FURNACE EQUIPMENT
sintering furnace

zubler®
dental & technik

VARIO S430

zubler

VARIO S430

- **for speed and conventional sintering**
- **500 - program memory**
- **5 + 1 freely programmable heating ramps**

Technological advantage for a safe sintering process

INDIVIDUAL SINTERING PROCESS

Time and energy efficiency play an important role in the modern dental laboratory. Therefore not only conventional sintering cycles, but also speed processes can be programmed in the S430 in order to be able to work with the greatest cost-effectiveness. All heating phases (maximally five) allow the free input of a heating rate from 1 °C to 100 °C/min. The sum of all holding times is 420 minutes at the most.

MOLYBDENUM DISILICIDE HEATING ELEMENTS FOR SPEED AND LONG-TERM SINTERING PROCESSES

The four molybdenum disilicide heating elements ensure the homogeneous distribution of heat in the firing chamber. Zirconium frameworks are manufactured to the highest quality standards, whether a conventional sintering process or the time and energy-saving speed process is used.

REGENERATION PROGRAM FOR CONSTANTLY RENEWABLE HEATING ELEMENTS

This program protects against the „burning" of the heating elements.
A sort of protective layer is thereby formed on the surface of the heating rods and prevents a deterioration in the effectiveness of the heating. The service life of the heating elements is noticeably extended.

MADE IN GERMANY

POWER-FAIL-CONTROL (PFC) ASSISTANCE IN CASE OF A POWER CUT

In case of an unforeseen brief interruption in the power supply, the **PFC** is activated: the electronics then decides whether the sintering process is aborted or ended normally, depending on the temperature loss that occurs. In any case, at the end of the program the user is informed on the display of the duration of the interruption during a ramp-up or holding phase so that the quality of the sintered object can be assessed.

2 LEVELS OF SINTERING DISHES WITH LARGE FIRING CHAMBER

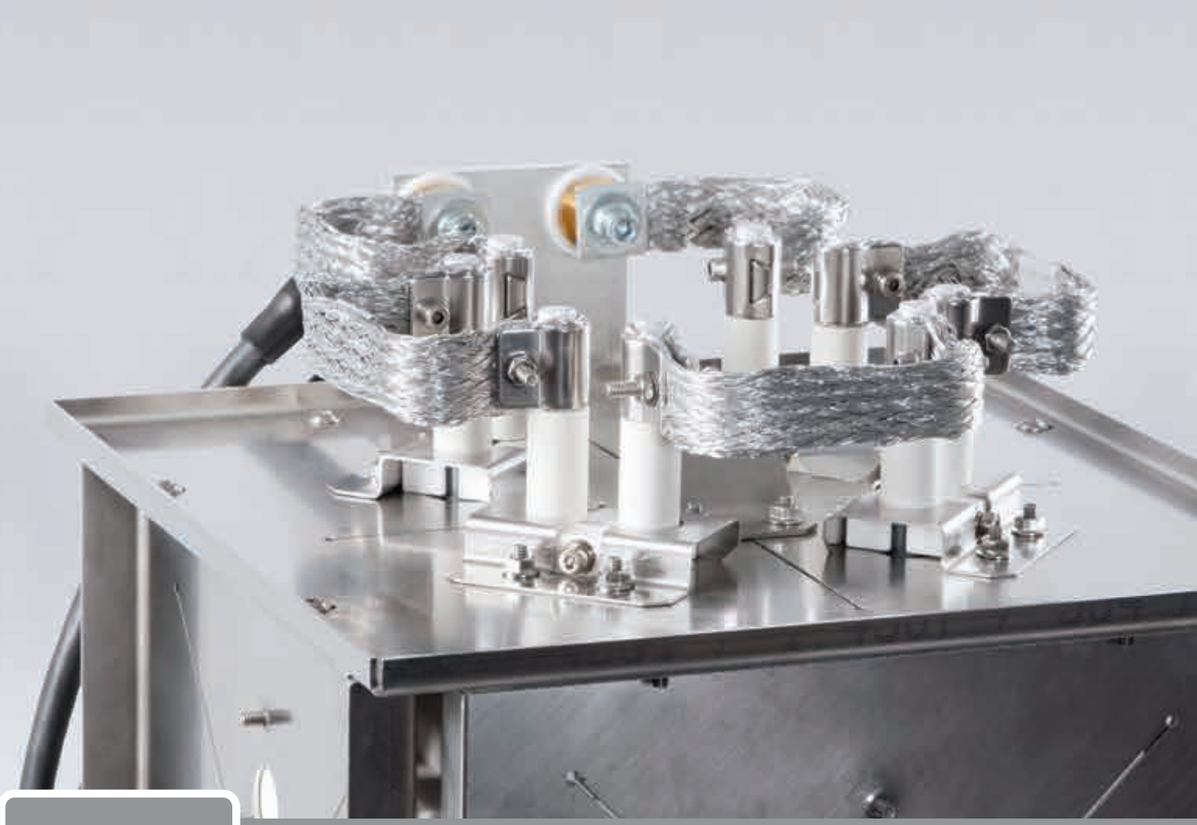
The newly developed Zubler sintering dish system is characterised by special material characteristics in daily use. In a similar way to a thermal protective shield, the high-purity material ensures a homogeneous distribution of the temperature inside the carrier and protects the sintering objects against discolourations.

