PrograPrint PR5

Operating Instructions

PrograPrint® PR5

ivoclar digital®

Table of Contents

Table of Contents

1 About this Document

These Operating Instructions will familiarize you with the PrograPrint PR5 features.

PrograPrint PR5 is a modern 3D printer for use in dentistry. This device has been developed and produced according to the state-of-the-art technology.

Improper use can be dangerous. Please observe the relevant safety instructions and read the Operating Instructions carefully.

These Instructions are an integral part of the device and are valid for all machine versions indicated.

The Operating Instructions describe the safe and correct use in all phases of operation.

Should you lose these Operating Instructions, you can download them from www.ivoclarvivadent.com.

🔔 For all types of technical questions, please contact your authorized service partner.

1.1 Target groups

Target group	Duties
Operator	• Keep these Operating Instructions available at the place where the device is used, also for future use.
	• Request personnel read and observe these Operating Instructions and the documents of equal applicability, in particular the safety instructions and warnings ("Safety", page 10).
	• Observe additional device-related stipulations and regulations.
Dental technician	• Read and observe these Operating Instructions and the documents of equal applicability, in particular the safety instructions and warnings ("Safety", page 10).
Qualified dental staff members	
Authorized Ivoclar Vivadent service partner	

1.2 Signs and symbols

1.2.1 Warnings

Warnings are used in these Operating Instructions to warn you of a risk of injury to persons and/or damage to property.

1. Please always read and observe these warnings.

2. Follow all measures marked with the warning symbol and warning word.

Depending on the severity and probability of the danger, the following warning levels are distinguished:

Warning symbol	Warning word	Danger level	Consequences resulting from non-observance
⚠	DANGER	Immediate imminent danger	Death, severe personal injury
⚠	WARNING	Potential danger	Death, severe personal injury
⚠	CAUTION	Potential danger	Slight personal injury
-	NOTICE	Potential danger	Damage to property

Explanation of the structure of a warning:

⚠ **WARNING WORD! Name of source of danger, cause of hazard or type of risk.**

Consequences of non-compliance with instructions.

▶ Action in order to avoid danger.

Example of a warning:

⚠ **WARNING! Risk of injury due to heavy lifting.**

Injuries to the back due to overloading.

▶ Only lift the device with the aid of the pallet truck.
▶ Unpack the device only after transportation.

1.2.2 Signs and symbols

Symbol	Meaning
❶	Additional information, e.g. for better understanding, for simplifying workflows or for further information.
☑	Prerequisite which must be followed before the subsequent actions can be performed.
▶	Individual steps which you must perform.
1., 2.	Several steps that you must perform in the given order.
➡	The result indication of an operation step or several steps, for success control.

1.3 Abbreviations

Abbreviation	Meaning
CAM	Computer-aided manufacturing. This term designates the use of software that is independent of the machine to generate the NC code.
EMC	Electromagnetic compatibility. This term describes the interference tolerance of electrical or electronic devices with their surroundings.
LAN	Local area network
OSD	Optical status display
STL	Standard tessellation language This term designates a file format for the transfer of data to the CAM software.
WLAN	Wireless Local Area Network This term designates a local wireless network.

1.4 Revisions and validity

Version	Date	Amendments to the previous version
1.0	2019-07	First production
2.0	2019-09	CE marking / Declaration of Conformity
3.0	2019-11	Revision
4.0	2020-06	Revision

1.5 Documents of equal applicability and required files

For details on the documents of equal applicability, please contact your local trade partner or go the download section of Ivoclar Vivadent at http://www.ivoclarvivadent.com.

In the download section, you can find additional files, such as :

• Installation file for the software "PrograPrint Manager"

• Build styles for the software "CAMbridge"

• DME file for the software "Dental System"

Document	Explanation
Instructions for Use for the different materials	Information about the use of the materials to be processed
Operating Instructions for the cleaning unit PrograPrint Clean	Information about requirements that must be observed for the transport, set-up and use of PrograPrint Clean
Operating Instructions for the post-curing unit PrograPrint Cure	Information about requirements that must be observed for the transport, set-up and use of PrograPrint Cure
PrograPrint Workflow Manual	Short instructions on the entire workflow of the PrograPrint system
Instructions for Use for CAMbridge	Manual for the CAM software "CAMbridge"
Short Instructions for: • PrograPrint PR5 • PrograPrint Clean • PrograPrint Cure	Excerpt of operation-relevant topics from the respective Operating Instructions

2 Safety

⚠ **WARNING! Improper use of the device.**

Hazard to the user.

▶ The safety chapter contains important information on the safety of the device: Please read thoroughly prior to installation and operation.

🛈 The device is built according to state-of-the-art technology and recognized safety regulations. Nevertheless, operation bears the risk of injury to the user or third parties. Moreover, impairments of the device and other property are possible.

2.1 Intended use

PograPrint PR5 has been designed for 3D printing in dental technology using the following materials:

- ProArt Print Wax (burn-out material for the press technique)
- ProArt Print Model (material for the fabrication of the dental working models)
- ProArt Print Splint (material for the fabrication of dental drilling templates and splints)

Use PograPrint PR5 exclusively for this purpose.

In the case of damage caused by improper use or failure to observe the Operating Instructions, all liability and guarantee claims are void.

Please note that only the materials and cleaning agents approved by the manufacturer ensure processing without damage to the machine.

🛈 Only approved materials can be identified by the PograPrint PR5 by means of the corresponding RFID code on the material bottle and on the cartridge and used accordingly so that misapplication is virtually impossible.

All information regarding material and application extensions corresponds to the state of knowledge at the time of going to print. For additional details, go to http://www.ivoclarvivadent.com.

The use of materials from other manufacturers is not recommended due to the lack of coordination with the printing/fabrication process.

2.1.1 Potential improper use

The device is not suitable for 3D printing procedures outside of the dental field.

The following is considered as misuse of the system:

- Non-compliance with the specified intended use, intended user or intended environment

- Modifications, maintenance and repairs without prior authorization by Ivoclar Vivadent

- Operation with inappropriate parameters

Improper use of the device can lead to the following:

- Danger for patient and operating personnel

- Impairment of the operability of the device

Ivoclar Vivadent assumes no liability for damage resulting from improper use.

Typical misapplications of the device to be avoided:

Improper use	Consequences
Use of non-approved materials	The device cannot execute any printing jobs
Incorrect cleaning and disposal (build platform, build chamber, hood etc.)	- Skin irritations - Environmental damage - Damage to the device
Operation without cartridge or build platform	Damage to the device
Operation with incorrectly inserted cartridge or build platform	- Damage to the device - Deficient printed object
Shut-down of the device by the user during printing	Deficient printed object
Mixing of different materials	- Health damage of the patient - Cross-contamination of materials - Deficient printed object - Damage to the material, cartridge and material bottle

2.1.2 Intended user

The device may only be operated by dental technicians and qualified dental staff for the fabrication of dental objects for dental applications.

The user is responsible for selecting the correct device settings.

2.1.3 Intended environment

The device is only permitted for use in closed rooms within the specified ambient conditions ("Ambient conditions for operation", page 119) and in compliance with the requirements for safe installation ("Choosing the location site", page 35).

2.2 Operator's obligations

The operator is responsible for the safe operation of the device.

▶ Ensure compliance and control:

   a. Intended use

   b. Statutory or other safety and accident prevention regulations

▶ Only operate the device in a technically perfect condition, in a proper, safety-conscious and risk-conscious manner and while observing these Operating Instructions.

▶ Keep these instructions and all documents of equal applicability complete, legible and accessible to personnel at all times.

2.3 Personnel qualifications

▶ Ensure that the personnel assigned to work with the device have read and understood these instructions and all documents of equal applicability, in particular safety, maintenance and repair information, before starting work.

▶ Ensure that personnel is aware of hazards and safety equipment ("Working areas, potential hazards and safety equipment on the device", page 14).

▶ Manage the responsibilities, competences and monitoring of staff.

▶ All work must be carried out by qualified technical staff only.

▶ Personnel to be trained should only be working with the device under the supervision of qualified technical staff.

2.4 Staff obligations

▶ Only operate the device in a technically perfect condition, in a proper, safety-conscious and risk-conscious manner and while observing these Operating Instructions.

▶ Refrain from any process that could endanger staff or third parties.

▶ In the case of safety-related malfunctions, switch off the device immediately and allow the fault to be rectified by the person responsible.

▶ In all cases of doubt regarding the safety of the device, switch off the device and prevent further use.

▶ In addition to the overall documentation, legal or other safety and accident prevention regulations including the applicable standards and guidelines of the country in which the device is operated must be complied with.

▶ Do not wear jewellery such as rings, bracelets or watches when working on the device, especially when cleaning the build chamber, to prevent cutting injuries or bruising.

2.5 Personal protective equipment

▶ If loud operating noises cannot be prevented, use hearing protectors during printing.

▶ For the protection against material and cleaning agent vapours or other dental material particles while working with cartridges or material bottles or during cleaning, wear protective masks (half mask with protection class FFP3), gloves and protective gear suitable for the respective material (see also Instructions for Use or the materials, "Documents of equal applicability and required files", page 9).

2.6 Working areas, potential hazards and safety equipment on the device

As an operator, you are working at the areas described below.

The device is built according to state-of-the-art technology and recognized technical safety regulations. Hazardous areas, which cannot be avoided by design, are equipped with appropriate protective devices. Nevertheless, if the machine is used improperly, there is a danger to life or risk of injury to the user or third parties. In addition, the devices or dental applications may become damaged.

The working areas, their potential hazards and applicable safety measures are shown below:

The hood (1) of the printer can only be opened once the build platform (2) is in the home position (highest position) after a print job as depicted. As soon as the movement of the build platform is complete, the hood is automatically unlocked.

No.	Working area	Tasks / Work	Type of hazard	Safety equipment	Protective effect
1	Hood	• Access to the build chamber • Mounting the build platform and cartridge • Cleaning of the build chamber with the printer switched off	Mechanical hazards	• Safety lock of the hood. Access to the build chamber is not possible while the build platform is moving. • The printer does not start with the hood open. Cushioning of the hood against slamming shut	Protection against crushing
			Premature polymerization of the material in the cartridge due to incident light. Contamination of the material	• Acoustic signal (Close hood) • Tinted window	• Protection against damage to the printer • Protection of the material
2	Build platform	Creation of the printed objects	Mechanical hazards by the build platform falling down	• Construction-safe design • Fixation lever	Protection against crushing
			Leaking, slopping over material due to the build platform falling down into the filled cartridge		• Protection against health impairments • Protection against environ-mental damage

No.	Working area	Tasks / Work	Type of hazard	Safety equipment	Protective effect
3	Cartridge	Material supply for print jobs	Leaking, slopping over material during transport of the cartridge. Dripping build platform	• Handle at the bottom section, not the top section • Accidental swivelling impeded by the handle at the bottom section Wrap around rim at the top edge	• Protection against health impairments • Protection against environ-mental damage
4	Material bottle	Material supply for print jobs	Leaking, slopping over material during transport, opening or handling of the bottle	• Robust design of the material bottle • Material bottle can be held stable and does not give in to pressure	• Protection against health impairments • Protection against environ-mental damage

2.7 Safety instructions for potential hazard areas

2.7.1 Electromagnetic waves

Even though the valid standards are observed, it is possible that the device reacts to radio frequency interference or the operation of other devices in the immediate vicinity.

▶ Do not operate devices that generate electromagnetic waves in the same room as this device.

▶ Take appropriate measures in the case of radio interference, e.g. a new orientation, a new device position or electromagnetic shielding.

▶ Only use the original accessories recommended and supplied by the manufacturer. Failure to do so can result in increased interference emissions or decreased immunity of the device.

2.7.2 Mechanics

Whilst the device is in operation, there are the following risks in the build chamber:

• Risk of crushing

• Risk of damage to the device

▶ To prevent injury of the user in the inner chamber of the device, never remove the housing cover and do not open the hood by force while the device is in operation.

▶ Do not use the device when the hood is damaged (cracks, holes, missing window etc.).

2.7.3 Electrical safety

If covers are opened or parts are removed which are only accessible with tools, voltage-carrying components may be exposed. The plugs may also be under voltage. There is a risk of electric shock.

▶ Electrical work must only be carried out by your authorized service partner.

▶ Before connecting the device, check that the supply voltage and frequency are correct at the point of installation ("Electrical data", page 120 and the information on the type plate, see "Marking and labelling of PrograPrint PR5", page 23).

▶ To avoid injury to the user and for cooling reasons and fire protection, never remove the housing covers.

▶ For installation, observe the requirements of the manufacturer for house installation ("Documents of equal applicability and required files", page 9).

▶ To prevent the risk of electric shock, connect the device only to a power supply with a protective conductor.

▶ The mains plug is used as a supply circuit disconnecting means. Always connect the mains plug to an easily accessible protective contact socket.

▶ Connect the grounded and freely accessible protective contact socket to a separately secured circuit.

▶ Make sure that the protective contact socket is equipped with a residual current circuit breaker (FI).

▶ Connect the printer to a separately secured circuit or make sure that no devices are connected that cause severe supply voltage fluctuations when switched on. These fluctuations interfere with the electronic controls and may cause failure of the system.

▶ Disconnect power before cleaning and maintenance work approved to be performed by the user.

▶ If you need to disconnect the unit from the power supply at a later time: Disconnect the plug from the protective-contact mains socket, not from the device.

2.7.4 Hazardous materials

Incorrect handling of the device, of the accessories or non-compliance with the processes described in these Operating Instructions may lead to contact of the user with unpolymerized material. This may results in health damages, e.g. skin irritations.

Depending on the material, there is a risk of skin irritations, allergic reactions or respiratory diseases without the corresponding safety precautions.

▶ The Instructions for Use of the materials must be observed ("Documents of equal applicability and required files", page 9).

▶ Wear protective gear ("Personal protective equipment", page 13).

▶ Make sure that the room is sufficiently ventilated during work with the materials or material bottles.

2.8 Safety information for the individual operating phases

2.8.1 Transport

▶ Only transport the device according to the description in these Operating Instructions ("Transporting and Setting Up the Device", page 35).

▶ In order to avoid corrosion on the device and subsequent damage to the device, transport and store the device only within the permissible temperature range and ambient conditions ("Ambient conditions", page 119).

2.8.2 Initial operation

▶ Ensure that this device is only operated by authorized and trained specialists.

▶ If the device has been stored in a cold environment or at high humidity, maintain a drying or temperature adjustment time of approx. 4 hours (without voltage) at room temperature before initial operation.

▶ Before connecting the device, check that the supply voltage and frequency are correct at the point of installation ("Electrical data", page 120).

▶ Observe the requirements regarding the location ("Choosing the location site", page 35) and the ambient conditions ("Ambient conditions", page 119).

2.8.3 Operation

▶ Ensure that this device is only operated by authorized and trained specialists.

▶ Keep unauthorized persons, such as patients, children and animals, away from the unit.

▶ In all cases of doubt regarding the safety of the device, switch off the device and take suitable measures to prevent further use.

▶ Prior to connecting power or operation, check the device, the accessories and protective equipment for any damage.

▶ Do not use damaged, non-functioning equipment or accessories; instead notify your authorized service partner.

▶ In order to ensure the product reliability and warranty services, the device must be exclusively operated with the original accessories from Ivoclar Vivadent and in particular the original power cord. The user bears the risk when using non-approved accessories.

▶ Ivoclar Vivadent recommends using only approved materials to ensure process reliability.

▶ Never bypass the safety equipment of the machine or set it out of operation ("Working areas, potential hazards and safety equipment on the device", page 14).

▶ Only operate the device when the build chamber is closed.

▶ To avoid damaging the unit and reducing the performance, follow the cleaning instructions and cycles ("Cleaning by the user", page 20 and "Cleaning and Maintenance Work for the User", page 109).

▶ Only operate the device unsupervised if the operating conditions for unsupervised operation described below are fulfilled.

Unsupervised operation:

The machine may be operated unsupervised, provided the national and local laws and provisions allow for such action and provided that they are observed. Furthermore, the requirements of the respective insurance company must be met.

▶ Never use the device if the build chamber is heavily soiled.

▶ Protect the device against unauthorized access.

2.8.4 Cleaning by the user

▶ Only clean as specified in these Operating Instructions and observe the related safety regulations ("Cleaning and Maintenance Work for the User", page 109)

2.8.5 Improper maintenance, modifications and repairs

Improper service and improper repairs or modifications will endanger patients and users and result in damage to the device and the final products.

Should you carry out any repairs or maintenance of the device or make modifications or remove the housing without prior written consent by an authorized service partner, all warranty claims are void.

Unauthorized opening and removal of components can expose voltage-carrying components. The plugs may also be under voltage. There is a risk of electric shock!

▶ Maintenance as well as repairs of damaged safety equipment or machine parts must only be carried out by a service partner authorized by Ivoclar Vivadent.

3 Design and Function

PrograPrint PR5 is a 3D printer used for the fabrication of dental objects for dental applications (e.g. models, occlusal splints) using liquid, photoreactive resins. PrograPrint PR5 has been designed in such a way that various materials from Ivoclar Vivadent can be processed.

PrograPrint PR5 consists at least of the following components:

- 3D printer PrograPrint PR5 with integrated touch screen display
- Cartridges (can also be ordered separately as accessories)
- Material bottles (can also be ordered separately as accessories)

PrograPrint PR5 is not a stand-alone component but an integral part of the PrograPrint 3D printing system. The process for the fabrication of dental objects for dental applications with the Ivoclar Digital systems solution is divided into several steps:
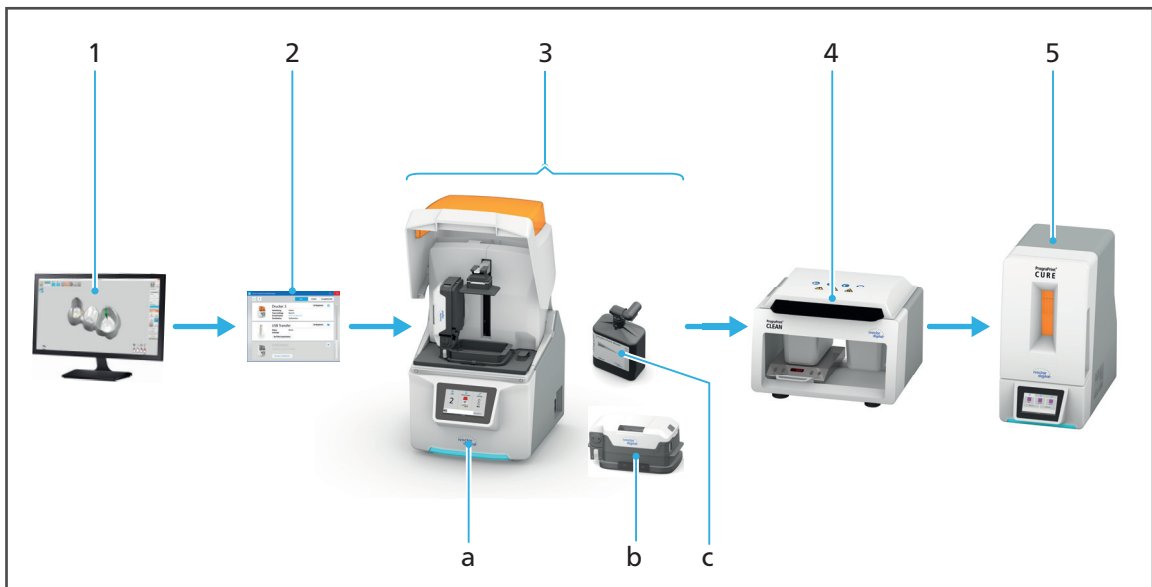
Step	Component	Task
1	CAM software "CAMbridge"	• CAM preparation • Alignment of the dental object on the virtual build platform • If required, support elements are added.
2	Software "PrograPrint Manager"	Transfer of the print job to PrograPrint PR5

Step	Component	Task
3	PrograPrint PR5 (a) with cartridge (b) and material bottle (c)	3D printing of the dental object
	Cartridge (Pos. b, 1 separate cartridge per material)	• Holding the material for the printing process • During storage: Protection of the material from harmful environmental influences, such as light or dust
	Material bottle with valve (Pos. c, bottle content 1000 ml)	Provision of the material in the cartridge (b)
4	PrograPrint Clean (to be ordered separately)	Cleaning of the dental object after the printing process
5	PrograPrint Cure (to be ordered separately)	Final polymerization of the dental object after cleaning

❶ For information on the range including the components that can be ordered separately, please refer to the respective Operating Instructions of the component ("Documents of equal applicability and required files", page 9).

