furnace is operated with a

**VITA vPad comfort,
VITA vPad clinical or
VITA vPad excellence unit**

and has the following safety and monitoring features:

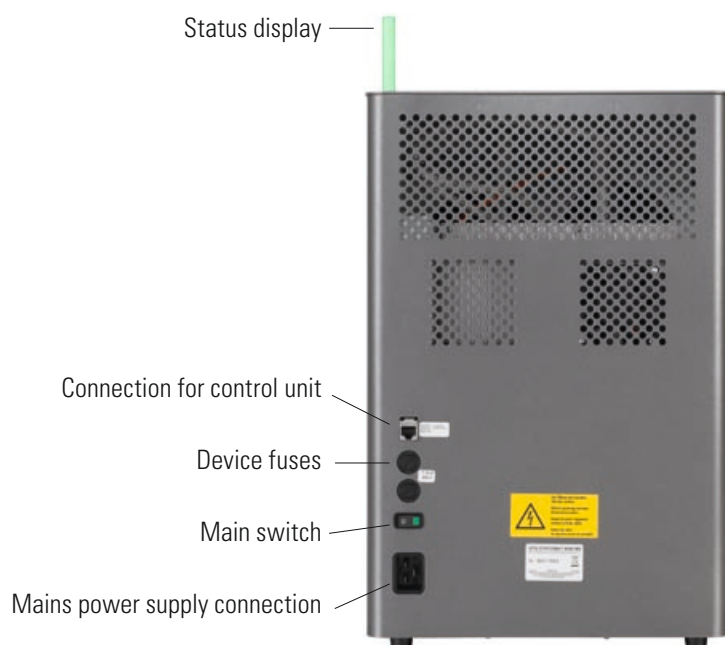
- Temperature sensor monitoring
- Temperature monitoring
- Power supply failure protection
- Lift monitoring
- Fan monitoring

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 25 cm (see 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 2 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 of 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 voltage of up to 400 volts may still exist 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 parts.</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 a very 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 cracks and peeling 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, excellence or clinical 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 have 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. 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 hence 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. 15 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. 15 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 to download under Services / Equipment servicing.

An option to register is also provided via the 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

Phone: +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).

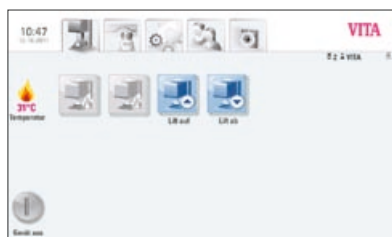


Figure 1 Start screen when one VITA ZYRCOMAT 6000 MS is connected

The start screen is displayed:

VITA vPad comfort / excellence / clinical with 1 device

The display shows that a VITA ZYrcomat 6000 MS is connected

Important:

After the lift test run, attach the firing socket.

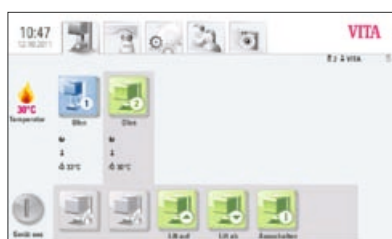


Figure 2 Start screen when two VITA New Generation devices are connected

VITA vPad comfort / excellence / clinical with 2 devices

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

16 Materials

Programs

Program name	Description	Process time
In-Ceram Universal	Conventional sintering program for all VITA In-Ceram materials	7 h 20 min
In-Ceram YZ Speed	HighSpeed sintering for all VITA In-Ceram materials	80 min
Color Liquid Pre-dry	Pre-Dry program for all manually colored VITA In-Ceram materials	30 min

Materials

All VITA In-Ceram YZ materials are approved for both the Universal as the Speed programs.

All other materials must be processed and sintered according the manufacturer's specifications.

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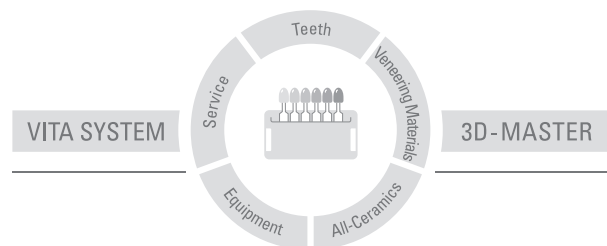
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With the unique VITA SYSTEM 3D-MASTER all natural tooth shades are systematically determined and completely reproduced.



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