TTC - LINEAR COOLING PHASE FOR THE SAFETY OF YOUR ZIRCONIUM OXIDE FRAMEWORKS

The proven TTC mode (time-temperature-cooling) is available to you in the VARIO S430. The special feature of this process is that the sintered objects are returned to room temperature in an actively controlled, linear cooling process in order to avoid damage.

LOW CONSEQUENTIAL COSTS

The high energy efficiency of 1.12 W/cm^3 and the innovative control of the heating are responsible for low consequential costs in the daily use of the furnace. In addition, they guarantee a long service life of the individual molybdenum disilicide elements ($MoSi_2$), which can be replaced individually in case of failure.



2 LEVELS OF SINTERING DISHES WITH LARGE FIRING CHAMBER

INIMIZED COSTS OF THE S430 IN DAILY OPERATION

Only the use of suitable dishes in the sintering process ensures high-quality zirconium oxide frameworks whilst at the same time protecting against discolouration or other forms of contamination. The newly developed Zubler sintering dish system is characterised by special material properties that have proven to be very resistant even with extreme changes of temperature. The raw materials familiar from the industry prevent discolourations of the sintering objects caused by chemical reactions. The dishes, which measure 86 mm in diameter and 30 mm in height, can be used individually with a lid or can be simply and stably placed on top of each other. Two dishes stacked on top of each other offer sufficient space for wide-span constructions in a closed system. In a similar way to a thermal protective shield, the dishes ensure a homogeneous distribution of the temperature inside the carrier during the sintering process in all types of application. The product range is rounded off by sintering pearls made of high-purity zirconium oxide for the perfect support of the objects.

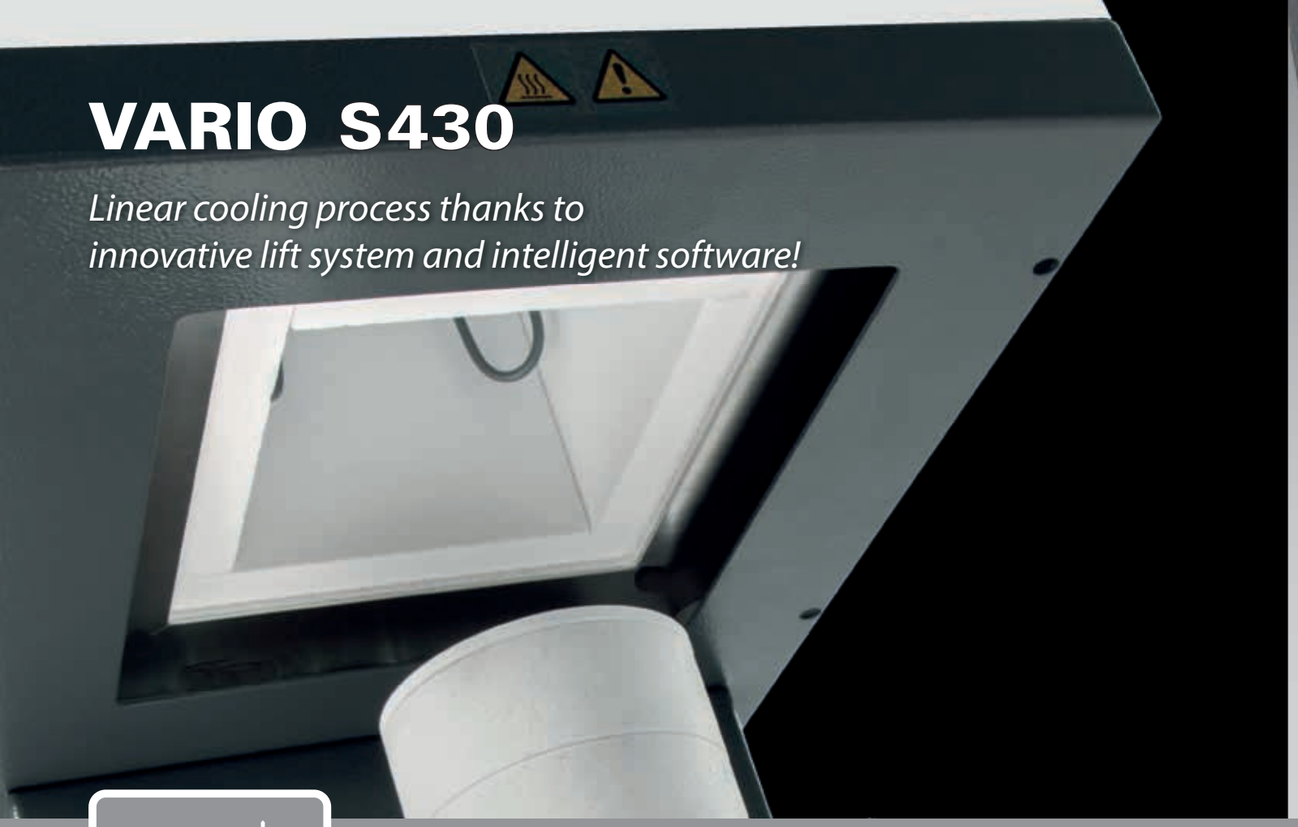
High-quality molybdenum disilicide heating elements reach a maximum end temperature of 1.650°C. Unlike silicon carbide heating systems, heaters of this type are far enough away from their maximum performance limit of approx. 1.800°C. Thanks to this property they attain a significantly longer service life. Each of the four heating elements can be individually replaced in case of damage – an „en bloc" replacement is unnecessary.