3.1 Marking and labelling of PrograPrint PR5

PrograPrint PR5 has the product name "PrograPrint PR5" and the Ivoclar Digital logo imprinted on the front side.

The back has a type plate attached:
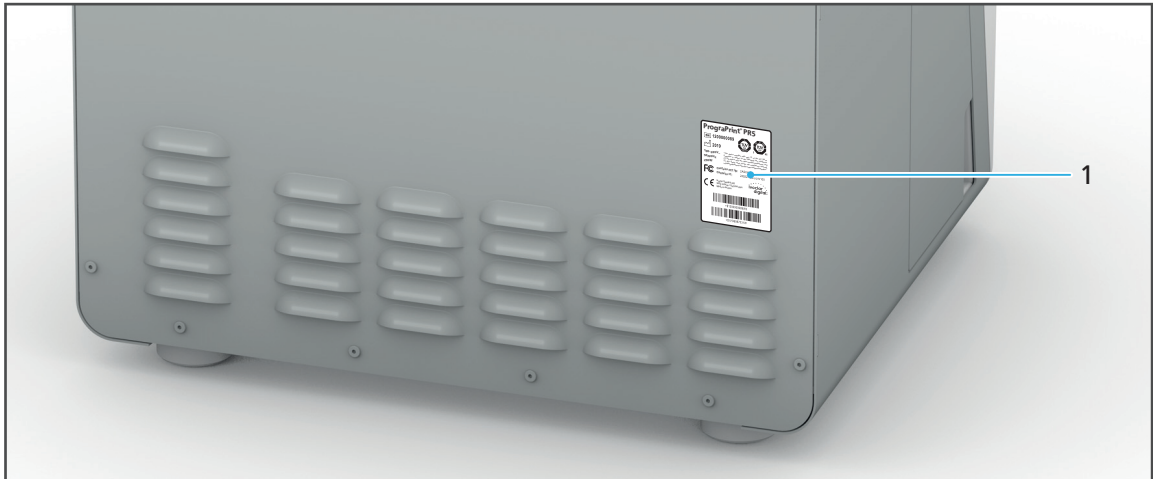
No.	Description
1	Position type plate

Example:

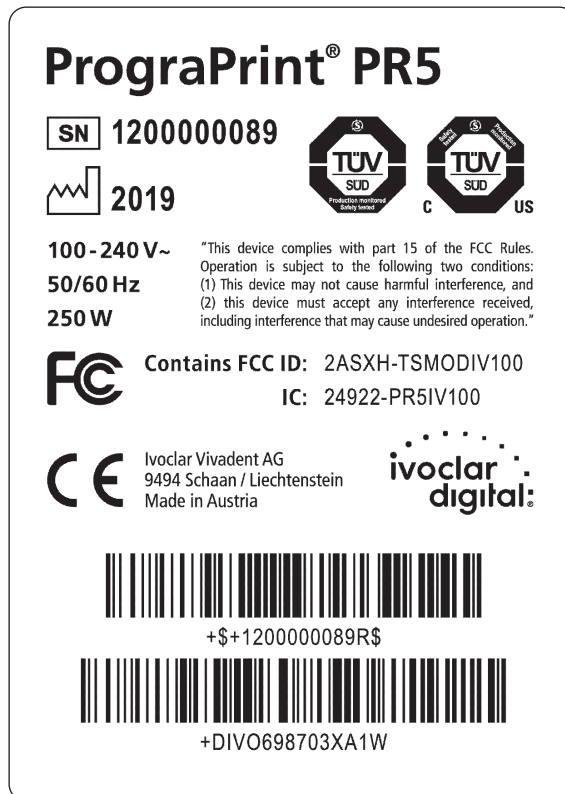Symbols on the type plate:

Symbol	Meaning
ivoclar digital®	Manufacturer
SN	Serial number
[factory symbol]	Manufacturer / Year of manufacture (format YYYY, e.g. 2019)
100-240 V~ 50/60 Hz 250 W	Permitted supply voltage and supply frequency (depending on the country)
FC	This device meets the requirements of the applicable FCC regulations
CE	This product meets the requirements of the applicable EU directives

3.2 PrograPrint PR5 design

3.2.1 Front

No.	Description	Function
1	Build chamber	• Insertion of the cartridge, material bottle and build platform • Fabrication of dental objects • Removal of the dental objects for subsequent cleaning and post-polymerization
2	Touch screen display with user interface	Operation / control of the device
3	Operating Status Display	Indication of the printer status
4	Device feet	Secure position of the device
5	Maintenance flap with empty collecting bottle	Access to the collecting bottle for material spilled in the build chamber or material leaked from the cartridge in case of failure
6	Hood with interlock	Access to the build chamber

3.2.2 Connections (right side)
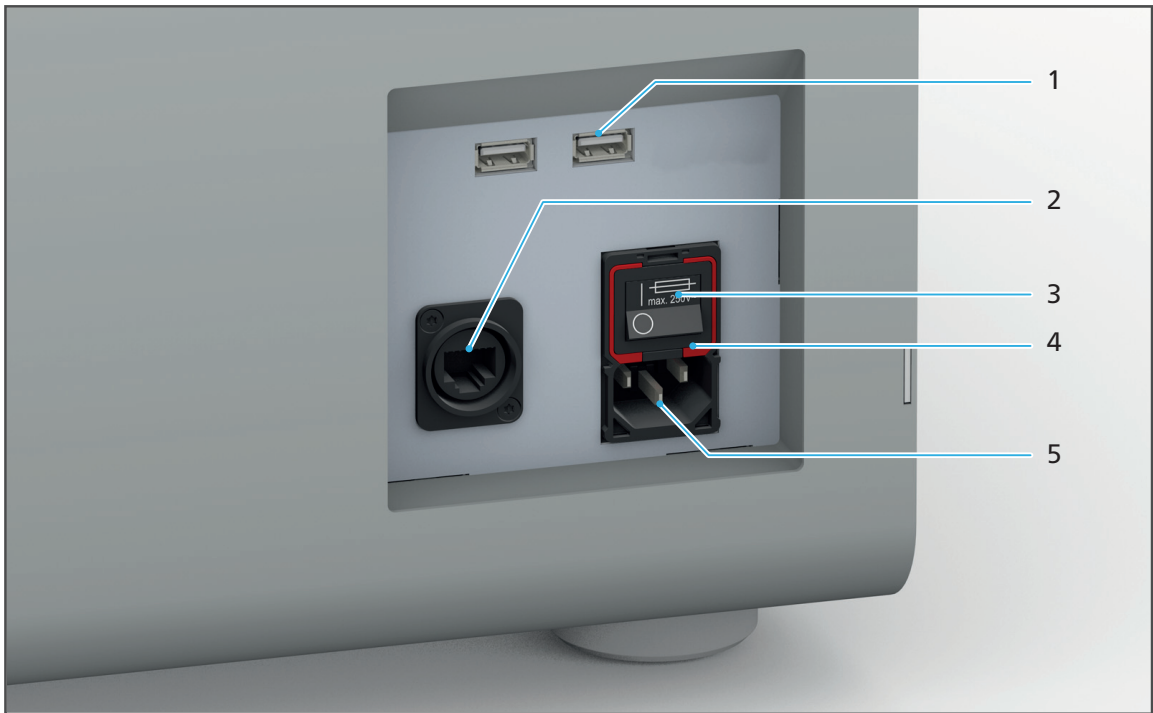
No.	Description	Function
1	USB connections	Connection of external USB flash drives
2	Network connection	Connection to the local network (LAN)
3	On/off switch / main switch	Switching the device on/off Note: Switching off the device with the the on/off switch does not disconnect the device from the power supply. To fully disconnect from the power supply, unplug the power cable from the wall socket.
4	Main fuse below the on/off switch	"Changing the fuses", page 107
5	Power supply / voltage supply	Connection to the power supply

3.2.3 Overview of the build chamber

No.	Description	Function
1	Lever for the build platform	Locking and unlocking the interlock of the build platform for the secure hold of the build platform in the mounting space
2	Build platform support (Z axis)	Inserting and removing the build platform. The depicted position is the home position of the support. In this position, the hood of the device is automatically unlocked and work in the build chamber may be performed.
3	Lever for the cartridge	Locking and unlocking the cartridge interlocks (5) for the secure hold of the cartridge in the mounting space
4	Glass pane	Light inlet for the fabrication of dental objects for dental applications. **Note:** Contamination / damage of the glass pane affects the quality of the printed object. To ensure a correct printing result, make sure to keep the glass pane clean at all times. Clean it after every print job and check it for damage ("Cleaning the glass pane in the build chamber", page 113 and "Trouble-shooting / error table", page 102).
5	Cartridge interlock (on both sides of the cartridge)	Locking and unlocking the cartridge by means of a lever (3)

No.	Description	Function
6	Drain	Collection of material spilled in the build chamber and discharge into the collecting bottle for the subsequent disposal of the material.
7	Build platform	Location where the dental objects for dental applications are fabricated
8	RFID reader	Identification of the RFID code from cartridges and material bottles

3.2.4 Cartridge

Different materials can be used for printing. All materials are delivered in a material bottle marked with an RFID chip.

Mixing the materials will negatively affect the quality of the printed dental object (mechanics, colour, precision, biocompatibility). Medical devices, e.g. ProArt Print Splint, cannot be used for patients if they are mixed with other materials.

To prevent the mixing of different materials or the use of unsuitable materials, the material bottles are clearly marked and equipped with an RFID chip. In this way, the material type can be clearly identified.

Before the start of a print job, the printer verifies that the inserted material is suitable for the print job and that the material in the bottle corresponds with the material in the tank of the cartridge, i.e. that no mixing of materials has happened.

Hence, the tank is also equipped with an RFID code and is assigned to a material type upon initial use.

The tank may then only be used for that specific material. If the material in the bottle and in the tank do not correspond, a respective error message will be displayed on the user interface of the printer.

Once the material in the material bottle is used up, the tank must be assigned a new material bottle of the same material type. This is done by inserting the bottle into the cartridge and subsequently inserting the cartridge into the printer.

No.	Description	Function
1	Cartridge lid	Access to the cartridge top
2	Interlock cartridge lid	Opening and closing of the cartridge lid to insert and remove the material bottle.
3	Cartridge top	Holder for the material bottle with attached valve
4	Cartridge interlock	Opening and closing of the cartridge for filling the tank with material from the material bottle.
5	Tank foil	Light inlet for the printing of dental objects

No.	Description	Function
6	Front handle	Transport of the cartridge. **Note:** Always hold cartridge with both handles at the same time (6 + 10). Do not hold and lift cartridge by the tank or the cartridge lid.
7	Tank	Holding the material for the printing process
8	Interlock protective foil cover (both sides)	Separating and connecting of the protective foil cover and the tank
9	Protective foil cover	Protection of the material from light penetration and protection of the tank foil from damage if the cartridge is not inside the printer
10	Rear handle	Transport of the cartridge. **Note:** Always grasp both handles of the cartridge at the same time (6 + 10). Do not hold and lift cartridge by the tank or the cartridge lid.
11	Interlock cartridge top	Separating and connecting of the cartridge top and the tank

3.2.5 Material bottle

Different materials can be used for printing.

Mixing the materials will negatively affect the quality of the dental object (mechanics, colour, precision, biocompatibility). Medical devices, e.g. ProArt Print Splint, cannot be used for patients if they are mixed with other materials.

To prevent the mixing of different materials or the use of unsuitable materials, the material bottles are clearly marked and equipped with an RFID chip. In this way, the material type can be clearly identified.

Before the start of a print job, the printer verifies that the inserted material is suitable for the print job and that the material in the bottle corresponds with the material in the tank of the cartridge, i.e. that no mixing of materials has happened.

Hence, the tank is also equipped with an RFID code and is assigned a material type upon initial use.

The tank may then only be used for that specific material. If the material in the bottle and in the tank do not correspond, a respective error message is displayed on the user interface of the printer.

The material bottle and the valve form a fixed unit once the valve has been mounted. If the material in the material bottle is used up, the material bottle and the valve must be disposed of together. The valve must not be reused for other material bottles as this may lead to material cross-contamination and leaky material bottles.

A leaky valve may result in contamination with and/or contact with unpolymerized material. Furthermore, leaking material may lead to the tank overflowing.

Consequently, proceed as follows:

- Check the valve for damage before attaching it to the material bottle.
- Verify the correct fit of the valve on the material bottle.
- Before inserting the material bottle into the cartridge, verify the closed position of the valve (90 degree angle).

No.	Description	Function
1	Filling quantity	Identification of the filling quantity
2	RFID code	Comparison of the material type in the material bottle with the material type in the tank
3	Material designation	Information about the material type in the material bottle
4	Valve	Dosed filling of the tank with material to ensure a consistent fill level

3.2.6 Touch screen display with user interface

You may operate your printer via the user interface on the integrated touch screen display (1).

ℹ️ Information about the operation can be found in section "Working with the User Interface", page 52.

4 Transporting and Setting Up the Device

4.1 Choosing the location site

Before setting up your device, select a suitable site of operation.

Make sure the following requirements are complied with:

▶ Do not use in rooms with combustible anaesthetics or other flammable gases and substances.

▶ Do not place or operate the device in a potentially explosive environment.

▶ Make sure that the device is not exposed to vibrations.

▶ In order to avoid overheating or corrosion on the device, only operate the device within the permissible temperature range and ambient conditions ("Ambient conditions for operation", page 119).

▶ Protect the device from moisture and heat (radiators or other sources of heat).

▶ Protect the device from direct sunlight.

▶ Operate the device in as clean and dust-free an environment as possible.

▶ An uneven standing surface may result in the tank overflowing and thus cause contamination and/or contact with the material. Position the device on a stable, even, non-slip, clean and non-flammable surface (carrying capacity at least 60 kg). Note that the device feet can leave marks on sensitive surfaces.

▶ Ensure the device is free-standing and easily accessible.

    a. Do not fix the device to cabinets or shelves.

    b. Do not operate the device on or under other equipment.

    c. Maintain a distance to other devices and walls.

    d. Do not cover or block the air vents of the device.

▶ Risk of stumbling and falling! Avoid clutter in the workplace, keep the workplace clean, safely store cables and peripheral equipment.

▶ Avoid constant lopsided posture, set the workplace up ergonomically and ensure optimal seat height, device position and lighting.

4.2 Transporting the device to the place of operation

⚠ **WARNING! Risk of injury from the device tipping over or falling down.**

Crushing of extremities.

Damage to the device.

▶ Use only suitable means of transportation (e.g. fork lift trucks, capacity at least 80 kg).

▶ Use suitable transport safety equipment (e.g. tie-down straps) to prevent the device from falling down.

▶ Avoid impact, jerky movements and vibration during transportation.

▶ Stay well clear of suspended loads or raised parts.

▶ Always hold the device by the bottom.

⚠ **WARNING! Risk of injury due to heavy lifting.**

Injuries to the back due to overloading.

▶ The device must be transported and lifted by at least two people.

▶ Unpack the device only at the place where it is operated.

▶ Move the device in its original packaging by means of transportation to the defined place of operation.

4.3 Unpacking and setting up the device

⚠ **WARNING! Risk of injury due to heavy lifting or the device falling down.**

Injuries to the back due to overloading.

Crushing of extremities.

Damage to the device.

▶ The device must be lifted by at least two people.

▶ Always hold the device by the bottom.

▶ Position the device with care.

⚠ **WARNING! Uncontrolled lashing back of the tensioned tie-down straps upon cutting the straps.**
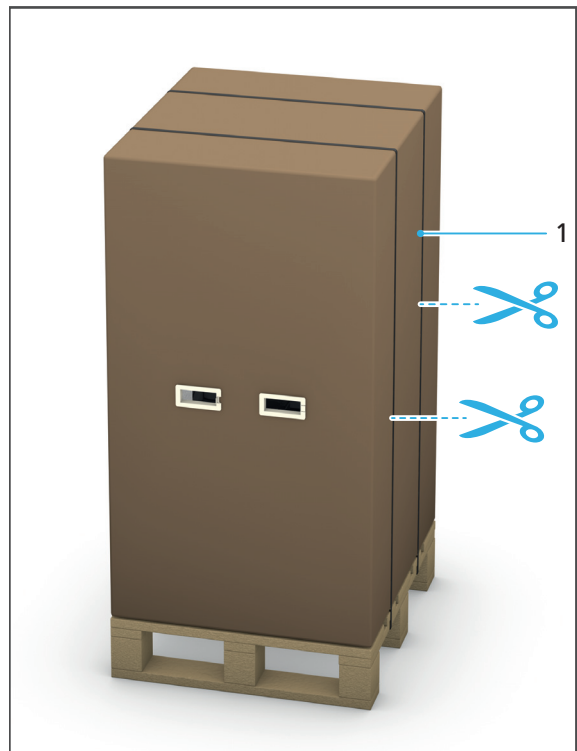
Injuries to the face and hands.

▶ Cut the tie-down straps carefully and keep sufficient safety distance.

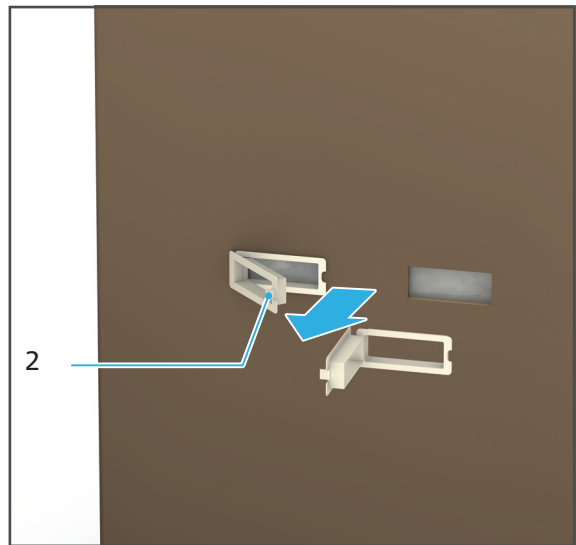☑ Location site is selected ("Choosing the location site", page 35).

☑ Location site is freely accessible.

1. Cut the tie-down straps (1) using scissors.

2. Push the tab (2) of the handles inward.

The handles are unlocked.

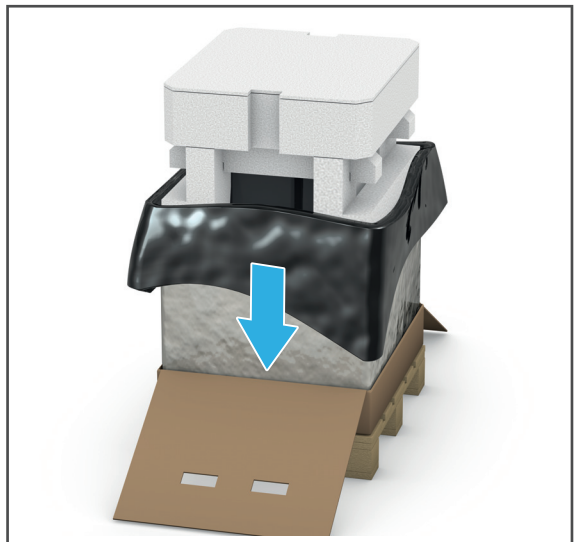**3.** Remove the handles from the outer shipping carton.

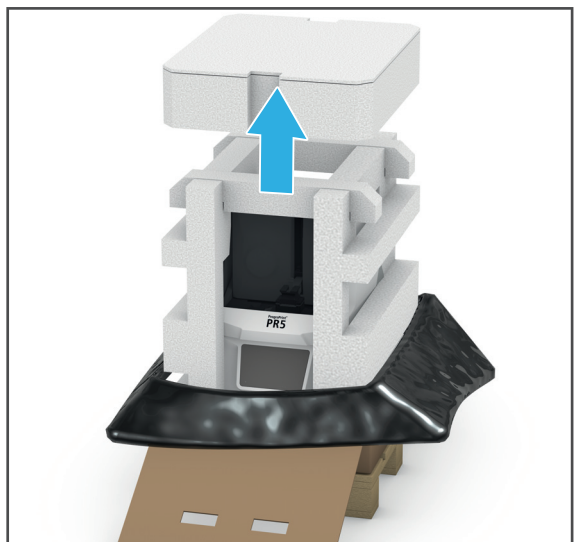**4.** Lift up the outer shipping carton.

