



- Translation of the Original Operating Instructions -

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Explanation of Symbols

Warning Indications



Warning indications in the text are marked with a triangle and boxed.



In case of hazards through electricity, the exclamation mark in the warning triangle is substituted by a lightning bolt.

Signal words at the beginning of a warning indication specify the type and severity of the consequences, if the measures to avert the hazard are not adhered to.

- _ **NOTICE** means that property damage can occur.
- _ **CAUTION** means that light to fairly serious personal injury can occur.
- _ **WARNING** means that serious personal injury can occur.
- _ **DANGER** means that life-threatening personal injury can occur.

Important Information



Important information that do not lead to hazards for humans or to property damage are marked with the icon aside and are boxed.



Other Symbols in the Manual

Symbol	Meaning
▷	Item of an operation description
—	Item of a list
•	Subitem of an operation description or a list
[3]	Numbers in square brackets refer to position numbers in graphics/figures

Other Symbols on the Product

Symbol	Meaning
	Medical device
	Unique device identifier
	Catalogue number
	Batch code
	Manufacturer
	Country of manufacture and manufacturing date
	Consult instructions for use
	Use-by date

Symbol	Meaning
Rx only	According to U.S. Federal Law, the product may only be sold through or on behalf of a dentist.
SN	Serial number
	Keep dry
QTY	Quantity
Dim.	Blank dimension
Weight	Weight information
Code	Ceramill system-specific factor based on the magnification factor
V	General magnification factor
S	General shrinkage value
HIBC	Health industry barcode



General Safety Instructions



WARNING:

Hazard to patient safety due to failure to report serious incidents! Failure to report serious incidents can endanger patient safety and compromise the effectiveness of corrective measures. Only through timely reporting can analysis and, if necessary, the initiation of safety measures by the manufacturer and the competent authorities be ensured.

- Report any serious incidents related to the product to the manufacturer and the competent authority of the member state in which you or your patient are located.

Intendend Use

Intended Purpose

Zolid Lunar is a zirconia ceramic CAD/CAM blank (type II, class 5 according to ISO 6872) for manufacturing fixed dental prostheses to restore tooth anatomy, physiology and aesthetics in (partially) edentulous patients.

User

Professionally trained dental technicians and dentists.

Type of Use

For dental use only. The fixed dental prosthesis is intended for single use.



Patient Population

Adult patients with missing or damaged teeth who are indicated for treatment with all-ceramic fixed dental prostheses. There are no known vulnerable patient groups that need to be considered when using the therapy due to their age, ethnicity, state of health or other disadvantages.

**CAUTION:**

Health hazard possible due to use in children, pregnant women, or breastfeeding women!

The safety and efficacy in the treatment of children or in the treatment of pregnant and breastfeeding women has not been sufficiently proven.

▷ Consider this when applying to these populations.

Clinical Benefit

Restoration of chewing function and dental aesthetics.

Indications

Replacement of missing or damaged teeth by means of

- _ Single tooth dental restorations
- _ Multi-unit dental restorations



Contraindications

- _ Insufficient tooth structure
- _ Known allergies and intolerances to the material in the medical device
- _ Periapical inflammation or existing periodontal disease
- _ Insufficient root fillings
- _ All indications that are not listed under "Indications"

Residual Risks

- _ Wear, chipping, fracture or retention loss of the dental restoration
- _ Secondary or marginal caries
- _ Endodontic or periodontal complications
- _ Opposing tooth wear or fracture
- _ Loss of the abutment tooth or implant
- _ Irritation or injury to the mouth or throat
- _ Hypersensitivity or allergic reaction
- _ Irritation of the upper respiratory tract, eyes or skin
- _ Complications in the gastrointestinal or respiratory tract due to ingestion or respiration of the dental restoration or fragments



Material Properties

Technical Data

	Unit	Zolid Lunarix
Flexural strength	MPa	≥ 800
E-module	GPa	≥ 200
Coefficient of thermal expansion (CTE) (25 - 500°C)	10 ⁻⁶ /K	10.5±0.5
Chemical solubility	μg/cm ²	< 100
Vickers hardness	HV10	1300±200

Chemical Composition

Oxide	Mass percentage
ZrO ₂ + HfO ₂ + Y ₂ O ₃	≥ 99.0
Y ₂ O ₃	6.3 - 7.2
HfO ₂	≤ 5.0
Al ₂ O ₃	≤ 0.01
Other oxides	≤ 1.0



Shelf Life

The product can be used for 4 years from the date of manufacture if stored correctly.

Storage

- _ Only store in original packaging.
- _ Store separated from food.
- _ Store in a dry place.