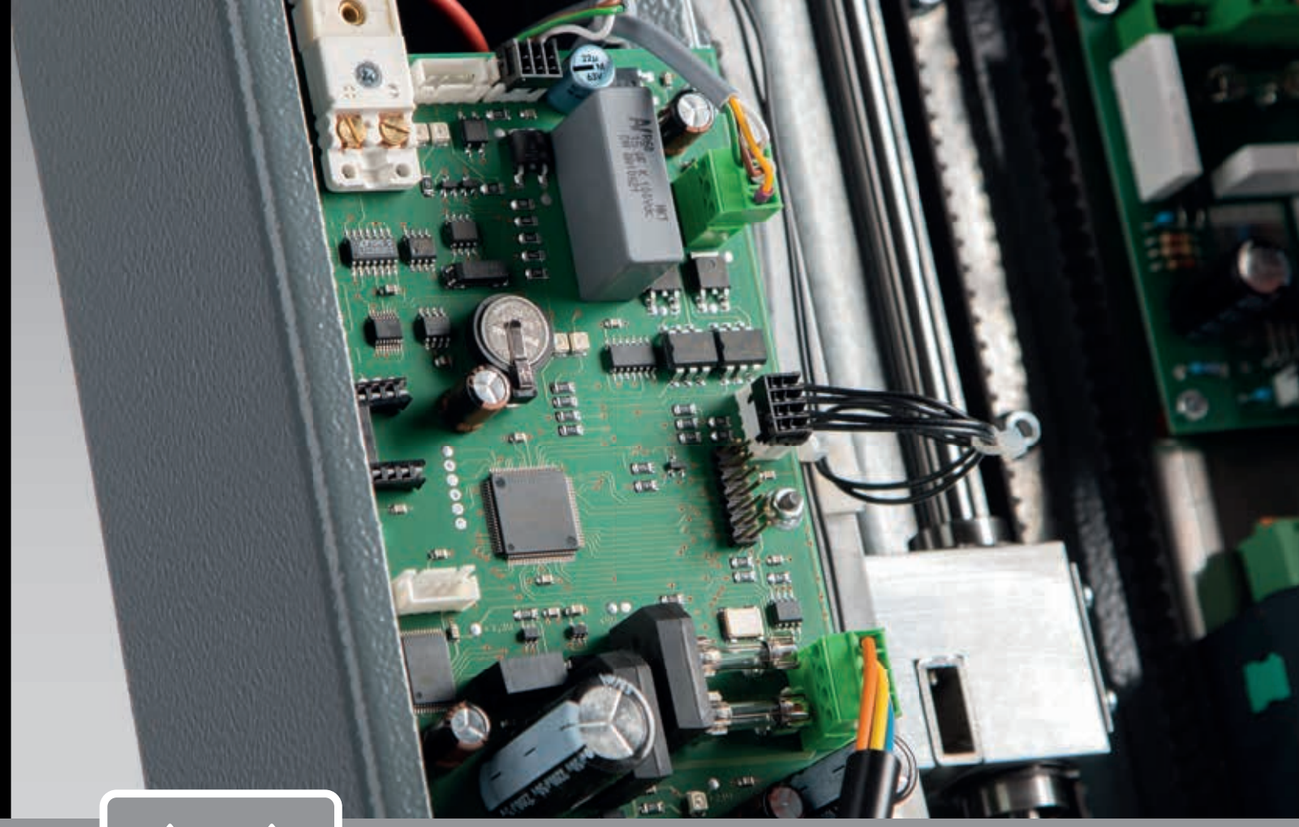
When calculating the energy consumption of a furnace taking into account the volume of the firing chamber, an energy density of 1.12 W/cm^3 results for the S430. This very high energy efficiency means low operating costs in daily use.