5. Fold the side wall of the inner carton in the direction of the arrow.

6. Open the protective foil at the top of the printer; cut it open with a knife and remove it.
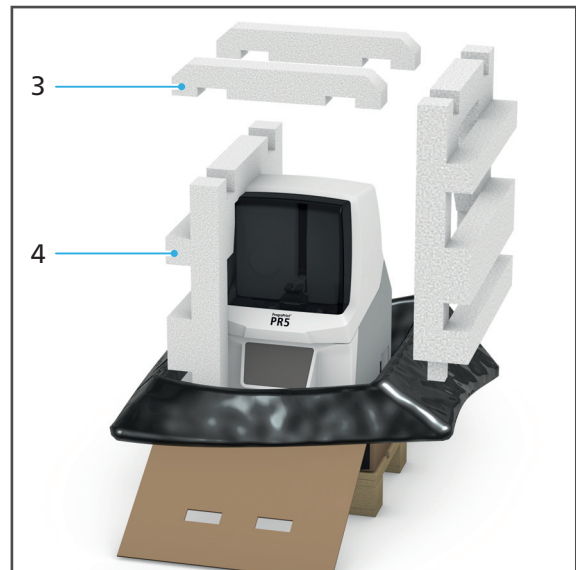

7. Lift off the styrofoam container with the accessories from the device.

8. Place the dark-grey accessories tray in a drawer or similar place for storage.
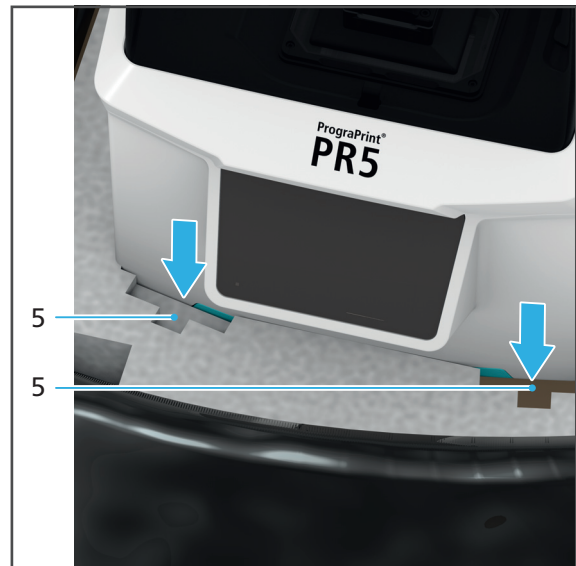
9. Remove the styrofoam struts (3) and styrofoam side sections (4) from the device.

10. Push two foam elements (5) each at the front and the rear of the device downward and out of the foam base.

11. Using two persons, reach into the openings in (5) below the printer bottom and lift the device out of the carton.

12. Lower the device onto the site of installation.

13. Position the device is such a way that the user can see all optical signals of the Optical Status Display and has access to all elements, components and connections at all times.

14. Position the device in such a way that it rests safely on the device feet, that there is no interference from other devices and that it does not interfere with other devices ("Choosing the location site", page 35).

We recommend that you keep the packaging for possible maintenance and correct transportation.

4.4 Checking delivery contents and condition

1. Unpack the device at the place where it is operated ("Unpacking and setting up the device", page 37).

2. Check if all contents are complete ("Scope of delivery", page 121).

3. Check all components for transport damage.

4. Report any transport damage or missing components to the transport company immediately.

5 Initial Operation

> ❗ Information regarding the start-up of the CAM software "CAMbridge" can be found in the Instructions for Use of "CAMbridge" ("Documents of equal applicability and required files", page 9).

5.1 Connecting the device to the power supply

> ❗ Only use the supplied original power cord or an equivalent replacement power cord from Ivoclar Vivadent.

☑ The requirements regarding the power supply are met ("Electrical safety", page 17).

1. Connect the power cord to the power connection (1) of the device.

2. Connect the power cord to the mains socket.
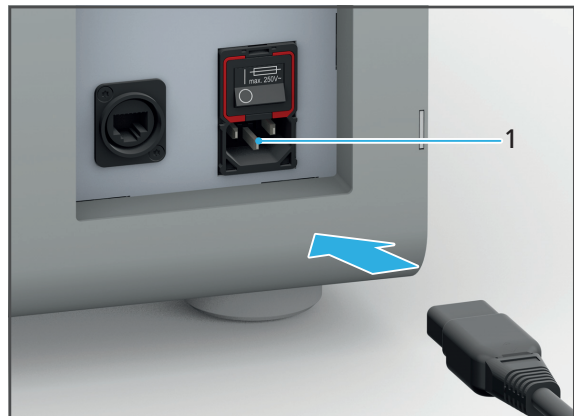
➡ Mains voltage is present on the device.

5.2 Connecting the device to the local network (LAN) (optional)

Connecting the printer to the LAN is optional and not absolutely necessary to use the printer.

Your device supports Ethernet LAN. Connect to the local area network (LAN) which is required to operate the device within the PrograPrint system.
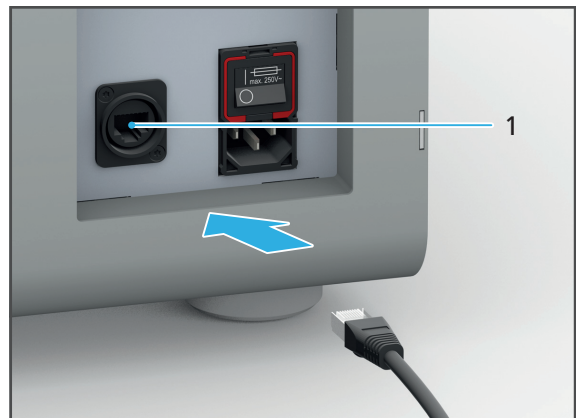
Only use the supplied patch cable or the original spare part.

Your in-house technician or network administrator can help you configure and use LAN connections.

☑ The network connection is ensured (in-house technician).

1. Connect one end of the patch cable to the LAN connection (1) on the device.

2. Then connect the other end of the patch cable to your network connection.

5.3 Inserting / replacing the collecting bottle

The collecting bottle is used to collect material spilled in the build chamber for subsequent disposal.

Reusing collected material is not recommended as there is a risk of contamination of the material or the mixing of different material types.

Also, check the fill level of the collecting bottle after every complete cleaning of the device as well as after an accidental overflowing of the resin tank in the build chamber and replace it, if necessary.

Below is a description of the procedure if the collecting bottle has not yet been inserted in the printer.

If you replace the collecting bottle in the course of a change of materials, remove the collecting bottle already in place first.

---

1. Open the maintenance flap (1).
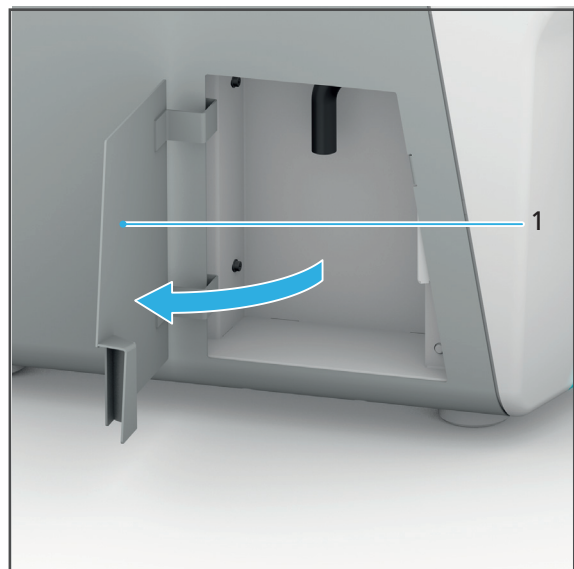
2. Connect the hose (2) with the collecting bottle (3).

3. Close the maintenance flap (1).
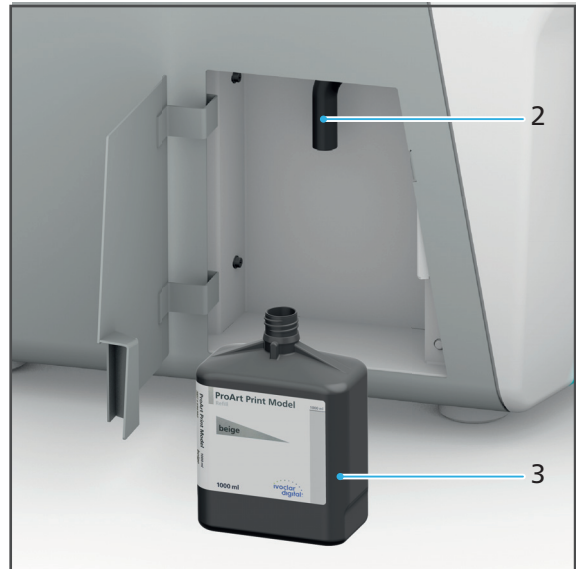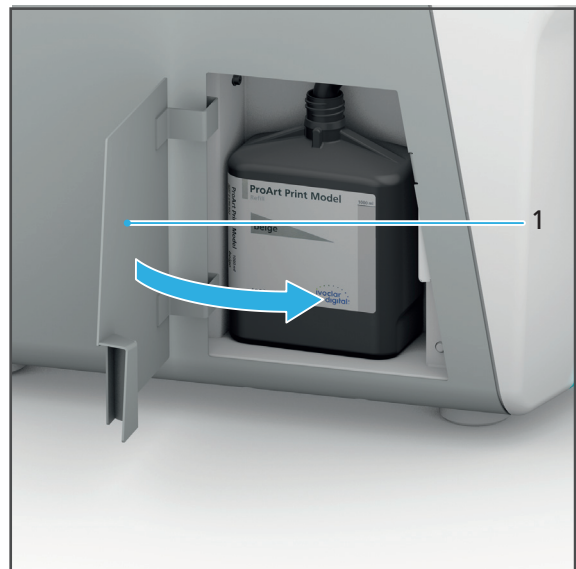
5.4 Switching the device on for the first time

🚫 Initial start-up of the device during installation is the same as any other time you will switch on the device.

☑ The printer is connected to the power supply ("Connecting the device to the power supply", page 42).

☑ The printer is connected to the local network ("Connecting the device to the local network (LAN) (optional)", page 43).

☑ All flaps on the device are closed.

1. Switch the on/off switch from **0** to **I**.
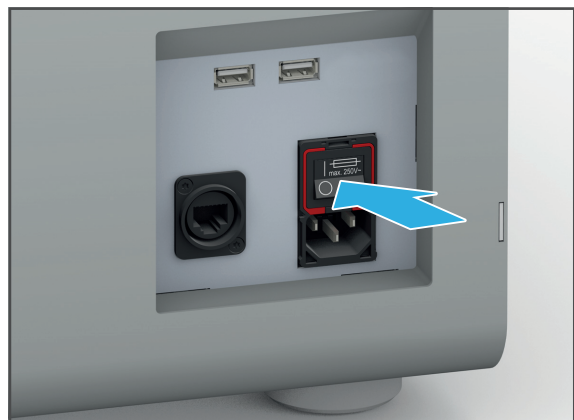
The device automatically runs several self-test steps:

A successful test is indicated with a green check mark next to the corresponding step:
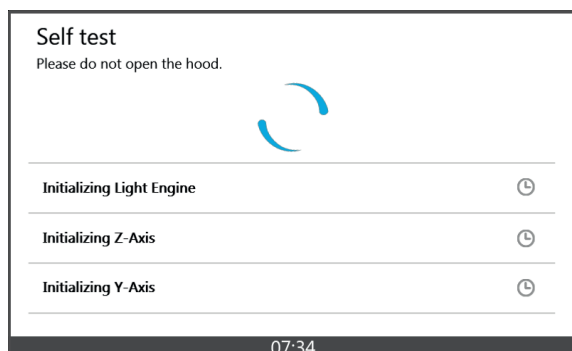
2. Tap [> Next] once the self-tests have been successfully completed.

➡ The start screen is displayed.

5.5 Starting operation of the "PrograPrint Manager" on the CAM PC

Before print jobs can be transferred to the device, the provided "PrograPrint Manager" software must be installed on any PC, ideally on the CAM PC.

NOTICE! Outdated software versions and build styles.

Deficient printed object.

▶ Check for available updates upon the start of the "PrograPrint Manager" software and run updates, if required.

5.5.1 Installing the "PrograPrint Manager" software

To enable the transfer of print jobs from the CAM PC to the printer, the provided "PrograPrint Manager" software must be installed on the CAM PC:

Depending on the type of delivery, the installation file is stored on a provided USB flash drive or can be downloaded from the Internet (http://www.ivoclarvivadent.com/prograprint-manager). For more information, please contact your authorized service partner.

☑ The device is switched on ("Switching the device on for the first time", page 46).

1. Switch on the CAM PC.
2. Run the installation file of the "PrograPrint Manager" software on the CAM PC.
3. Follow the instructions on the screen.

5.5.2 Overview of the software "PrograPrint Manager"

The "PrograPrint Manager" software is used to transfer print jobs for dental objects from the CAM software "CAMbridge" to the 3D printer.

The following options are available for the transfer:

- Transfer via a LAN connection to a 3D printer registered in the same network

- Intermediate storage of the print jobs on a USB flash drive connected to the CAM PC and import of the print jobs to the 3D printer

No.	Element	Description	Reference
1	[All]	Show all detected devices	-
2	[Installed]	Show all installed devices	-
3	[Hidden]	Show all hidden devices	-
4	[Copy path]	Copy file path of the device in the file system to the clipboard	-
5	≡	Additional functions: • Rename printer • Open printer directory • Open printer archive • Show printer information • Uninstall printer • Move jobs • Move archives	-

No.	Element	Description	Reference
6	📁	Open file path of the device in the file system and show contents	-
7	[Export to USB flash drive]	Export print jobs to the USB flash drive	"Transferring print jobs via USB flash drive to the 3D printer", page 69
8	✖	Delete device from list	-
9	[Install printer]	Install available device	-
10	Available, but not installed device	Show, install or delete device found in the network	"Connecting the printer with the "PrograPrint Manager" software", page 51
11	USB flash drive	Use installed USB flash drive and show the following information: • Connection status of the device in the network • Number of print jobs on the USB flash drive	"Transferring print jobs via USB flash drive to the 3D printer", page 69
12	3D printer	Use installed printer and show the following information: • Connection status of the 3D printer in the network • Number of free jobs on the device • Status of the device (remaining time of the print job in progress) • Send status of the print job	"Transferring print jobs via USB flash drive to the 3D printer", page 69

No.	Element	Description	Reference
13	Navigation bar •••	Show navigation bar with additional options: • [Find printer]: Find 3D printer automatically and add to the list • [Change base path]: Change file path of the devices in the file system • [Add printer via IP]: Identify 3D printer via IP address and add to the list • [Close]: Close "PrograPrint Manager" software	"Connecting the printer with the "PrograPrint Manager" software", page 51
14	Help menu ?	• Call up Help menu • Search for software updates for the "PrograPrint Manager" software, printer software for PrograPrint PR5 and the "CAMbridge" CAM software.	-

NOTICE! Outdated software versions and build styles.

Deficient printed object.

▶ Check for available updates upon the start of the "PrograPrint Manager" software and run updates, if required.

5.5.3 Connecting the printer with the "PrograPrint Manager" software

☑ The latest versions of the "PrograPrint Manager" software and the 3D printer software have been installed.

1. Start the "PrograPrint Manager" software on the CAM PC.

   The "PrograPrint Manager" software automatically identifies all available devices in the LAN.

   All 3D printers connected with the network are shown.

   All USB flash drives connected with the CAM PC are shown.

   Devices that have not yet been installed are greyed out.

2. Install the desired device via [Install printer] (4).

3. If the desired device is not shown:
   a. Call up the navigation bar (1).
   b. Find the device in the network via [Find printer] (2).

   – or –

   Identify the printer by its IP address and add it via [Add printer via IP] (3).
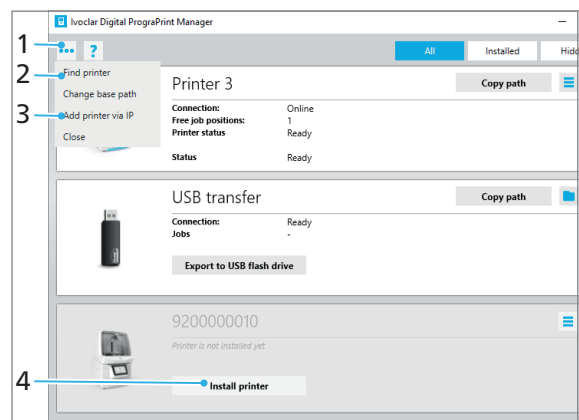
➡ The device is shown in the list of available 3D printers and USB flash drives.

6 Working with the User Interface

The device is controlled exclusively via the user interface on the touch screen display.

❗ The following illustrations may differ slightly from the software version installed on your device.

In order to ensure safe operation of your device, carry out the necessary software updates on a regular basis ("Showing the software version and performing a software update", page 63).

NOTICE! Outdated software versions and build styles.

Deficient printed object.

▶ Check the "CAMbridge" software, build styles, "PrograPrint Manager" and the software of the 3D printer for updates upon the start of the software and/or device and install updates, if necessary.

NOTICE! Connection of a virus-infected USB flash drive to the machine.

Damage to the device.

Data loss.

▶ Check the USB flash drives on a separate computer with a suitable anti-virus software before connecting them to the printer.

6.1   Overview of the start screen

The start screen provides a quick overview of the device and job status and enables the navigation into the three main menus of the user interface.

Some of the functional areas described below, e.g. the navigation bar, can be found in all main and sub-menus.
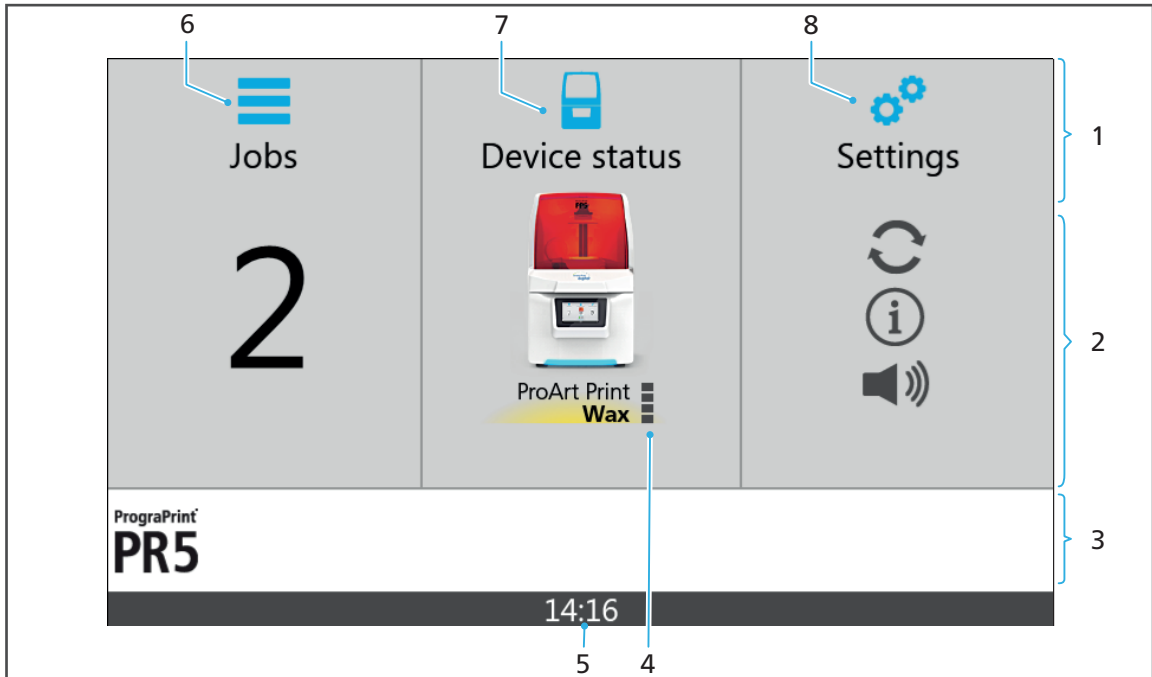
No.	Element	Description	Reference
1	Navigation bar	• On the start screen: Symbols and designations of the three main menus • Sub-menu: Shows the active menu	-
2	Main area	• On the start screen: Menu selection with the three main menus • Sub-menu: Main display area of the active menu	-
3	Navigation bar	In the sub-menus: Area with recurring and/or menu-specific functions, e.g. :	
		🏠 Return to the superordinate menu	-

No.	Element	Description	Reference
4	Materials overview	• Name of the material defined for the print job in the "CAMbridge" CAM software. • Information on the fill level of the material required for the print job	

		No suitable material bottle inserted	"Inserting the cartridge with material bottle", page 77
	to	Fill level of the inserted material bottle	-

No.	Element	Description	Reference
5	Time	Current time	-
6	Main menu [Jobs]	Overview of all as of yet incomplete print jobs on the device: • Show job details • Start job • Delete job • Show complete jobs • Import new jobs to the device via USB flash drive	"Main menu [Jobs]", page 55
7	Main menu [Device status]	Overview of the status of the print job in progress or the last print job completed	"Main menu [Device status]", page 60
8	Main menu [Settings]	Enter device settings	"Main menu [Settings]", page 61

6.2   Main menu [Jobs]

The "PrograPrint Manager" software is used to transfer print jobs from the CAM software "CAMbridge" on the CAM PC to the 3D printer.