Process Steps for Manufacturing Dental Restorations



WARNING:

Health hazard due to zirconia dust!

Grinding, polishing, or adjusting zirconia dental restorations may release fine zirconia dust. Without proper protective measures, this dust may pose a health risk through inhalation, skin contact, or eye exposure. Inhalation can irritate the respiratory system, while contact with skin or eyes may cause mechanical irritation.

- ▷ Wear protective equipment (gloves, FFP3 mask, safety glasses). Keep unprotected persons away.
- ▷ Ensure adequate ventilation.
- ▷ Avoid formation of dust.
- ▷ Use respiratory protective device against the effects of fumes/ dust/aerosol.
- ▷ Do not inhale dust/smoke/mist. After inhalation: Supply fresh air; consult a doctor in case of complaints. After swallowing: Rinse out mouth and then drink plenty of water. Call a doctor immediately.
- ▷ Avoid skin contact. After skin contact: Immediately wash with water and soap and rinse thoroughly.
- ▷ Avoid eye contact. After eye contact: Rinse opened eye for several minutes under running water. Call a doctor immediately.
- ▷ Further safety instructions can be found in the safety data sheet.



Material-Specific Design Parameters, Nesting, and Milling of the Dental Restoration

The following material-specific construction parameters must be observed when manufacturing zirconia restorations in a densely sintered state:

Restoration type	Maximum number of pontics	Wall thickness incisal/occlusal in mm	Wall thickness circular in mm	Connector diameter in mm ²
Primary components/Telescopic crown	–	0.7	0.5	–
Single tooth restoration	–	0.5	0.5	–
Anterior bridge	1	0.5	0.5	≥ 7
	3	0.7	0.5	≥ 9
Posterior bridge	1	0.7	0.5	≥ 9
	2	1.0	0.7	≥ 12
Cantilever bridge	1	1.0	0.7	≥ 12



**CAUTION:**

Hazard of fracture or failure due to non-compliance with design specifications!

Failure to adhere to recommended design parameters, such as connector dimensions, wall thickness, or span length, could result in structural weakness, increased tension, and fracture of the dental restoration.

- Follow manufacturer's instructions for use for minimum connector dimensions, wall thickness and span length.

**NOTICE:**

Damage to the dental restoration due to improper nesting!

Improper positioning of the dental restoration in the blank can lead to an inaccurate fit after sintering.

- Position the dental restoration in the blank so that the distance between the crown margin and the blank surface is at least 1 mm.
- Use the magnification or shrinkage factors specified by the manufacturer in the CAM software to ensure a precise fit.
- Contact your CAM software provider or the manufacturer if you have any questions.



**NOTICE:**

Damage to the dental restoration due to improper milling!
Incorrect milling strategies or insufficient machining quality can lead to tension, cracks, or material loss.

- ▷ Use only the milling strategies stored in the CAM software for the material.
- ▷ Ensure that only milling tools of sufficient quality and service life are used when machining the blanks.

**NOTICE:**

Damage to the dental restoration due to improper separation and finishing!

Unsuitable tools or excessive mechanical stress can damage the restoration during cutting out or finishing.

- ▷ Cut out the dental restoration using only tools that are suitable for zirconia.
- ▷ Do not use cutting discs.
- ▷ Use only tools that are suitable for zirconia to grind the holding pins of the dental restoration.



For detailed information on “reworking zirconia,” please refer to the brochure “Zolid Processing Techniques.” You can find this at www.amanngirrbach.com in the download area.



Individualization of the Dental Restoration

- ▷ If required, partially infiltrate the dental restoration with coloring liquid for zirconia before sintering.
- ▷ After successful final sintering: individualize with stains or glaze materials or use as a framework for veneering techniques.



For detailed information on “coloring and finalization,” please refer to the brochure “Zolid Processing Techniques.” You can find this at www.amanngirrbach.com in the download area.

Sintering of the Dental Restoration

- ▷ Place the restoration for sintering in the sintering tray filled with sintering beads.
- ▷ Place the restoration on the sintering beads with light pressure to ensure good support.



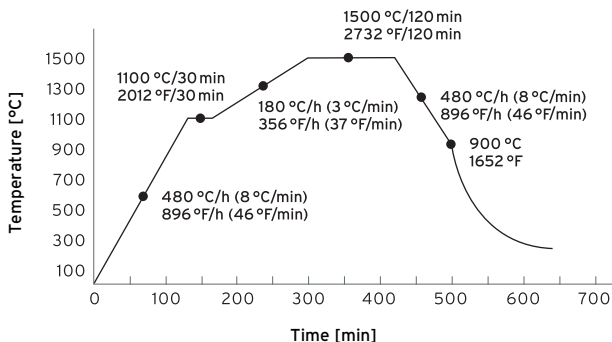
**NOTICE:**

Damage to the dental restoration caused by sintering beads in interdental spaces or crown cavities!