A type-B thermocouple is designed for a maximum temperature of 1.800°C. The processing temperature of maximally 1.650°C for zirconium oxide lies well below that – a fact which, at the end of the day, is reflected in a longer service life of the thermal sensor.

VARIO S430

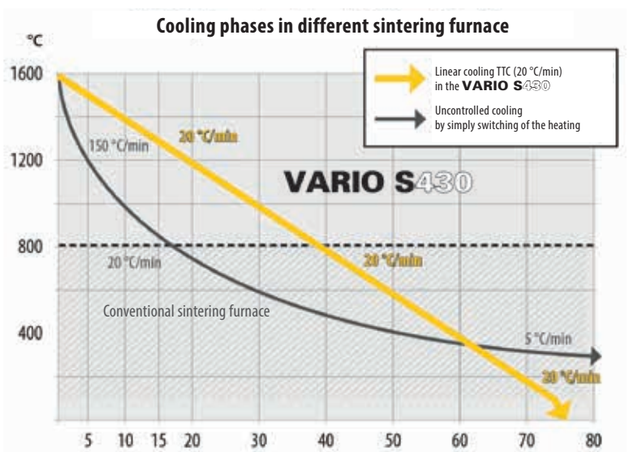
Linear cooling process thanks to innovative lift system and intelligent software!





TIME-TEMPERATURE-COOLING (TTC)

The quality of zirconium oxide is influenced in no small way by the cooling process after sintering. The perfect solution to this is offered by the TTC program mode, in which the electronics returns the objects linearly to the cycle-end temperature at a freely selectable cooling rate. In order to avoid the temperature dropping too quickly to the end temperature at the end of the holding time, the electronics compensates the high heat losses through targeted reheating. In this way the objects can be cooled to 800 °C at a freely selectable rate of between 5 °C and 30 °C/min.



Below this temperature the lift lowers itself by a few millimetres. The thermocouple checks the current temperature in the furnace chamber every second. If the temperature is dropping faster than the programmed cooling rate the electronic controller compensates this deviation by means of targeted reheating or correction of the lift position.

PROGRAMMING FOR SPEED SINTERING AND CONVENTIONAL SINTERING PROCESSES

Maximum freedom when programming a sintering process. For the perfect processing of zirconium oxide there are 500 memory locations available to you, each of which you can program with five different heating or cooling rates with corresponding holding time for the individual sintering process.

Time management and energy efficiency play an important role in the modern dental laboratory. Therefore not only conventional sintering cycles, but also speed processes can be programmed in the S430 in order to work with the greatest cost-effectiveness. All heating phases allow the free input of a heating rate from 1 °C to 100 °C/min. The sum of all holding times is 420 minutes.

Optimum results after sintering

The quality of a sintering process can be seen most clearly when processing cubic (highly translucent) zirconium dioxide. Only the use of excellent materials in furnace construction and the employment of high-quality regenerative heating elements in conjunction with sintering dishes of outstanding quality enable results to be achieved that meet the highest demands for aesthetics. Individual and precise temperature control provides the freedom to be able to process all zirconium materials available on the market exactly in accordance with the manufacturer's specifications.

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Scope of delivery:

1	VARIO S430 sintering furnace
1	Power cable
1	Firing base
1	Sinter bowls set
1	Spare fuse
1	USB flash drive
1	Operating manual
1	Tongs for sinter bowls
1	Sinter pearls (2 x 40 g)

Technical data:

Dimensions (W x H x D)	330 mm x 830 mm x 570 mm
Weight	55 kg
Voltage	220 V - 240 V ~ 50/60Hz
Power	1900 W
Firing chamber volume	130 x 290 mm for two sinter bowls
Control accuracy	
at 1500 °C	+/- 3 °C
Closing mechanism	electrical lift system

Subject to technical changes.

Distributed by:

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