In the main menu [Jobs], you can see all incomplete print jobs on the device at a glance.

Complete, archived and failed print jobs are displayed in the archive ("Sub-menu [Archived jobs]", page 59).

No.	Element	Description	Reference
1	Description of the print job	Name of the print job defined in the "CAMbridge" CAM software. Show detailed view of the print job by tapping the print job.	"Detailed view of an individual print job", page 57
2	[Archive]	Show completed print jobs (successful and failed print jobs)	"Sub-menu [Archived jobs]", page 59
3	[Import]	Only if a USB flash drive is connected: Import print jobs from a USB flash drive to the printer in the sub-menu [Import from USB flash drive]	• "Sub-menu [Import from USB flash drive]", page 58 • "Transferring print jobs via USB flash drive to the 3D printer", page 69
4	Creation date and time	Creation date and time of the print job in the "CAMbridge" CAM software	-
5	Job duration	Total duration of the print job	-

No.	Element	Description	Reference
6	Materials overview	See "Overview of the start screen", page 53	"Inserting the cartridge with material bottle", page 77

6.2.1 Detailed view of an individual print job

By tapping the print job in the main menu [Print jobs], a detailed view of the respective print job is shown. In the detailed view, the print job can be started or deleted.
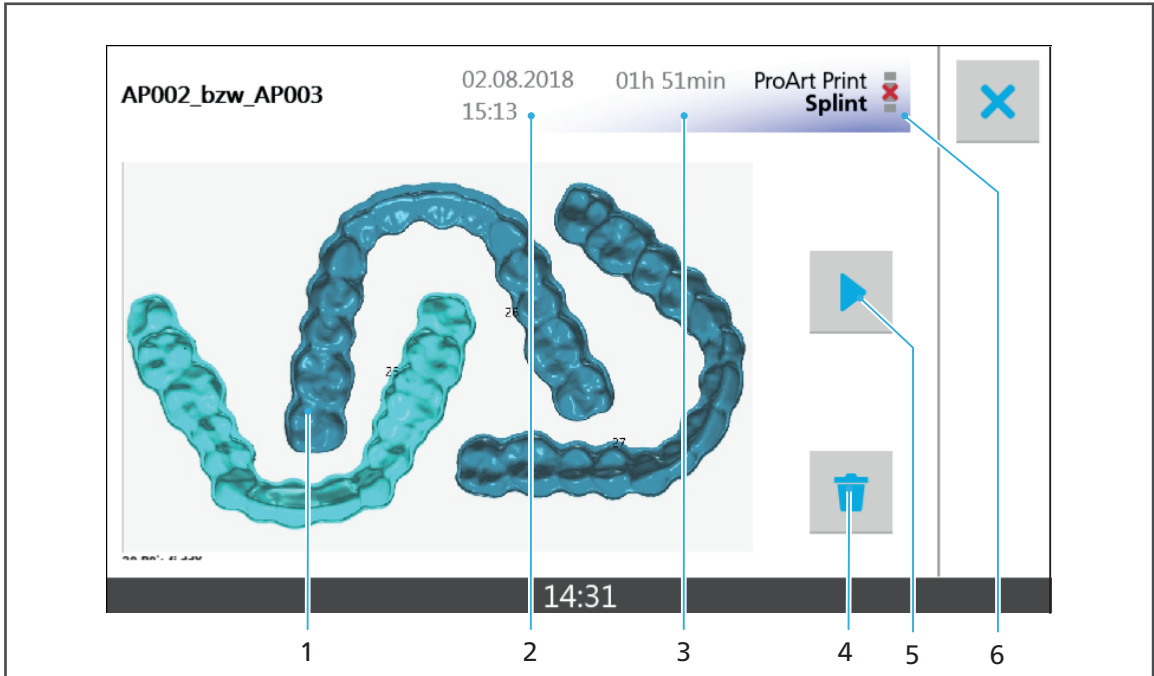
No.	Element	Description	Reference
1	Preview	Preview of the dental objects created with the print job	-
2	Creation date and time	Creation date and time of the print job in the "CAMbridge" CAM softare	-
3	Job duration	Total duration of the print job	-
4	🗑	Delete print job	"Deleting a print job", page 71
5	▶	Start print job	"Starting a print job", page 84
6	Materials overview	See "Overview of the start screen", page 53	"Inserting the cartridge with material bottle", page 77

6.2.2   Sub-menu [Import from USB flash drive]

By tapping [Import] in the main menu [Jobs], the sub-menu [Import from USB flash drive] is shown. In this menu, print jobs from a USB flash drive connected with the device can be transferred to the device ("Transferring print jobs via USB flash drive to the 3D printer", page 69).
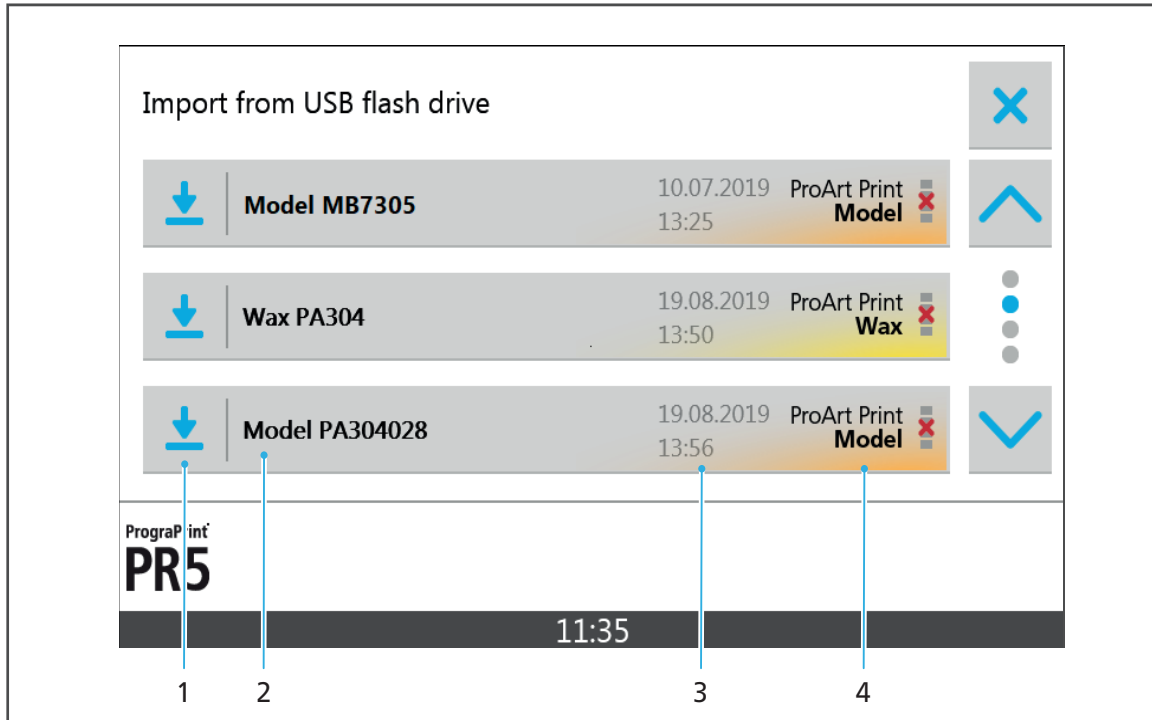
No.	Element	Description	Reference
1	Transfer status	Information about the transfer status of a print job	
		Print job not yet transferred	"Transferring print jobs via USB flash drive to the 3D printer", page 69
		Transferring print job	
		Print job successfully transferred	
2	Description of the print job	Name of the print job defined in the "CAMbridge" CAM software	-
3	Creation date and time	Creation date and time of the print job in the "CAMbridge" CAM softare	-
4	Materials overview	See "Overview of the start screen", page 53	"Inserting the cartridge with material bottle", page 77

6.2.3 Sub-menu [Archived jobs]

By tapping [Archived jobs] in the main menu [Jobs], the sub-menu [Archived jobs] is shown. In this menu, all information about the successfully completed and failed print jobs is displayed.

No.	Element	Description	Reference
1	Description of the print job	Name of the print job defined in the "CAMbridge" CAM software. Show detailed view of the print job by tapping the print job.	-
2	Creation date and time	Creation date and time of the print job in the "CAMbridge" CAM softare	-
3	Job duration	Total duration of the print job	-
4	Materials overview	See "Overview of the start screen", page 53	"Inserting the cartridge with material bottle", page 77

6.3 Main menu [Device status]

In the main menu [Device status] you can view the status of the print job in progress or of the last print job completed.
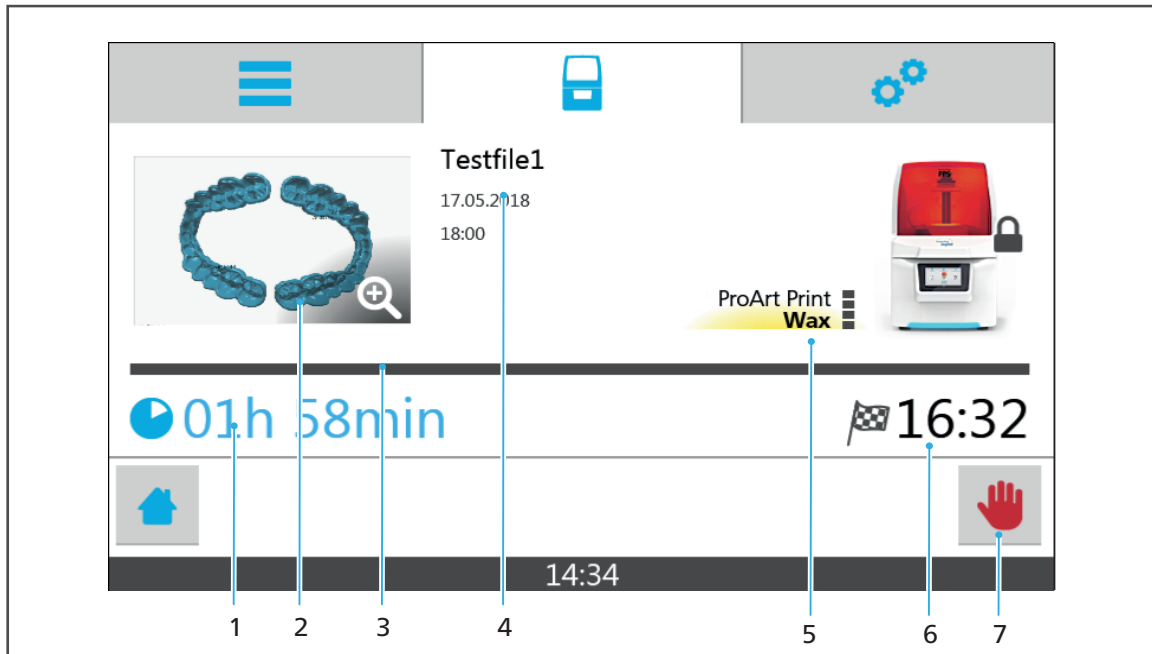
No.	Element	Description	Reference
1	Job duration	Total duration of the print job	-
2	Preview	Preview of the object created with the print job	-
3	Status bar	Processing progress	-
4	Creation date and time	Creation date and time of the file in the "CAMbridge" software, on which the print job is based.	-
5	Materials overview	See "Overview of the start screen", page 53	"Inserting the cartridge with material bottle", page 77
6	🏁	Job complete (time)	-
7	✋	Abort print job	"Cancelling a print job", page 86

6.4 Main menu [Settings]

In the main menu [Settings], you can perform various configurations and presettings for your device.
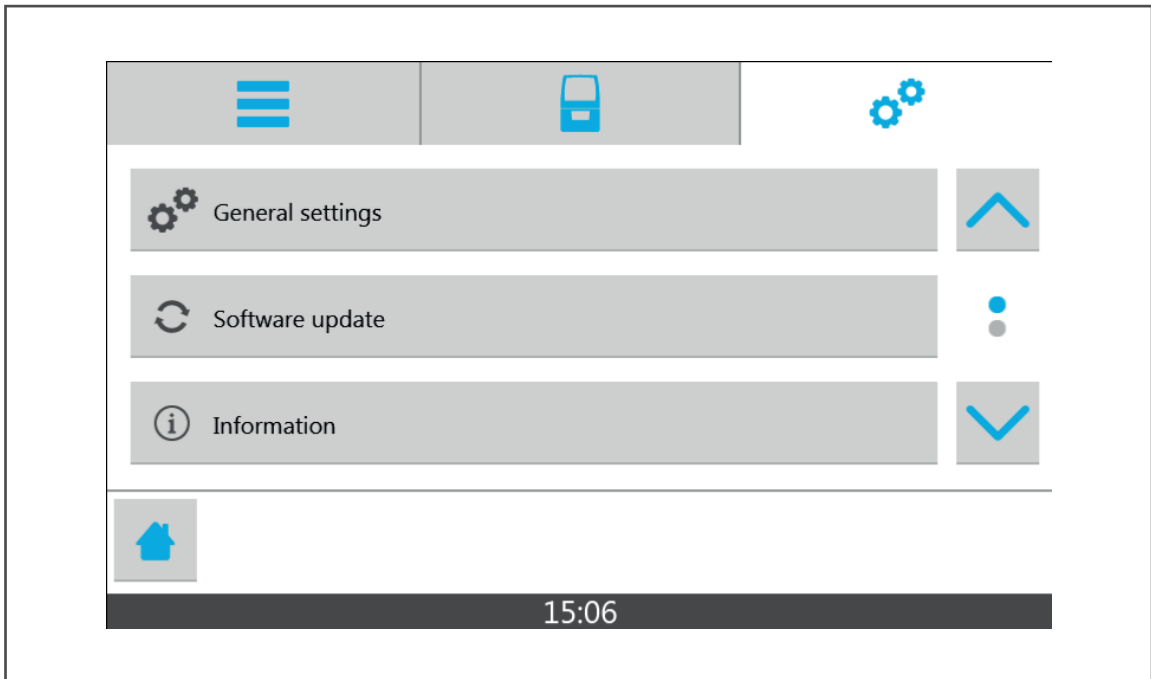
Element	Menu	Sub-menu	Description	Reference
⚙	General settings	Language	Set the user interface language	"Setting the user interface language", page 64
		System time	Set the time	"Setting the time", page 65
		System date	Set the date	"Setting the date", page 64
		Volume	Set the volume of the acoustic signal of the device	"Adjusting the volume", page 66
		Melody	Set the melody of the acoustic signal of the device	"Setting the melody", page 65
		Code	Only for your service partner	-
-	Move Z axis to home position	-	If the hood does not automatically unlock: Bring the build platform to the home position if the holder / Z axis has been moved during insertion of the build platform.	"Troubleshooting / error table", page 102

Element	Menu	Sub-menu	Description	Reference
⟳	Software update	-	Show software version and perform software update	"Showing the software version and performing a software update", page 63
ⓘ	Information	Serial number	Show serial number of the device	-
		Version number	Show version number of the device	-
		Operating hours	Show operating hours of the device	-
		Inserted cartridge	Show information about the inserted cartridge	-
		LAN IP address	Show LAN IP address of the device	-
		Build	Show build version of the device software	-
		Error list	Show error list of the current operation	"Messages in the user interface", page 101
		RFID display	Show information about the inserted material bottle and tank	-

7 Entering General Settings in the User Interface

7.1 Showing the software version and performing a software update

---

NOTICE! Outdated software versions and build styles.

Deficient printed object.

▶ Check the "CAMbridge" software, build styles, "PrograPrint Manager" and the software of the 3D printer for updates upon the start of the software and/or device and install updates, if necessary.

The "PrograPrint Manager" software informs you about any available software updates. You can then download the corresponding updates from the website indicated in the message.

To display the current version of the user interface and, if necessary, perform an update, proceed as follows:

☑ The data for the software update were stored on a suitable USB flash drive.

☑ The current print job has been successfully completed.

☑ You are in the main menu [Settings].

1. Select [Software update] in the menu.
   The software version will be displayed.

2. Connect USB flash drive containing the software update with the device.
   The software update is automatically recognized.

3. Tap [Update].
   The software update will be installed.

   After successful installation, a corresponding message will appear.

	Software update
	Version number E1.10.005
	Searching for update file on USB flash drive.
🏠	
	09:09

🔔 After the installation, the device has to be restarted.

---

4. Carry our a restart when asked by the device to do so.

➡ The device will be restarted.

➡ The software update will take effect.

7.2 Setting the user interface language

To set the user interface language, proceed as follows:

☑ You are in the sub-menu [General settings].

1. Select [Language] in the menu.

The list of available languages will be displayed.

2. Tap on the required language.

3. Confirm with a blue check mark:

✔

➡ The required language will be set.
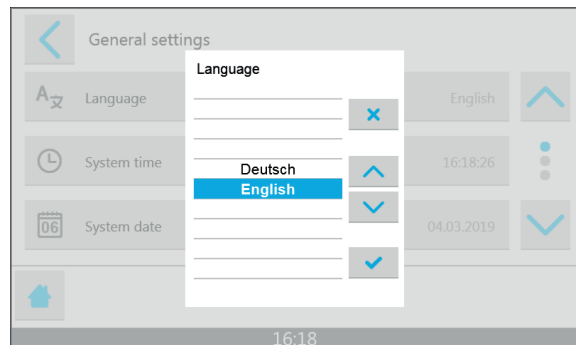
7.3 Setting the date

To set the current date on the device, proceed as follows:

☑ You are in the sub-menu [General settings].

1. Select [System date] in the menu.

A window to enter the date is displayed.

2. Enter the desired date.

3. Confirm with a blue check mark:

✔

➡ The date is set.
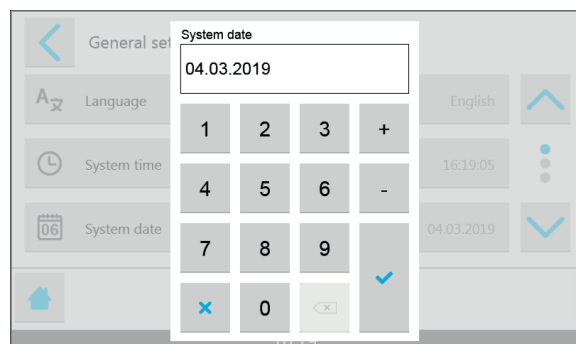
7.4 Setting the time

To set the current time on the device, proceed as follows:

☑ You are in the sub-menu [General settings].

1. Select [System time] in the menu.

   A window to enter the time is displayed.