Sintering beads inside dental restoration can impair fit and stability.

- ▷ Remove excess sintering beads from the interdental spaces and crown cavities after placing the restoration on the sintering tray prior to sintering.
- ▷ Ensure that all sintering beads adhering to the restoration are completely removed after sintering before further processing or placing the dental restoration.

- ▷ Perform final sintering of the restoration according to the following sintering parameters:



Sintering program

Heating rate	480 °C/h (8 °C/min)
	896 °F/h (46 °F/min)
Holding time	1100 °C/30 min
	2012 °F/30 min
Heating rate	180 °C/h (3 °C/min)
	356 °F/h (37 °F/min)
Holding time at final temperature	1500 °C/120 min
	2732 °F/120 min
Cooling rate	480 °C/h (8 °C/min)
	896 °F/h (46 °F/min)
Shut down	900 °C
	1652 °F



For detailed information on “Sintering,” please refer to the brochure “Zolid Processing Techniques.” You can find this at www.amanngirrbach.com in the download area.

**CAUTION:**

Hazard of restoration failure due to improper sintering!

The dental restoration can fail due to insufficient sintering.

- ▷ Use the specified sintering parameters and a suitable high-temperature furnace, e.g., Ceramill Therm 3, to achieve the final mechanical properties of the zirconia restoration.



Processing of the dental restoration after sintering

- ▷ After final sintering, the zirconia restoration can be processed without pressure using a water-cooled laboratory turbine and suitable diamond grinders (grain size approx. 40 μm , maximum speed of 15,000 rpm).
- ▷ The dental restoration can be veneered, stained and glazed as required. For bridges with five or more units or with massive pontics, gradual long-term cooling in a ceramic furnace to 500 °C is recommended to avoid thermal stress.
- ▷ Polish the contact surfaces to the antagonist and adjacent teeth to a high gloss in a densely sintered state.
- ▷ The inner surfaces must be prepared for attachment by corundum blasting (aluminum oxide, 50 μm , pressure ≤ 2 bar) and subsequent steaming.





For detailed information on “staining and finalization,” please refer to the brochure “Zolid Processing Techniques.” You can find this at www.amanngirrbach.com in the download area.

**CAUTION:**

Hazard of chipping of veneering ceramic due to improper processing!

Improper processing can cause tension between the veneering ceramic and the framework ceramic, which can lead to cracks or chipping.

- ▷ Sandblast the outside of the framework (aluminum oxide, 50 µm, pressure $\leq$ 2 bar) and then clean it by steam cleaning.
- ▷ Select a veneering ceramic whose coefficient of thermal expansion (CTE) is matched to the zirconia ceramic used (see page 10). The CTE of the veneering ceramic should be approximately 10 % lower than that of the zirconia ceramic.
- ▷ Always follow the instructions for use of the veneering ceramic used.



Process Steps in the Dental Practice



CAUTION:

Hazard to dental aesthetics due to severely discolored or metallic substructures!

Heavily discolored or metallic substructures could show through the dental restoration and negatively affect the final aesthetic result, especially when using translucent zirconia materials.

- ▷ Consider using opaque zirconia materials, applying an opaque layer, or using an appropriate cementation system to conceal underlying discoloration.
- ▷ Perform a thorough shade analysis before selecting the material.
- ▷ Communicate with the dental laboratory to ensure appropriate layering or staining techniques are applied.



WARNING:

Hazard of restoration failure due to insufficient tooth preparation or retention!

The dental restoration could debond, dislodge, or fail if tooth preparation does not provide adequate mechanical retention or resistance form. Improper preparation can lead to thermal damage and subsequent endodontic complications.

- ▷ Follow established clinical guidelines for all-ceramic restorations for tooth reduction, taper, and height.
- ▷ Ensure correct rotational speed and adequate water cooling.



**WARNING:**

Hazard of damage to the restoration or opposing teeth due to bruxism!

Patients diagnosed with or suspected of having bruxism (teeth grinding or clenching) may experience increased wear, fractures, or failure of the dental restoration or the opposing teeth.

- ▷ Consider the use of occlusal splints to reduce functional overload.
- ▷ Ensure that the occlusion is designed appropriately to avoid tension.
- ▷ Monitor for signs of wear or damage at dental check-ups.