2. Enter the desired time.

3. Confirm with a blue check mark:

   ✔

➡ The time is set.
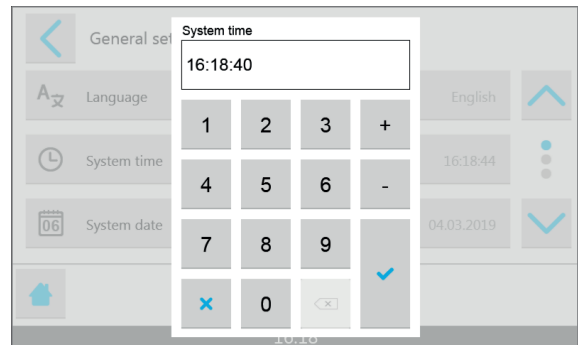
7.5 Setting the melody

To set the melody of the acoustic signal for the closure of the hood, proceed as follows:

☑ You are in the sub-menu [General settings].

1. Select [Melody] in the menu.

   The list of available melodies is displayed.

2. Tap on the desired melody.
   This melody is briefly played upon selection.

3. Confirm with a blue check mark:

   ✔

➡ The melody is set.
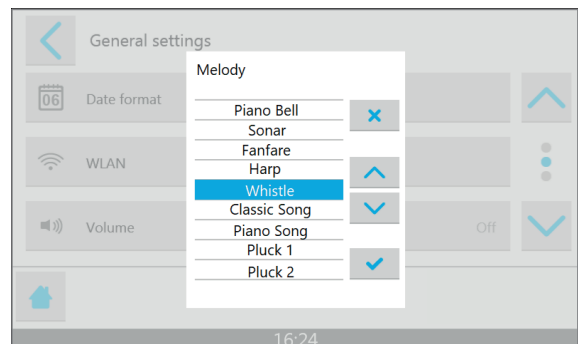
7.6 Adjusting the volume

To adjust the volume of the acoustic signal to close the hood, proceed as follows:

☑ You are in the menu [General settings].

1. Select [Volume] in the menu.

   The list of available volume values is displayed.

2. Tap on the desired volume.

   Upon selection of the volume, a sound in the desired volume is played.

3. Confirm with a blue check mark:

➡ The volume is set.
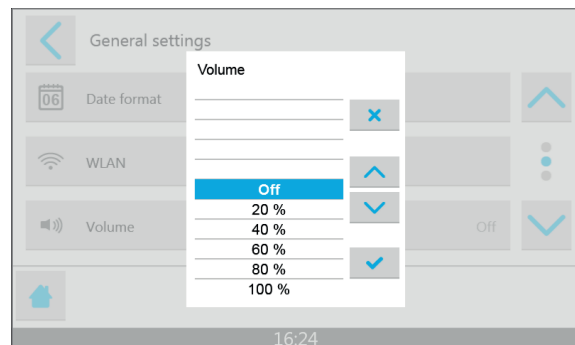
8 Processing Print Jobs

The following paragraphs will describe how to transfer print jobs for dental applications to the printer, how to prepare and carry out the printing process with the device and how to post-process the printed dental objects.

Please refer to the Instructions for Use of the respective software as to how to design dental objects in the CAD software and prepare them in the "CAMbridge" CAM software ("Documents of equal applicability and required files", page 9).

CAUTION! Contaminated build chamber.

Damage to the device.

Deficient printed object.

▶ Close the hood as soon as possible once work in the build chamber is complete.

▶ Close the hood at the latest when the acoustic signal sounds.

NOTICE! Outdated software versions and build styles.

Deficient printed object.

▶ Check the "CAMbridge" software, build styles, "PrograPrint Manager" and the software of the 3D printer for available updates upon the start of the software and/or device and install updates, if necessary.
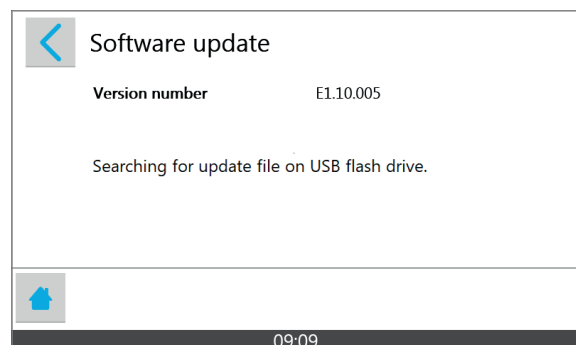
8.1 Transferring print jobs to the printer

The "PrograPrint Manager" software is used to transfer the dental objects as print jobs from the "CAMbridge" CAM software on the CAM PC to the printer.

The print jobs are prepared and encoded for safety reasons, before they are transferred to the printer.

The following options are available for the transfer:

- Transfer via a LAN connection to a 3D printer registered in the same network
- Manual intermediate storage of the print jobs on a USB flash drive connected to the CAM PC and import of the print jobs to the 3D printer

We recommend transferring the print jobs via LAN to ensure an easy and time-saving transfer.

8.1.1 Transferring print jobs to a 3D printer registered in the network

As soon as the PrograPrint Manager has been installed, the 3D printer is recognized by your PC, provided that it is connected with the network and is switched on.

☑ The latest version of the "CAMbridge", "PrograPrint Manager" and 3D printer software has been installed.

☑ The latest build styles are used.

☑ The device is switched on ("Switching the device on for the first time", page 46).

☑ The device and the CAM PC are in the same network ("Connecting the device to the local network (LAN) (optional)", page 43).

☑ The "PrograPrint Manager" software is installed on the CAM PC ("Installing the "PrograPrint Manager" software", page 47).

☑ The device is connected with the "PrograPrint Manager" software ("Connecting the printer with the "PrograPrint Manager" software", page 51).

1. Start the "PrograPrint Manager" software on the CAM PC.

2. Click on the desired 3D printer in the list of 3D printers.
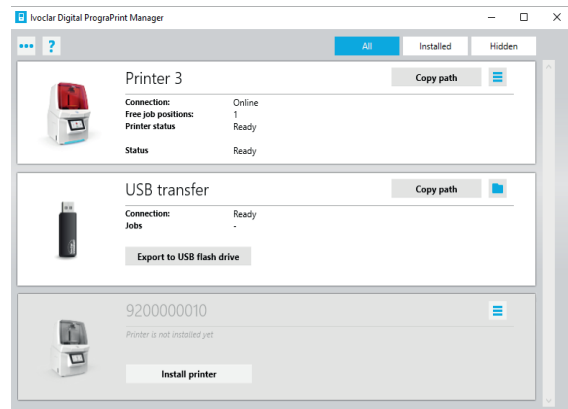
3. Select the print job in the displayed window and transfer it to the 3D printer.

❗ You can also transfer several print jobs to the 3D printer in one go.

4. Confirm with [Done].

➥ The print job is transferred to the 3D printer.

8.1.2 Transferring print jobs via USB flash drive to the 3D printer

NOTICE! Connection of a virus-infected USB device to the machine.

Damage to the machine.

Data loss.

▶ Check the USB devices on a separate computer with a suitable anti-virus software before connecting them to the printer.

☑ The latest version of the "CAMbridge", "PrograPrint Manager" and 3D printer software has been installed.

☑ The latest build styles are used.

☑ The device is switched on ("Switching the device on for the first time", page 46).

☑ The "PrograPrint Manager" software is installed on the CAM PC ("Installing the "PrograPrint Manager" software", page 47).

1. Connect USB flash drive with the CAM PC.

2. Start the "PrograPrint Manager" software on the CAM PC.

3. Click [Export to USB flash drive] in [USB transfer].
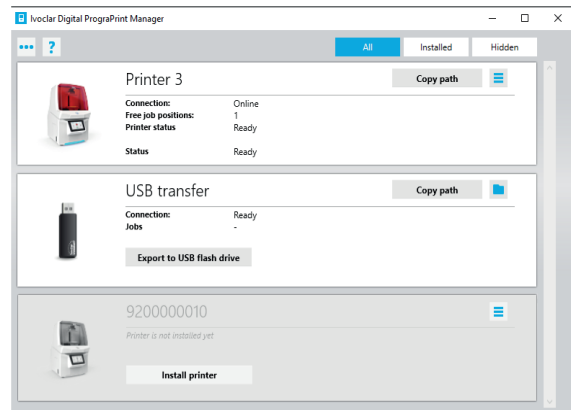
4. Select the print job in the displayed window and transfer it to the USB flash drive.

🛈 You can also transfer several print jobs to the USB flash drive in one go.

---

5. Confirm with [Done].

   The print job is transferred to the USB flash drive.

6. Connect USB flash drive to the USB slot of the 3D printer ("Connections (right side)", page 27).

7. Tap [Import] in the main menu [Jobs] in the user interface of the 3D printer.
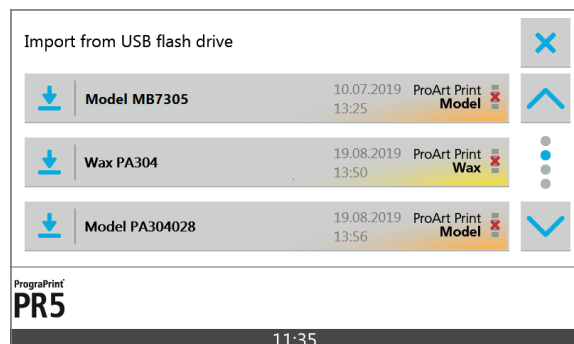
   The print jobs on the USB flash drive are displayed.

8. Tap the print job to be imported.

   The print job is imported.

   The successful import is indicated by a green check mark next to the print job:
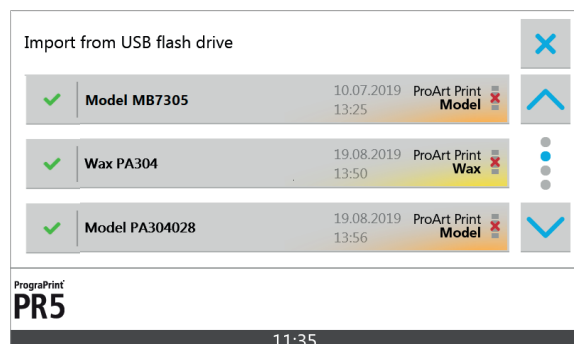
➡ The print job can now be prepared.

8.2   Deleting a print job

To delete a print job that is not longer required, proceed as follows:

☑ You are in the main menu [Jobs].

1. Tap on the specific print job.
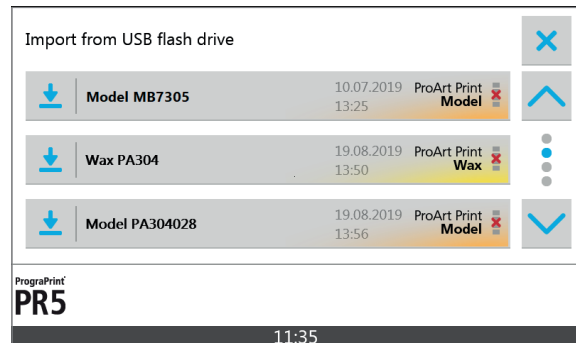
A detailed view of the print job is displayed:
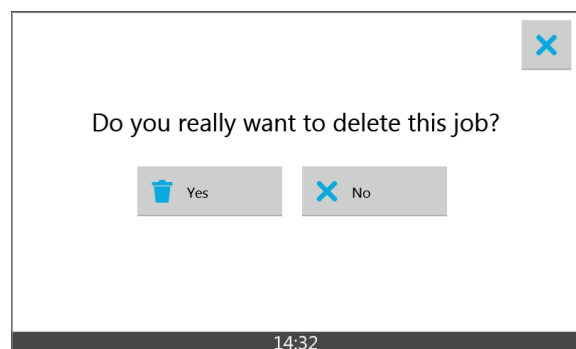
2. Tap on the delete symbol:

🗑

3. Confirm the safety query.

➡ The print job is deleted.

8.3 Preparing a print job

8.3.1 Preparing the material bottle and cartridge

The printer can only be operated with the cartridge in place and with a material bottle that matches the material type in the tank. If the type of material in the tank does not correspond with that in the material bottle, the user interface of the printer will display an error message after the cartridge has been inserted into the printer ("Inserting the cartridge with material bottle", page 77).

For a quick and contact-free material change, Ivoclar Vivadent recommends using a cartridge with a separate tank for each type of material.

🛈 The procedure for a new material bottle is described below.

When inserting a material bottle used before with the valve already in place, attaching a valve is not required. Once in place, the valve is not removed from the material bottle any more and disposed of together with the material bottle once the bottle is empty.

⚠ **CAUTION! Material contact when working with material bottles and cartridges.**

Spilling of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

Damage to the device.

▶ Always wear suitable protective gear when working with material bottles and cartridges ("Personal protective equipment", page 13).

▶ Observe the notes in the Instructions for Use concerning the type of material used ("Documents of equal applicability and required files", page 9).

▶ Do not change the material bottle inside the printer, but remove the cartridge from the device before changing the bottle.

NOTICE! Contaminated or damaged tank foil.

Deficient printed object.

▶ Protect the cartridge, particularly the tank foil, from heat (radiators or other sources of heat) and direct sunlight.

▶ Check the tank foil for contamination and damage before processing any print jobs.

▶ Replace tank, if necessary.

☑ The cartridge has been removed from the printer ("Removing the cartridge with material bottle", page 93).

1. Select the material bottle in accordance with the print job.

2. Keep the material bottle closed and shake it well, particularly after long storage or non-use of the material bottle.

⚠️ **CAUTION! Material contact due to material leaking out of the incorrectly attached, open or defective valve. Overflowing of the tank.**

Spilling of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

▶ Check the valve for damage before attaching it to the material bottle and replace it, if necessary.

▶ Verify the correct fit of the valve after having attached it.

▶ Make sure that the valve is closed (90-degree angle) before inserting the material bottle into the cartridge.

▶ Do not open or close the valve manually.

NOTICE! Using the valve several times even though it is intended for single use.

Damage to the valve.

Spilling of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

Cross-contamination of materials.

▶ Once the valve has been attached to the material bottle, do not remove it or use it for another material bottle.

▶ Attach a new valve to every material bottle.

3. Unscrew the cap of the material bottle and attach the supplied **closed** valve (90-degree angle) to the material bottle as shown in the picture.

   The valve audibly snaps into place.

⚠ **CAUTION! Finger in the area of the rear handle when opening the cartridge lid.**

Risk of crushing.

▶ Do not touch the cartridge in the area of the rear handle when opening the cartridge lid.

4. Press the interlock (1).
5. Open the cartridge lid.

⚠ **CAUTION! Material contact due to material leaking out of the open valve.**

Spilling of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

▶ Make sure that the valve is closed (90-degree angle) before inserting the material bottle into the cartridge.

▶ Do not open or close the valve manually.

6. Make sure that the valve is **closed** (90-degree angle).

7. Insert the material bottle into the cartridge.

8. Close cartridge lid.

   The cartridge lid audibly snaps into place.

➡ The material bottle and cartridge are prepared

🛈 Once the material bottle has been inserted, it remains in the cartridge for the printing process as well as for storage purposes. Open material bottles must not be stored outside the cartridge.

8.3.2 Opening the hood

🛈 The hood is automatically unlocked, as soon as the holder of the build platform is in its home position ("Overview of the build chamber", page 28).

☑ The device is switched on ("Switching the device on for the first time", page 46).

☑ No print job is processed by the printer.

☑ The holder of the build platform is in its home position and the hood is unlocked.

▶ Open the hood.

8.3.3 Inserting the cartridge with material bottle

It is absolutely necessary to follow the mounting sequence described in these Operating Instructions: If the build platform is inserted into the device before the cartridge, the cartridge cannot be opened after placement.

CAUTION! Material contact when working with material bottles and cartridges.

Skin irritations and allergic reactions.

▶ Always wear suitable protective gear when working with material bottles and cartridges ("Personal protective equipment", page 13).

▶ Observe the notes in the Instructions for Use concerning the type of material used ("Documents of equal applicability and required files", page 9).

The hood is automatically unlocked, as soon as the holder of the build platform is in its home position ("Overview of the build chamber", page 28).

☑ The material bottle and cartridge are prepared ("Preparing the material bottle and cartridge", page 72).

☑ The hood is open ("Opening the hood", page 76).

1. Disengage interlocks (1) on both sides of the protective foil cover.

⚠ **CAUTION! Protective foil cover was not removed before the cartridge was inserted into the device.**

Cartridge cannot be correctly positioned / secured.

Spilling or slopping of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

Damage to the device and the cartridge.

▶ Remove the protective foil cover before inserting the cartridge into the device.

⚠ **CAUTION! The full tank turns loose when the cartridge is lifted by the cartridge lid and falls down.**

Spilling or slopping of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

Deficient printed object.

Damage to the device.

▶ Always grasp and transport the cartridge by the front and rear handle.

▶ Keep the cartridge in a horizontal position.

2. Lift the cartridge top (2) with the attached tank off the protective foil cover horizontally and without shaking it (3).

NOTICE! Shifting of the cartridge during printing due to unlocked interlock.

Leaking material.

Damage to the device and the cartridge.

Failed print jobs.

Deficient printed object.

▶   Secure the cartridge with the corresponding interlock.

3.   Insert the cartridge in the build chamber and push the lever (4) downward.

The cartridge interlocks of the device are locked.

The cartridge is secured.
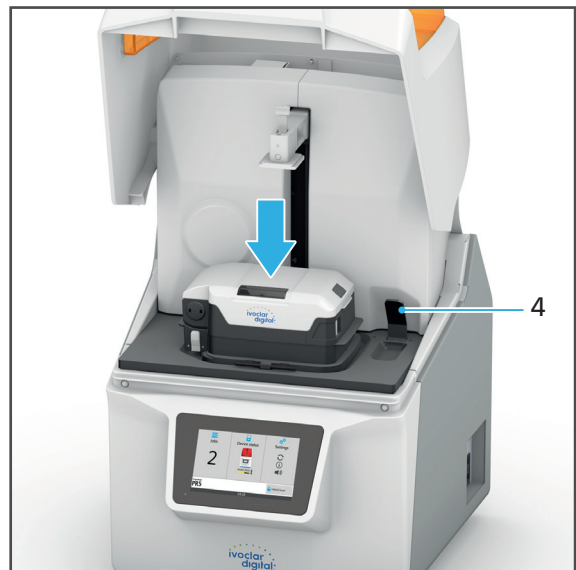
Check the tank foil for contamination and damage before inserting the tank. Only insert a tank with an intact tank foil as otherwise, the precision and material properties of the printed object are negatively affected. Replace the tank, if necessary.

4. Check the tank foil for contamination and damage before inserting the tank.

⚠ **CAUTION! Finger in the area of the rear handle when opening the cartridge lid.**

Risk of crushing.

▶ Do not touch the cartridge in the area of the rear handle when opening the cartridge lid.

5. Disengage interlock of the cartridge (5) and open the cartridge lid until it stops.

The device checks the RFID codes of the material bottle and tank.

6. If coding of the components is required, follow the instructions in the user interface.

The cartridge top audibly snaps into place.

The valve opens.

Material flows into the tank.

7. Before the start of the print job, verify that the max. fill level of the tank has not been exceeded.

8. In case of overfilling, check the valve and bottle for leakage.

⚠ **CAUTION! Polymerization of the material in the cartridge due to incident light.**

Premature polymerization of the material.

Deficient printed object.

▶ Observe the storage conditions of the material.

▶ Only open the cartridge if the hood is closed and the print job is started immediately afterwards.

▶ If not in use, close the cartridge, remove it from the device and store it in a lightproof cabinet so that it is protected from direct sunlight.

8.3.4 Inserting the build platform

⚠ **CAUTION! Build platform that has not been fully inserted in the holder may turn loose and drop into the cartridge.**

Spilling of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

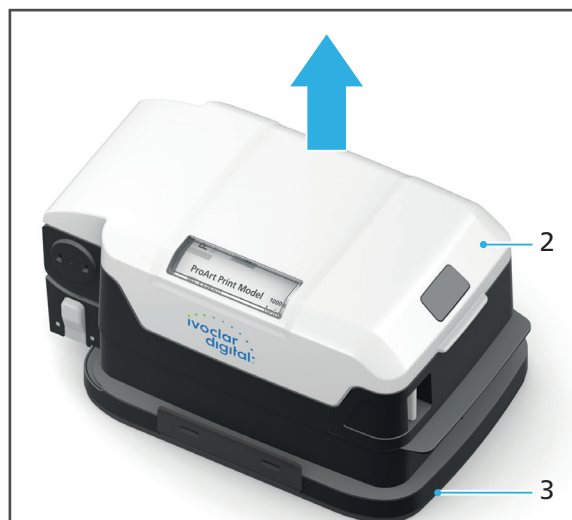Damage to the cartridge and the printed dental object.

Damage to the glass pane and consequential damage to the electronic components.
▶   Insert build platform into the holder until it stops.
▶   Make sure that the lever is entirely engaged and that the build platform is secured.

⚠ **CAUTION! Use of a build platform that has not been cleaned or has been cleaned insufficiently.**

Cross-contamination of materials.

No biocompatibility.

Damage to the material and cartridge.

Deficient printed object.
▶   Observe the cleaning requirements for the build platform ("Removing the build platform with the dental object", page 88).

NOTICE! Mounting of the build platform before opening the cartridge.

Cartridge cannot be opened.

Damage to components.
▶   Open the cartridge before mounting the build platform ("Inserting the cartridge with material bottle", page 77).

☑ The cartridge with the material bottle has been inserted and opened ("Inserting the cartridge with material bottle", page 77).

1. Insert the build platform into the holder until it stops.
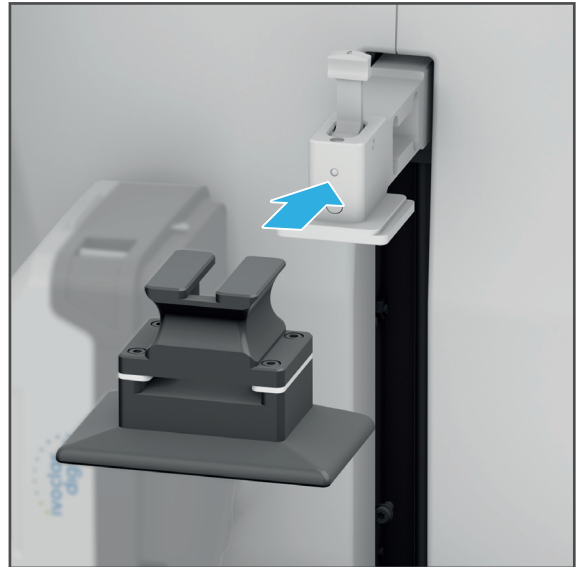
🛈 The lever can only be entirely engaged if the build platform has been inserted into the holder until it stops. If the lever cannot be completely closed, slide the build platform deeper into the holder.

2. Engage the lever (1) as shown.
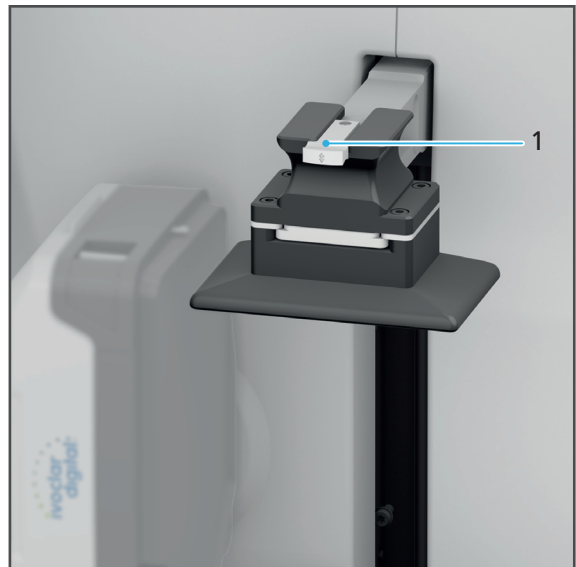
➡ The build platform has been mounted.

8.3.5 Closing the hood

⚠ **CAUTION! Polymerization of the material in the cartridge due to incident light.**

Premature polymerization of the material.

Deficient printed object.

▶ Close the hood as soon as possible once work in the build chamber is complete.

▶ Close the hood at the latest when the acoustic signal sounds.

☑ The cartridge with the material bottle has been inserted ("Inserting the cartridge with material bottle", page 77).

☑ The build platform has been mounted ("Inserting the build platform", page 81).

▶ Close the hood.

➡ The hood audibly snaps into place.

➡ The prepared print job can be started.

8.4 Starting a print job

❗ Only one print job can be processed at a time.

❗ The device automatically recognizes the material type and fill level of the material bottle in place.

If the material in the cartridge is not the type of material required for the print job or if the filling quantity is not sufficient for the selected print job, a corresponding message is displayed in the materials overview ("Main menu [Jobs]", page 55, "Preparing the material bottle and cartridge", page 72 and "Changing the material or replacing the empty material bottle", page 92):

⚠️ **DANGER! Light development of the light engine.**

Eye injuries.

▶ Always keep the hood closed while a print job is processed.

▶ Open the hood manually only in case of emergency ("Disengaging the hood interlock in case of error", page 106).

☑ The latest version of the "CAMbridge", "PrograPrint Manager" and 3D printer software has been installed.

☑ The latest build styles are used.

☑ The print job has been transferred to the printer ("Transferring print jobs to the printer", page 68).

☑ The cartridge with the material bottle has been inserted ("Inserting the cartridge with material bottle", page 77).

☑ The build platform has been mounted ("Inserting the build platform", page 81).

☑ The hood is closed ("Closing the hood", page 83).

☑ You are in the main menu [Jobs].

1. Tap on the desired print job.
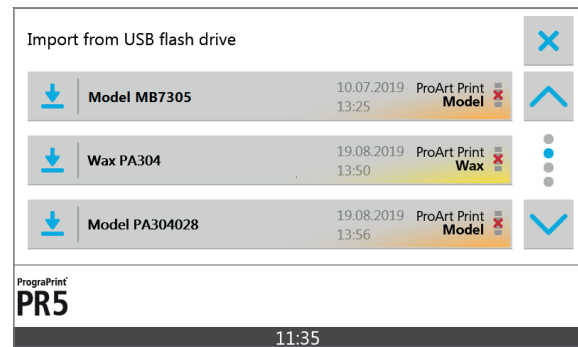
A detailed view of the print job is displayed:

2. Tap on the symbol:

   ▶
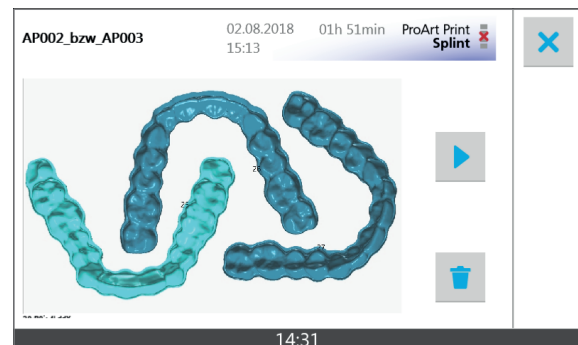
To ensure that the build platform has been inserted, a safety query displayed.

3. Verify that a clean build platform has been inserted and confirm the safety query with [Next].

➡ The print job is started.

🛇 If a dental object being printed detaches from the build platform during the printing process, the build platform may have been insufficiently cleaned, may be damaged or its coating may be defective.

Observe the notes in sections "Procedure in case of failed print jobs", page 87 and "Troubleshooting / error table", page 102.

8.5 Cancelling a print job

❶ If a print job in progress is cancelled, it cannot be continued. The unfinished dental object must be removed from the build platform. Then the tank of the cartridge must be checked for contamination and cleaned, if necessary, before a new print job can be started ("Cleaning the cartridge, tank and tank foil", page 114).

NOTICE! Contaminated or damaged tank foil.

Deficient printing result.
▶ Check the tank foil for contamination and damage after every abort.
▶ Replace tank, if necessary.

NOTICE! Touching the tank foil or tank bottom with your fingers. Incorrect procedure used to remove contaminations.

Damage to the tank foil.
▶ Never touch the tank foil and tank bottom with your fingers.
▶ Remove any contamination in the tank very carefully with the supplied tweezers.

☑ A print job is being processed.

1. Hold down the cancel symbol for a few seconds:
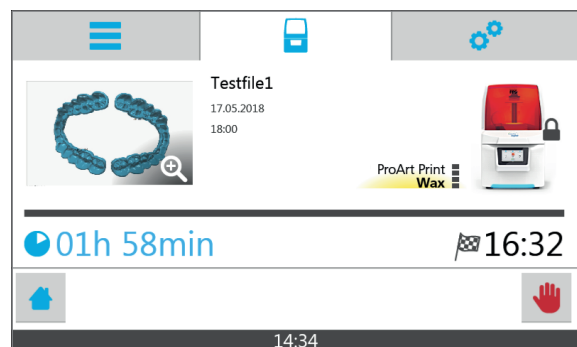
2. Confirm the cancellation of the print job with [Yes].

   The print job is cancelled.

   The build platform is moved to the home position.

❶ The hood is automatically unlocked as soon as the holder of the build platform is in its home position ("Overview of the build chamber", page 28).

3. Open the hood ("Opening the hood", page 76).

4. Remove the build platform ("Removing the build platform with the dental object", page 88).

5. Remove the unfinished dental application carefully with the supplied scraper.

6. Clean the tank, if necessary ("Cleaning the cartridge, tank and tank foil", page 114).

8.6 Procedure in case of failed print jobs

If a print job fails, proceed as follows:

NOTICE! The material and the tank have not been checked after a failed print job.

Damage to the material or the tank foil.

▶ Check the material for polymerized components and remove them, if necessary.

NOTICE! Touching the tank foil or tank bottom with your fingers. Incorrect procedure used to remove contaminations.

Damage to the tank foil.

▶ Never touch the tank foil and tank bottom with your fingers.

▶ Remove any contamination in the tank very carefully with the tweezers included in the delivery.

---

1. Check constructions and settings in the "CAMbridge" CAM software.

2. Remove build platform ("Removing the build platform with the dental object", page 88).

3. Remove the dental object and material adhering to the build platform carefully with the scraper included in the delivery.

4. Remove persistent contamination on the build platform with isopropyl alcohol.

   The build platform is clean and can be used for a new print job with the same type of material.

5. Clean the glass pane in the build chamber ("Cleaning the glass pane in the build chamber", page 113).

6. Check the tank foil for damage and residues of printed objects.

7. Remove any residues of printed objects carefully with tweezers.

8. If the tank is deformed or damaged, replace it.

9. Check unpolymerized material for contamination or residues of printed objects and remove them, if necessary.

10. Transfer the print job to the printer (again).

8.7 Completing a print job

8.7.1 Removing the build platform with the dental object

⚠ **CAUTION! Contact with the material upon removal of the build platform.**

Spilling or slopping of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

Damage to the device and the cartridge.

▶ Let the printed object drain for approximately 10 minutes before you remove the build platform.

NOTICE! Contaminated or damaged tank foil.

Deficient printed object

▶ Check the tank foil for contamination and damage after the processing of print jobs.

▶ Replace tank, if necessary.

NOTICE! Touching the tank foil or tank bottom with your fingers. Inappropriate procedure used to remove contaminations.

Damage to the tank foil.

▶ Never touch the tank foil and tank bottom with your fingers.

▶ Remove any contamination in the tank very carefully with the tweezers included in the delivery.

☑ The current print job has been completed.

☑ The stipulated waiting period before the object can be removed has been observed.

🛈 The hood is automatically unlocked, as soon as the holder of the build platform is in its home position ("Overview of the build chamber", page 28).

1. Open the hood ("Opening the hood", page 76).

2. Disengage the lever (1).

3. Remove the build platform.

4. If you want to carry out further print jobs with a different material:

    a. Change the cartridge ("Changing the material or replacing the empty material bottle", page 92).

    b. Insert new or cleaned build platform ("Inserting the cartridge with material bottle", page 77).

5. Close the hood ("Closing the hood", page 83).

➡ The dental object can be cleaned and post-polymerized.
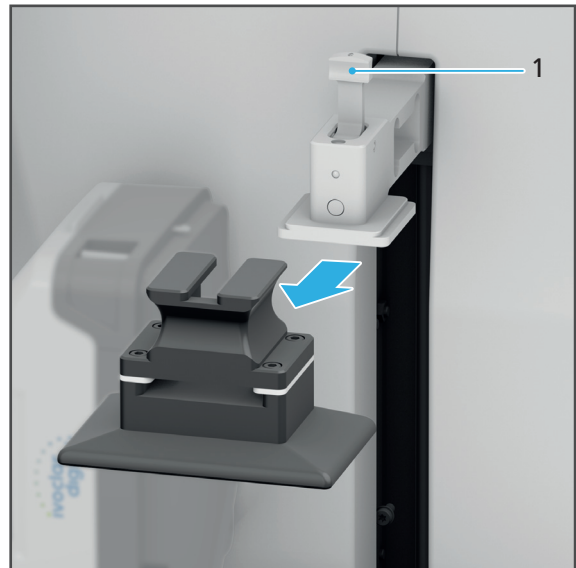
8.7.2 Cleaning and post-polymerizing the printed dental object

🛈 After removal of the build platform, the dental object on the platform must be cleaned with PrograPrint Clean and post-polymerized with PrograPrint Cure.

The printed object remains on the build platform for the entire process and is only removed from the build platform after successful polymerization in PrograPrint Cure. Early removal of the object may negatively affect the precision or the material properties.

Observe the Operating Instructions of the respective device ("Documents of equal applicability and required files", page 9).

8.7.3 Removing the dental object from the build platform and carrying out cleaning steps

⚠ **CAUTION! Cleaning the tank under running water. Material enters the water cycle.**

Skin irritations and allergic reactions.

Danger to the environment.

▶ Do not rinse the tank under running water.

▶ Correctly dispose of the material.

▶ Observe the notes in the Instructions for Use concerning the type of material used ("Documents of equal applicability and required files", page 9).

NOTICE! Using the contaminated build platform for a new print job.

Damage to the material and cartridge.

Deficient printed object.

▶ Thoroughly clean the build platform after every print job ("Cleaning and maintenance table", page 110).

▶ Make sure that no cleaning agent residue adheres to the build platform after cleaning.

🛈 If a dental object detaches from the build platform during the printing process, the build platform may have been insufficiently cleaned, may be damaged or its coating may be defective.

Observe the notes in sections "Procedure in case of failed print jobs", page 87 and "Troubleshooting / error table", page 102.

☑ The printed dental object has been cleaned and post-polymerized.

⚠️ **CAUTION! Careless use of cleaning tools (scraper, cutter).**

Cutting injuries.

Damage to the build platform, particularly the coating.

Damage to the tank foil.

Damage to the printed dental object.

▶ Make sure not to damage the build platform, particularly the coating.

▶ If the coating is damaged, replace the build platform, if necessary.

▶ Carefully remove the dental object from the build platform.

▶ Carefully separate the support structures one after the other to prevent damage to the printed object.

---

1. Carefully remove the printed dental object from the build platform with the scraper included in the delivery. In the process, prevent damage to the build platform or parts of the object.

2. Thoroughly remove object or material residue from the build platform using the scraper included in the delivery.

3. Carefully separate the support structures from the printed dental object using the cutter included in the delivery. In the process, prevent any object parts from breaking off.

4. Remove persistent contamination on the build platform with isopropyl alcohol.

   The printed dental object has been removed.

   The build platform is clean and can be used for a new print job.

5. Clean the glass pane in the build chamber ("Cleaning the glass pane in the build chamber", page 113).

6. Clean the cartridge, tank and tank foil ("Cleaning the cartridge, tank and tank foil", page 114).

7. Check the printing quality, if needed ("Checking the printing quality", page 105).

➡️ The print job is complete.

🛈 In case of deficient printing quality, see also the notes in Chapter "Troubleshooting / error table", page 102.

8.8 Changing the material or replacing the empty material bottle

If another material type is to be used after the completion of a print job, the currently inserted cartridge has to be replaced with a cartridge for the new material type. If the material type remains unchanged from print job to print job, replacing the cartridge after a print job is not required.

❗ The collecting bottle is used to collect material spilled in the working chamber for subsequent disposal.

If there is still material in the tank of the removed cartridge, it can be stored in the cartridge and used for print jobs at a later time. After having been stored for longer periods of time (4 to 6 weeks), the material must be carefully stirred with the provided spatula to dissolve any sediments.

If you merely want to replace an empty material bottle with a new one, also proceed as described below.

❗ After at least 1000 ml of material has been used for printing, i. e. after one material bottle has been used up, the tank of the cartridge must also be replaced with a new one ("Replacing the tank", page 99).

A worn or damaged tank foil jeopardizes the printing quality and material properties.

⚠ CAUTION! Material contact when working with material bottles and cartridges.

Skin irritations and allergic reactions.

▶ Always wear suitable protective gear when working with material bottles and cartridges ("Personal protective equipment", page 13).

▶ Observe the notes in the Instructions for Use regarding the material type used ("Documents of equal applicability and required files", page 9).

NOTICE! Polymerization of the material in the tank.

Damage to the material, cartridge and material bottle.

Deficient printed object.

▶ Observe the storage conditions of the material.

▶ If not in use, close cartridge and store it in a lightproof cabinet where it is protected from direct sunlight.

▶ Store the material only with the cartridge top closed.

▶ Store the cartridge only with the protective foil cover.

NOTICE! Polymerization of the material in the material bottle.

Damage to the material and the material bottle.

▶ Do not remove open material bottles or store them outside the cartridge.

▶ Always store the material bottle in the cartridge.

NOTICE! Contaminated or damaged tank foil.

Deficient printed object.

▶ Observe the notes in the user interface regarding the tank change.

▶ Check the tank foil for contamination and damage every time the material is changed.

▶ Replace tank, if necessary.

8.8.1 Removing the cartridge with material bottle

☑ No print job is currently processed by the printer.

☑ The protective foil cover of the inserted tank is ready.

☑ The build platform has been removed from the printer ("Removing the build platform with the dental object", page 88).

1. Open the hood ("Opening the hood", page 76).

2. Close cartridge top.

The cartridge top audibly snaps into place.

3. Move the lever to secure the cartridge (1) upwards.

The cartridge interlocks are disengaged.

⚠ **CAUTION! The full tank turns loose when the cartridge is lifted by the cartridge lid and falls down.**

Spilling or slopping of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

Deficient printed object.

Damage to the device.

▶ Always hold and transport the cartridge by the front and rear handle.

▶ Hold the cartridge level.

4. Remove the cartridge from the working chamber.

NOTICE! Contaminated or damaged tank foil.

Deficient printed object.

Damage to the cartridge.

▶ Never touch the tank foil and tank bottom with your fingers.

▶ Lift the cartridge by the handles. Do not reach below the tank.

▶ Always mount the protective foil cover if the cartridge is not used or stored.

NOTICE! Contaminated or damaged tank foil.

Deficient printed object.

▶ Check the tank foil for contamination and damage every time the material is changed.

▶ Replace tank, if necessary.

5. Place the cartridge (2) on the protective foil cover (3).
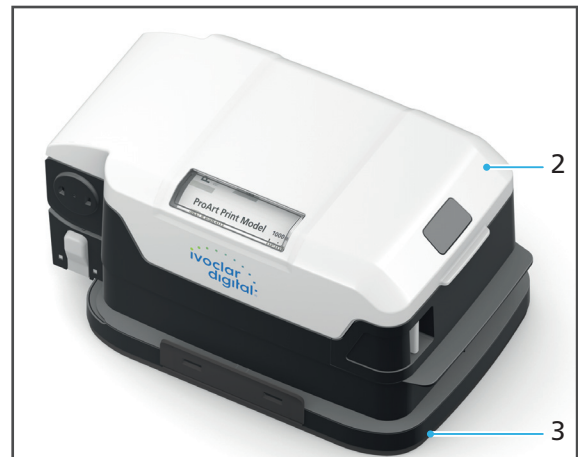
6. Engage interlocks (4) on both sides of the protective foil cover.

7. Close the hood ("Closing the hood", page 83).

➡ The material bottle and cartridge have been removed.

➡ You can insert a new cartridge into the printer ("Inserting the cartridge with material bottle", page 77).

➡ You can remove the material bottle and insert a new one ("Removing the material bottle from the cartridge", page 96 and "Preparing the material bottle and cartridge", page 72).

NOTICE! Polymerization of the material in the tank.

Damage to the material, cartridge and material bottle.

Deficient printed object.

▶ Observe the storage conditions of the material.

▶ If not in use, close cartridge and store it in a lightproof cabinet where it is protected from direct sunlight.

▶ Store the material only with the cartridge top closed.