Cleaning, Disinfection and Sterilization

- ▷ Prior to use, the dental restoration must be cleaned and disinfected or, if indicated, sterilized.



For detailed information on “cleaning, disinfection and sterilization,” please refer to the “Guideline for Cleaning, Disinfection and Sterilization of Prosthetic Components Made of Amann Girrbach Materials.” You can find this at www.amanngirrbach.com in the download area.



**CAUTION:**

Hazard of biological complications and loss of bonding due to improper cleaning of the restoration!

Failure to adequately clean the dental restoration could leave contaminants that could interfere with bonding and provoke biological complications.

- ▷ Clean and disinfect or, if indicated, sterilize according to the manufacturer's guideline.
- ▷ Do not touch or re-contaminate the cleaned surface before cementation.
- ▷ Ensure all residues are completely removed prior to final insertion.

Try-in, Grinding and Cementing of the Dental Restoration

- ▷ Insert the dental restoration into the patient's mouth and check for fit.
- ▷ If necessary, grind and repolish. Diamond grinders (grain size approx. 40 μm) are recommended for grinding the dental restoration in the patient's mouth. Diamond polishers are recommended for polishing the dental restoration in the patient's mouth.
- ▷ Either cement the dental restoration traditionally or bond it adhesively. Follow the instructions for use of the respective cementation material.





CAUTION:

Hazard of swallowing or inhaling of dental restorations or fragments!

Dental restorations or fragments may be accidentally swallowed or inhaled during insertion or if they detach/fracture, which may lead to complications in the gastrointestinal or respiratory tract.

- ▷ Ensure safe handling and take appropriate protective measures during insertion.



WARNING:

Hazard of damage to the restoration or opposing teeth due to improper intraoral adjustments!

Improper grinding, polishing, or occlusal adjustments performed intraorally will introduce surface defects, microcracks, or roughness on the dental restoration. This could compromise structural integrity, increase the risk of fracture, and lead to excessive wear of opposing dentition.

- ▷ Use only recommended instruments and techniques for intraoral adjustment of zirconia.
- ▷ Always finish and polish adjusted surfaces thoroughly to restore a smooth surface and reduce antagonist abrasion.
- ▷ Avoid unnecessary or aggressive grinding, especially in functional areas.





CAUTION:

Hazard of restoration failure due to provisional cementation!
All-ceramic dental restorations should not be provisionally cemented, as removal or debonding could cause microcracks that lead to failure.

- ▷ Avoid provisional cementation of all-ceramic dental restorations.

Information to be Passed on to the Patient

(by healthcare professionals)



CAUTION:

Hazard of biological complications due to insufficient oral hygiene!
Poor oral hygiene can lead to plaque accumulation, gingival inflammation, secondary caries on abutment teeth, or peri-implant disease, compromising the long-term success of the dental restoration.

- ▷ Inform patients about potential residual risks.
- ▷ Educate patients on the importance of maintaining proper oral hygiene practices.
- ▷ Recommend the use of interdental brushes or flossing aids designed for dental restorations.
- ▷ Schedule regular professional cleanings and dental check-ups to monitor oral health.

Warranty/Exclusion of Liability

Recommendations regarding application, whether given verbally, in written form, or in the course of practical instruction, are to be considered guidelines. Our products are subject to continuous development and are tested in accordance with the latest scientific findings and legal requirements.

We reserve the right to make any resulting changes to their handling and composition.

The currently valid version of the instruction manual can be found at www.amanngirrbach.com/instruction-manuals. This version replaces all previous versions.



NOTICE:

Damage to the dental restoration due to the use of damaged blanks!

Damaged or discolored blanks can lead to cracks, structural defects, or visual impairments.

- ▷ Carefully check each blank for perfect optical and structural integrity before processing.
- ▷ Do not use dirty or transport-damaged blanks. Once used, these are excluded from warranty.



Environmental Protection

Packaging

The manufacturer participates in country-specific recycling systems that ensure optimal recycling of packaging materials.

All packaging materials used are ecologically sound and recyclable.

The explanation of the respective symbols for the disposal of packaging can be found in EU Directive 94/62/EC on packaging and packaging waste.

Disposal

- ▷ Disposal of the content and container in accordance with local, regional, national and international regulatory requirements.

Download Information

Safety Data Sheet/Declaration of Conformity

The safety data sheet can be downloaded from the Amann Girrbach website under *Downloads > Documents > Product Related Documents*. The product's declaration of conformity is available from the manufacturer upon request.

Further product information is available at www.amanngirrbach.com in the download area.



Information



This information only applies to products sold in Australia.

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