▶ Store the cartridge only with the protective foil cover.

8.8.2 Removing the material bottle from the cartridge

⚠ **CAUTION! Finger in the area of the rear handle when opening the cartridge lid.**

Risk of crushing.

▶ Do not touch the cartridge in the area of the rear handle when opening the cartridge lid.

☑ The cartridge with the material bottle has been removed from the printer ("Removing the cartridge with material bottle", page 93).

1. Disengage the interlock of the cartridge lid (1) and open the lid.

   The valve is closed (closing the cartridge also closes the valve).

⚠ **CAUTION! Material contact upon removal of the material bottle due to residual material leaking from the valve.**

Skin irritations and allergic reactions.

Spilling of material harmful to health and the environment.

Skin irritations and allergic reactions.

Danger to the environment.

▶ Before removing the material bottle, let it rest for several seconds.

⚠ **CAUTION! Material contact due to material leaking out of the open valve.**

Skin irritations and allergic reactions.

▶ Before removing the material bottle from the cartridge, make sure that the valve is closed (90-degree angle).

▶ Do not open or close the valve manually.

2. Remove the material bottle from the cartridge with the valve closed.
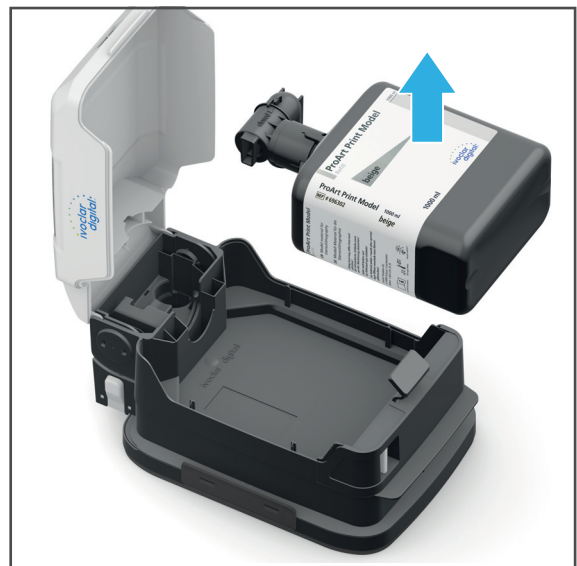
⚠ **CAUTION! Mixing of different materials.**

Cross-contamination of materials.

No biocompatibility.

Damage to the material and cartridge.

Deficient printed object.

▶ Do not decant residual material in the tank into the tank of another material type.

▶ If no longer used, correctly dispose of residual material (see Instructions for Use of the respective materials, "Documents of equal applicability and required files", page 9).

3. Close cartridge lid.

The cartridge lid audibly snaps into place.

4. Correctly dispose of the material bottle with closed valve.
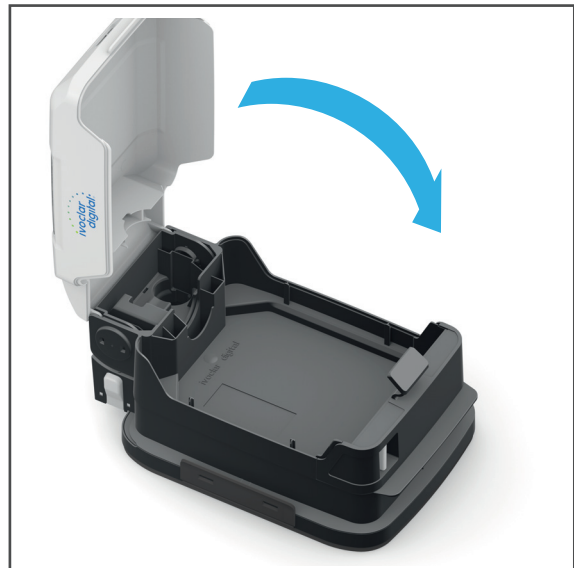
➡ The material bottle has been removed from the cartridge.

➡ You can insert a new material bottle into the cartridge ("Preparing the material bottle and cartridge", page 72).

➡ After at least 1000 ml of material flow or if the tank is damaged: Replace the tank ("Replacing the tank", page 99).

NOTICE! Contaminated or damaged tank foil.

Deficient printed object.

▶ Check the tank foil for contamination and damage every time the material is changed.

▶ Replace tank, if necessary.

8.9　Replacing the tank

🚫 A worn or damaged tank foil jeopardizes the printing quality and material properties.

Therefore, the tank must be replaced with a new one after at least 1000 ml of material has been used for printing, i. e. after one material bottle has been used up.

After 1000 ml of material has been used, the printer automatically notifies the user of the required tank change.

⚠ **CAUTION! Material contact when working with material bottles and cartridges.**

Skin irritations and allergic reactions.

▶ Always wear suitable protective gear when working with material bottles and cartridges ("Personal protective equipment", page 13).

▶ Observe the notes in the Instructions for Use concerning the type of material used ("Documents of equal applicability and required files", page 9).

⚠ **CAUTION! Unpolymerized material residue enters the water cycle.**

Danger to the environment.

▶ Do not dispose of the tank with unpolymerized material residue in the domestic waste.

▶ Dispose of the tank with unpolymerized material residue in accordance with the legal provisions in your country.

☑ The cartridge has been removed ("Changing the material or replacing the empty material bottle", page 92).

1. Press the interlock of the cartridge top (4) on both sides of the cartridge and hold it down.

2. Disengage the interlock of the cartridge (2).

3. Hold the cartridge top (1) horizontally using both hands and lift it out.

4. Dispose of the tank content according to the Instructions for Use of the respective material or dispense it into a new tank ("Documents of equal applicability and required files", page 9).

5. Place the cartridge top on a new tank (3).

   The tank audibly snaps into place.

➡ The tank has been replaced.

❗ Proceed swiftly when changing the tank and make sure that unpolymerized material in the bottle or the valve is not exposed to sunlight and thus starts to cure.

8.10 Shutting the device down and switching it off

NOTICE! Switching the device off during a running print job.

Damage to the printed dental object.

▶   Do not pull the power supply plug during active processing.

▶   Wait until the current print job has been entirely processed.

☑   No print job is currently processed by the printer.

▶   Switch the on/off switch from **I** to **0**.
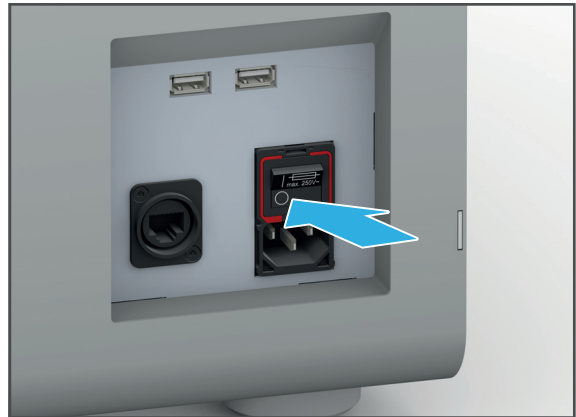
➥   The device is switched off.

9 Device Messages and Troubleshooting

The device informs you about the state of your device, pending tasks and problems with the help of the Operating Status Display and displays in the user interface. Moreover, errors are displayed in the form of pop-over windows with the corresponding warning symbols and notes on error rectification.

If you cannot solve problems with the help of the information in the user interface and the following sections, please contact your authorized service partner.

9.1 Messages in the user interface

The device informs you about the mode it is in as well as about any possible errors and warnings. They are displayed as messages in the user interface.

Always follow the instructions in the user interface which will guide you through the tasks to be carried out step by step.

In addition to the displayed messages, also observe the status of the Operating Status Display. ("Status of the Operating Status Display", page 101).

9.2 Status of the Operating Status Display

Function	Colour	Meaning
Indication of the device status		
	Yellow	Warning or notice (e.g. replacement of the tank required)
	Green	Device is ready for operation. A print job can be started.
	Red	Print job failed. Print job was stopped or cannot be started (see "Troubleshooting / error table", page 102).
	Blue	Print job is processed.

9.3 Troubleshooting / error table

Error	Possible reasons	Solution
Machine won't start.	Power supply is not connected or has been interrupted. Power failure.	• Check power supply and restore if necessary. • Switch machine on (again). • If the problem continues: Contact your authorized service partner.
Switched on machine does not respond to input via the operating panel.	Device is somehow jammed or defective. In the presence of electro-magnetic interference in the frequency range around 210 kHz ±10 kHz, proper operation of the device may be impeded.	• Switch off the device. • Switch on the device again. • If the problem continues: Set up the device in a different location. • If the problem still continues: Contact your authorized service partner.
The printer does not continue to work. Operating Status Display is no longer lit up.	Power supply has been interrupted. Power failure.	• Check power supply and restore if necessary. • Switch the printer off and on again. • Follow the instructions in the operating panel. • If the problem continues: Contact your authorized service partner.
	Fault in the machine.	• Contact your authorized service partner.
Material escapes.	Defective cartridge, material bottle or valve.	• Place the machine out of order and unplug from the power supply. • Contact your authorized service partner.
No print jobs are shown in the menu [Jobs].	No print jobs have been transferred from the CAM software "CAMbridge".	• Transfer print jobs to the printer (again).
	No network connection.	• Check network connection and restore if necessary. • Transfer print jobs to the printer (again). • If the problem continues: Please contact the in-house technician.

Error	Possible reasons	Solution
Print jobs do not start	The cartridge and material bottle have not yet been synchronized.	• Follow the instructions in the user interface.
	Incorrect cartridge used for the material bottle	
	Material bottle is empty	• Insert a new material bottle ("Inserting the cartridge with material bottle", page 77).
	Incorrect material for the print job. Replacement of the material required.	• Insert new material bottle with cartridge ("Inserting the cartridge with material bottle", page 77).
Print job fails	Error in the work preparation in the "CAMbridge" CAM software	"Procedure in case of failed print jobs", page 87
Deficient printed object. Printing results lack precision.	Calibration required	• Check printing quality ("Checking the printing quality", page 105). • If the printing quality is deficient: Contact your authorized service partner.
	Contaminated glass pane in the build chamber	• Clean the glass pane ("Cleaning the glass pane in the build chamber", page 113).
	Glass pane in the build chamber is damaged	• Contact your authorized service partner.
	Tank foil contaminated. Contaminations in the tank.	• Clean the tank and tank foil ("Cleaning the cartridge, tank and tank foil", page 114).
	Tank foil damaged	• Replace tank, if necessary.
Dental object detaches from the build platform during printing	Contaminated or damaged build platform	• Check build platform for contamination and clean, if necessary ("Removing the build platform with the dental object", page 88). • Check the surface of the build platform for damage of the coating • Replace build platform, if necessary. • Transfer print jobs to the printer (again).

Error	Possible reasons	Solution
Material in the cartridge has polymerized	Incorrect storage of the cartridge	• Dispose of the cartridge • Use new material bottle with new cartridge.
Material in the valve has polymerized.	Valve not tight or worn down	• Use new material bottle with new valve
Material in the cartridge is contaminated	Material bottle or cartridge have been incorrectly stored	• Observe the storage conditions. • Dispose of the cartridge • Use new material bottle with new cartridge.
	Previous print job deficient. Residue of the dental object in the tank	• Carefully remove the residue from the tank with the supplied tweezers. • Clean the tank and tank foil ("Cleaning the cartridge, tank and tank foil", page 114).
Residue in the tank	Faulty slice data and/or build parameters	Information about build styles can be found in the instructions of the "CAMbridge" CAM software.
	Incorrect build style selected for the field of application	
The hood cannot be opened even though no print jobs are processed	Support of the build platform dislocated after the insertion of the build platform. Build platform not in the home position. The hood only opens automatically if the build platform is in its home position.	• To move the build platform to the home position, select the menu item [Bring Z axis to home position] in the menu [Settings]. If the problem persists, there might be an error in the system control: • Manually open the hood with interlock (see "Disengaging the hood interlock in case of error", page 106).

9.4 Checking the printing quality

To check the printing quality, you can generate a test object with the device and thus determine whether or not the printer generates precise results. Verify the printing quality regularly.

🛈 The print job for the test object prepared by Ivoclar Vivadent can be downloaded from the Internet under the following address:

http://www.ivoclarvivadent.com/prograprint-testfile

Newly generate the test object before every test.

---

1. Transfer the print job to the printer ("Transferring print jobs to the printer", page 68).

2. Process the print job with the printer ("Processing Print Jobs", page 67).

   The test object has been created.

3. Slide the test pin (1) into the recess in the test object (2).

4. Pin the test object (2) onto the test model (3).
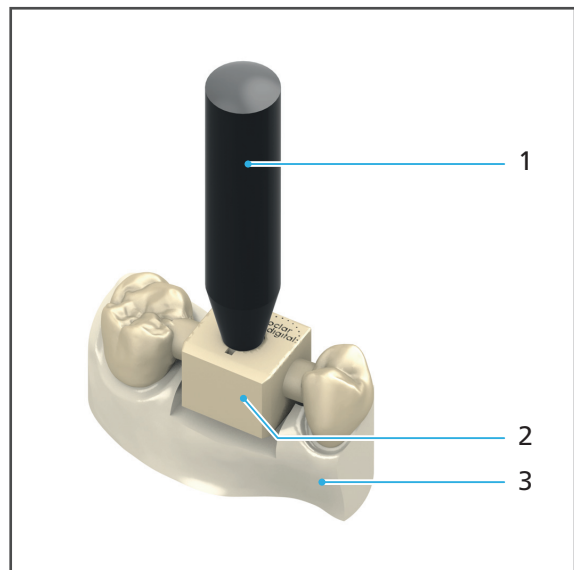
If the test pin and test model fit flush into the recesses of the test object, the precision of the printer is ensured.

If one of the following cases occurs, it is highly likely that the precision of the printer is no longer ensured.

- The test pin (1) shows too much tolerance in the hole of the test object (2).
- The test pin (1) does not fit into the hole of the test object (2).
- The test object (2) does not show a correct fit on the test model (3).

In such cases, please contact a service partner authorized by Ivoclar Vivadent.

9.5 Disengaging the hood interlock in case of error

If the hood does not unlock automatically even though the build platform is in its home position and it cannot be unlocked via the menu [Settings - Bring Z axis to the home position], proceed as described below.

⚠ **DANGER! Light development of the light engine.**

Eye injuries.

▶ Always keep the hood closed while a print job is processed.

▶ Close the hood between two print jobs when the acoustic signal sounds.

▶ Only open the hood manually in case of emergency as described below.

▶ Disconnect the power cord and thus disconnect the device from the power supply before emergency opening of the hood.

⚠ **WARNING! Pinching hand / fingers upon emergency unlocking.**

Severe crushing.

Loss of limbs.

▶ Open the hood carefully.

▶ Disconnect the power cord and thus disconnect the device from the power supply before emergency opening of the hood.

1. Insert a screw driver (Ø 3 mm) into the opening (1) at the rear of the device.

2. Push the tip of the screw driver upward and slightly open the hood by hand.

3. Remove the screw driver and open the hood completely.
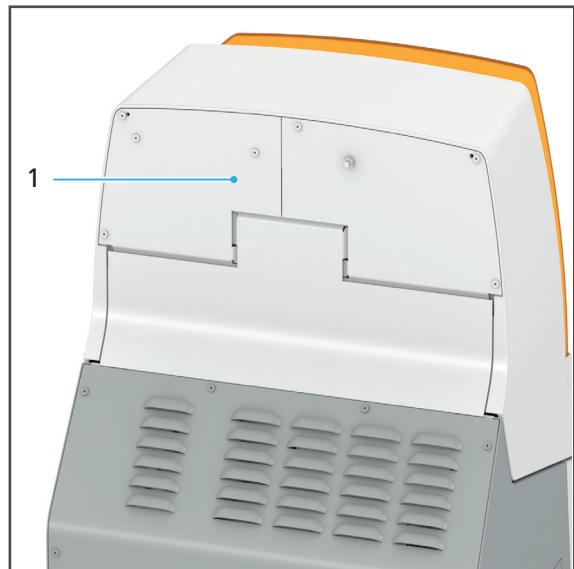
➡ The hood is open

9.6   Changing the fuses

⚠️ **DANGER! Changing the fuse during operation. Contact with live components.**

Danger of electric shock.

Damage to the device.

▶   Change the fuse only with the power supply disconnected.

The fuse holder is located below the on/off switch ("Connections (right side)", page 27).

1.   Switch the on/off switch from **I** to **0**.

2.   Disconnect the device from the power supply.

3.   Remove the power cord.
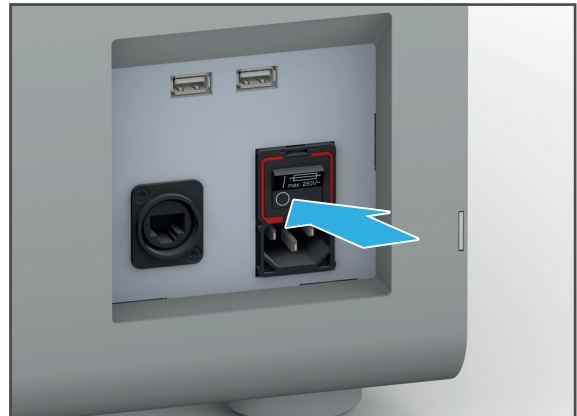
4.   Slide the screw driver under the red border (1)
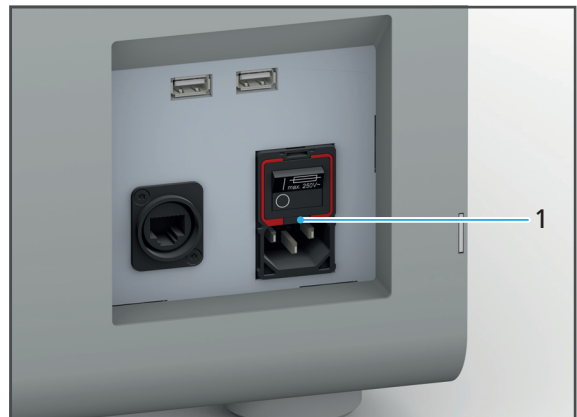
5.   Move the fuse holder out of the device with the screw driver.

6.   Replace defective fuses.
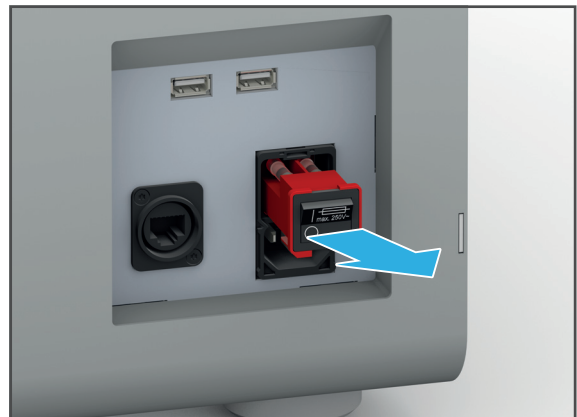
7. Replace fuse holder.

8. Reconnect the power cord with the device and the power supply ("Connecting the device to the power supply", page 42).
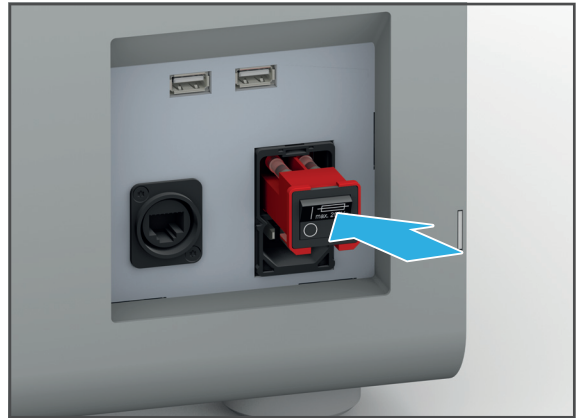
10 Cleaning and Maintenance Work for the User

❗ This chapter deals exclusively with the cleaning of the device.

For information on cleaning the supplied components, such as the PrograPrint Clean or Cure, refer to the Operating Instructions of the relevant components ("Documents of equal applicability and required files", page 9).

⚠ **DANGER! Improper cleaning and maintenance of the device. Failure to observe the specified cleaning intervals defined in these instructions.**

Risk to the patient and the user.

Damage to the device.

▶ Only carry out work on the device that is described in this chapter and assigned to the user.

▶ Do not use any cleaning agents for components, for which no explicit cleaning agents are mentioned.

▶ Always carry out the cleaning tasks at the specified intervals.

⚠ **CAUTION! Unpolymerized material residue enters the water cycle.**

Danger to the environment.

▶ Do not dispose of unpolymerized material residue in the domestic waste.

▶ Dispose of unpolymerized material residue in accordance with the legal provisions in your country.

NOTICE! Improper cleaning of the device with unsuitable equipment and cleaning agents.

Damage to sensitive components.

Damage to / scratches on the device.

▶ Do not use any brushes, tools, sponges with metal components or cleaning equipment other than those specified in this chapter.

▶ Only use soft towels, paint brushes, brushes or small brooms.

▶ Do not use sharp, chlorine-containing cleaners. Only use mild, pH neutral cleaning agents.

▶ To avoid damaging the sensitive components in the build chamber, avoid strong pressure, scrubbing, rubbing and wiping.

▶ To avoid scratching and therefore clouding of the hood, only clean the hood window with a soft cloth dampened with tap water and a mild, pH-neutral cleaning agent.

▶ Do not wear jewellery such as rings, bracelets or watches when working on the device.

10.1 Cleaning and maintenance table

🛈 Compliance with the following cleaning and maintenance intervals is the sole responsibility of the operator!

Duties	Responsible person	Interval	Cleaning agents	Reference
Cleaning the build platform	User/ operator	• Before and after every print job • After every cancellation of a print job	• Scraper • Isopropyl alcohol	• "Removing the build platform with the dental object", page 88
Cleaning the glass pane in the build chamber	User/ operator	• Before every print job • After every cancellation of a print job	• Tap water • Mild, pH-neutral cleaning agent	• "Cleaning the glass pane in the build chamber", page 113
Cleaning the cartridge, tank and tank foil	User/ operator	• After every print job • After every cancellation of a print job • Upon visible contamination of the cartridge, particularly the tank foil • Upon visible contamination of the material • If the printed object is deficient	Cartridge: • Tap water • Mild, pH-neutral cleaning agent Tank: • Tweezers for printing residue Tank foil: • Microfibre cloth • Isopropyl alcohol	• "Cleaning the cartridge, tank and tank foil", page 114
Refilling/ changing the material	User/ operator	• Once one bottle of 1000 ml has been used up • When conducting print jobs with another material	-	• "Inserting the cartridge with material bottle", page 77 • "Changing the material or replacing the empty material bottle", page 92

Duties	Responsible person	Interval	Cleaning agents	Reference
Changing/ emptying the collecting bottle	User/ operator	• Once one bottle of 1000 ml has been used up • When conducting print jobs with another material • After overflowing of the tank • After comprehensive cleaning of the device	-	• "Inserting / replacing the collecting bottle", page 44
Cleaning the build chamber and the build platform support	User/ operator	• Once a week and/or • Before the weekend and/ or • Before other longer idle times	Build chamber: • Solvent • Paper towels Build platform support: • Tap water • Mild, pH-neutral cleaning agent	• "Cleaning the build chamber and the build platform support", page 112
Cleaning the housing	User/ operator	• Once a week and/or • Before the weekend and/ or • Before other longer idle times	• Tap water • Mild, pH-neutral cleaning agent	• "Cleaning the housing and the hood", page 114
Replacing the tank	User/ operator	• Once one bottle of 1000 ml has been used up • If the tank foil is damaged / worn	-	• "Replacing the tank", page 99
Replacing the build platform	User/ operator	• If the build platform / coating is damaged	-	-
Checking the printing quality	User/ operator	• If the printed objects are deficient • If required	-	• "Checking the printing quality", page 105

10.2 Preparing for cleaning

⚠ **DANGER! Cleaning work during operation. Contact with live components.**

Danger of electric shock.

Damage to the device.

▶ Perform cleaning work only when the device is switched off and disconnected from the power supply.

For cleaning of the device and its components, the printer must be switched off.

1. Wait until the current print job has been entirely processed.
2. Complete the print job ("Completing a print job", page 88).
3. For work in the build chamber: Open the hood ("Opening the hood", page 76).
   – or –
   For cleaning the housing: Close the hood.
4. Switch the on/off switch from **I** to **0**.
5. Disconnect the device from the power supply.

10.3 Cleaning the build chamber and the build platform support

While processing a print job, dripping printed objects and material spills may result in an accumulation of material in the build chamber, particularly near the drain to the collecting bottle and on the build platform support.

⚠ **CAUTION! Contact with material when working with material bottles and cartridges.**

Skin irritations and allergic reactions.

▶ Always wear suitable protective gear when working with material bottles and cartridges ("Personal protective equipment", page 13).

▶ Observe the notes on the type of material used in the Instructions for Use ("Documents of equal applicability and required files", page 9).

NOTICE! Cleaning of the build chamber with aggressive cleaning agents that contain solvents, such as acetone.

Damage to the plastic of the cartridge.

Damage to the glass pane.

▶ Always remove the cartridge before cleaning the build chamber.

▶ Solvents must not come into contact with the glass pane. Clean the pane separately ("Cleaning the glass pane in the build chamber", page 113).

☑ The device is ready ("Preparing for cleaning", page 112).

☑ The hood is open

☑ The cartridge has been removed ("Removing the cartridge with material bottle", page 93).

☑ The build platform has been dismounted ("Removing the build platform with the dental object", page 88).

1. Clean the build chamber, with the exception of the glass pane, with a solvent and paper towels.

2. Remove contamination on the build platform support with a soft cloth dampened with tap water and a mild, pH-neutral cleaning agent.

➡ The build chamber and build platform support are clean.

10.4 Cleaning the glass pane in the build chamber

The glass pane must be kept clean at all times. Dirt, dust and fingerprints detrimentally affect the light engine and thus the printing results and material properties.

NOTICE! Improper cleaning of the glass pane with unsuitable equipment and cleaning agents.

Damage of / scratches on the glass pane.

Deficient printed object.

▶ Do not use or introduce brushes, tools, sponges with metal components or any cleaning equipment other than that specified in this chapter into the build chamber.

▶ Use only soft microfibre cloths.

▶ Do not use any acidic, chlorine- or acetone-containing cleaning agents. Only use mild, pH neutral cleaning agents.

▶ To avoid damaging the sensitive components in the build chamber, avoid strong pressure, scrubbing, rubbing and wiping.

▶ Do not wear jewellery such as rings, bracelets or watches when working on the device, especially when cleaning the build chamber.

NOTICE! Contamination of the glass pane.

Deficient printed object.

▶ Clean glass pane after every print job.

☑ The cartridge has been removed ("Removing the cartridge with material bottle", page 93).

1. Clean the glass pane with a soft cloth, dampened with tap water and a mild, pH neutral cleaning agent or isopropyl alcohol.

2. Check the glass pane for damage. Contact your authorized service partner, if necessary.

10.5 Cleaning the housing and the hood

☑ The device is ready ("Preparing for cleaning", page 112).

☑ The hood is closed.

1. Wipe down the housing and the hood with the supplied microfibre cloth.

2. Remove persistent contamination with a mild, pH-neutral cleaning agent.

➡ Housing and hood have been cleaned.

10.6 Cleaning the cartridge, tank and tank foil

🛈 Unpolymerized material must not enter the waste water or be disposed of with the residual or domestic waste.

Please observe the country-specific provisions.

⚠ **CAUTION! Cleaning the tank under running water. Material enters the water cycle.**

Skin irritations and allergic reactions.

Danger to the environment.

▶ Do not rinse the tank under running water.

▶ Correctly dispose of the material.

▶ Observe the notes in the Instructions for Use concerning the type of material used ("Documents of equal applicability and required files", page 9).

NOTICE! Improper cleaning of the glass pane with unsuitable tools and cleaning agents.

Damage to the plastic of the cartridge.

▶ Do not use brushes, tools, sponges with metal components, or any cleaning equipment other than those specified in this chapter.

▶ Use only soft microfibre cloths.

▶ Do not use any aggressive cleaning agents that contain solvents such as acetone. Only use mild, pH neutral cleaning agents.

NOTICE! Incorrect procedure used to remove contaminations.

Damage to the tank foil.

▶ Remove any contamination in the tank very carefully with the tweezers included in the delivery.

NOTICE! Touching the tank foil or tank bottom with your fingers.

Electrostatic charging.

Excessive contamination of the tank foil by attracted particles.

Deficient printed object.

▶   Never touch the tank foil and tank bottom with your fingers.

☑   The cartridge has been removed ("Changing the material or replacing the empty material bottle", page 92).

1.   Before the first use of the tank foil, cautiously clean it with the multifibre cloth and isopropyl alcohol, if necessary.

2.   Clean the cartridge lid with a soft cloth dampened with tap water and a mild, pH neutral cleaning agent. Remove any adhering unpolymerized material.

3.   Check the tank foil for contamination and damage.

4.   Replace tank, if necessary ("Replacing the tank", page 99).

5.   Carefully remove construction residue from the tank with the tweezers included in the delivery.

10.7 Finishing the cleaning procedure

1.   Reconnect any previously disconnected cables ("Initial Operation", page 42).

2.   If necessary, switch the device on ("Switching the device on for the first time", page 46).

11 Decommissioning

If you want to decommission the device for a longer period time, send it in for maintenance and repair purposes or dispose of it, prepare the device as follows:

1. Clean the device ("Cleaning and maintenance table", page 110).

2. Remove the collecting bottle and empty it.

3. Remove the build platform and the cartridge with the material bottle ("Removing the build platform with the dental object", page 88 and "Changing the material or replacing the empty material bottle", page 92).

4. Switch off the device and disconnect it from the power supply: Carry out the steps in reverse order as described in: "Connecting the device to the power supply", page 42.

5. Remove all cables.

6. Pack the device in the original packaging.

11.1 Storing the device

1. Ensure that the storage space meets the following requirements:

   - dry
   - vibration free

2. Ensure that the storage requirements are met ("Ambient conditions for storage and transportation", page 119).

11.2 Disposal of the device and materials

The operator is responsible for proper disposal.
The product must not be disposed of in the household waste. It must be collected separately from the household waste and disposed of according to local regulations for the disposal of electronic equipment in an environmentally safe manner or returned to Ivoclar Vivadent for disposal.

12 Repair

⚠️ **DANGER! Improper repairs/maintenance work on the device.**

Danger to the user and to the patient.

▶ Repairs on the device must only be carried out by service partners authorized by Ivoclar Vivadent using the valid version of the Service Manual.

12.1 Authorized service partners

❶ For information about the authorized service partners in your country, contact your local distribution partner or Ivoclar Vivadent or go to: http://www.ivoclarvivadent.com.

12.2 Sending defective devices for repair

❶ Use only the original packaging together with the corresponding foam inserts for transportation purposes.

1. Take the device out of service before returning it to the authorized service partner ("Decommissioning", page 116).

2. Send the device to the authorized service partner in its original packaging.

13 Technical Data

The following technical data refer exclusively to the PograPrint PR5 printer.

For information on the technical data of the accessories or other components, please refer to the respective Operating Instructions ("Documents of equal applicability and required files", page 9).

13.1 Classifications

Characteristics	Value
Test standards	• EN 61010-1 :2010 • CAN/CSA-C22.2 No. 61010-1 :2012 • IEC 61010-1 :2010 • UL 61010-1 :2012 • IEC 61000-3-2 :2018 • EN 61000-3-2 :2019 • IEC 61000-3-3 :2013 • EN 61000-3-3 :2013 • IEC 61326-1 :2012 (Group 1, Class B) • EN 61326-1 :2013 (Group 1, Class B)
Guidelines	• 2011/65/EU • 2014/53/EU
Radio licenses	• EN 300 330 V2.1.1 • EN 301 489-3 V2.1.1 • EN 62369-1 :2009 • IEC 62369-1 :2008 • 47 CFR Part 15 • Industry Canada RSS-210

Changes or modifications that have not been explicitly approved by the body responsible for the compliance with the requirements may void the authorization of the user to operate the device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and

2. this device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference; and

2. This device must accept any interference, including interference that may cause undesired operation of the device.

13.2 Radio characteristics

The printer uses RFID technology with an operating frequency of 13.56 MHz (1 channel) to read the electronic labels. The maximum output performance is 200 mW. At a distance of 0.2 meters to the antenna, the magnetic field strength is equal or less than the values stated below:

- Electric field 1.0 V/m

- Magnetic field 0.008 A/m

13.3 Measurements, weight

Characteristics	Value
Width x height x depth (with the hood closed)	455 mm x 758 mm x 550 mm
Weight	54 kg

13.4 Ambient conditions

13.4.1 Ambient conditions for storage and transportation

Characteristics	Value
Acceptable ambient temperature	-20 °C to +65 °C

13.4.2 Ambient conditions for operation

Characteristics	Value
Acceptable ambient temperature	+20 °C to +30 °C
Acceptable atmospheric humidity	Up to 70%

13.5 Electrical data

Characteristics	Value
Network connection	100 to 240 V / 50/60 Hz
Permissible voltage fluctuations	± 10%
Max. power consumption	2.5 A
Values of electrical fuses	T 3.15 AH; 250 V
Dimensions of electrical fuses	5 x 20 mm
Max. power input	250 W

14 Appendix

14.1 Scope of delivery

Item description	Number	Item number	Usage
PograPrint PR5	1	698703	3D printer
PograPrint Cartridge	1	704372	Cartridge
PograPrint Pool	1	704373	Tank
PograPrint Stage	1	704374	Build platform
Software "PograPrint Manager"	1	-	Transfer of print jobs to the 3D printer
Power cord	1		Power cord
WLAN flash drive	1		Cordless network connection between PograPrint PR5 and the CAM PC for data transfer
Patch cable	1		Connection of the device with the network
Tweezers	1		Removal of artefacts/polymerized material bits from the tank/liquid material
Glass scraper	1		Detaching polymerized dental objects from the build platform after post-polymerization
Glass scraper blades	1		Extra blades for the glass scraper
USB flash drive	1		Data transfer between PograPrint PR5 and the CAM PC
Side cutter	1		Removal of the support structure
Cleaning cloth	1		Cleaning of the touchscreen display
Spatula	1		Mixing of the material in the tank to prevent sedimentation
Collecting bottle	1		Collection of liquid material overflowing from the tank, which is drained from the build chamber via the drain
Test set	1		Checking the accuracy of fit of a printed reference model
CAMbridge dongle	1		License for the CAM software "CAMbridge" from 3Shape
Operating Instructions EN	1		

14.2 Ordering spare parts

1. When ordering spare parts, keep the following information ready:

   - Item number
   - Serial number

2. Contact your authorized service partner.

14.3 Recommended additional accessories

14.3.1 CAM software

Item description	Number	Item number
CAMbridge	1	-

14.3.2 PrograPrint Clean

Item description	Number	Item number
PrograPrint Clean	1	704457

14.3.3 PrograPrint Cure

Item description	Number	Item number
PrograPrint Cure	1	704458

14.4 Approved materials

NOTICE! Use of unsuitable materials.

Damage to the device.
▶ Only use the materials recommended in these instructions and by Ivoclar Vivadent.

🛈 Starter Kits consisting of material bottles and the matching, coded cartridges can be bought from Ivoclar Vivadent.

Item description	Number	Item number
ProArt Print Model		696302
ProArt Print Splint		696300
ProArt Print Wax		696296

14.5 CE marking / Declaration of Conformity

Declaration of conformity

ivoclar
vivadent:
passion vision innovation

CE

Manufacturer Address	Ivoclar Vivadent AG Bendererstrasse 2 LI – 9494 Schaan Liechtenstein
Product	**PrograPrint PR5**
Type	**Dental Laboratory Equipment**
Classification	**Technical Device (3D-Printer)**

We herewith declare under our exclusive responsibility that the above mentioned products meet the provisions of the following EC Council Directives and its implementation in national law. All supporting documentation is retained on the premises of the manufacturer and, where applicable, the notified body.

Directives	**2014/53/EU**	**Radio Equipment**
	2011/65/EU	**Restriction of hazardous substances**

Standards	**Radio**	**Dental Laboratory Equipment**
	EN 62369-1:2009	EN 61010-1:2010
	EN 301 489-3 V2.1.1	EN 61326-1:2013 (Group 1, Class B)
	EN 300 330 V2.1.1	EN 61000-3-2:2019
		EN 61000-3-3:2013/A1:2019
		EN 50581:2012

Notified Body Address	not applicable
Place, Valid from	Schaan, 12.09.2019
	Replaces version of: 01.07.2019
Valid until	11.09.2024

Signature		
Name	Markus Heinz	Gottfried Rohner
Positon	CPO Production & Logistics	Director Equipment Development
Date	12.09.2019	12.09.2019

Ivoclar Vivadent – worldwide

Ivoclar Vivadent AG
Bendererstrasse 2
9494 Schaan
Liechtenstein
Tel. +423 235 35 35
Fax +423 235 33 60
www.ivoclarvivadent.com

Ivoclar Vivadent Pty. Ltd.
1 – 5 Overseas Drive
P.O. Box 367
Noble Park, Vic. 3174
Australia
Tel. +61 3 9795 9599
Fax +61 3 9795 9645
www.ivoclarvivadent.com.au

Ivoclar Vivadent GmbH
Tech Gate Vienna
Donau-City-Strasse 1
1220 Wien
Austria
Tel. +43 1 263 191 10
Fax: +43 1 263 191 111
www.ivoclarvivadent.at

Ivoclar Vivadent Ltda.
Alameda Caiapós, 723
Centro Empresarial Tamboré
CEP 06460-110 Barueri – SP
Brazil
Tel. +55 11 2424 7400
Fax +55 11 3466 0840
www.ivoclarvivadent.com.br

Ivoclar Vivadent Inc.
1-6600 Dixie Road
Mississauga, Ontario
L5T 2Y2
Canada
Tel. +1 905 670 8499
Fax +1 905 670 3102
www.ivoclarvivadent.us

**Ivoclar Vivadent Shanghai
Trading Co., Ltd.**
2/F Building 1, 881 Wuding Road,
Jing An District
200040 Shanghai
China
Tel. +86 21 6032 1657
Fax +86 21 6176 0968
www.ivoclarvivadent.com

Ivoclar Vivadent Marketing Ltd.
Calle 134 No. 7-B-83, Of. 520
Bogotá
Colombia
Tel. +57 1 627 3399
Fax +57 1 633 1663
www.ivoclarvivadent.co

Ivoclar Vivadent SAS
B.P. 118
74410 Saint-Jorioz
France
Tel. +33 4 50 88 64 00
Fax +33 4 50 68 91 52
www.ivoclarvivadent.fr

Ivoclar Vivadent GmbH
Dr. Adolf-Schneider-Str. 2
73479 Ellwangen, Jagst
Germany
Tel. +49 7961 889 0
Fax +49 7961 6326
www.ivoclarvivadent.de

**Ivoclar Vivadent Marketing (India)
Pvt. Ltd.**
503/504 Raheja Plaza
15 B Shah Industrial Estate
Veera Desai Road, Andheri (West)
Mumbai, 400 053
India
Tel. +91 22 2673 0302
Fax +91 22 2673 0301
www.ivoclarvivadent.in

Ivoclar Vivadent Marketing Ltd.
The Icon
Horizon Broadway BSD
Block M5 No. 1
Kecamatan Cisauk Kelurahan Sampora
15345 Tangerang Selatan – Banten
Indonesia
Tel. +62 21 3003 2932
Fax +62 21 3003 2934
www.ivoclarvivadent.com

Ivoclar Vivadent s.r.l.
Via del Lavoro 47
40033 Casalecchio di Reno (BO)
Italy
Tel. +39 051 6113555
Fax +39 051 6113565
www.ivoclarvivadent.it

Ivoclar Vivadent K.K.
1-28-24-4F Hongo
Bunkyo-ku
Tokyo 113-0033
Japan
Tel. +81 3 6801 1301
Fax +81 3 5844 3657
www.ivoclarvivadent.jp

Ivoclar Vivadent Ltd.
4F TAMIYA Bldg.
215 Baumoe-ro
Seocho-gu
Seoul, 06740
Republic of Korea
Phone: +82 (2) 536-0714
Fax: +82 (2) 6499-0744
www.ivoclarvivadent.co.kr

Ivoclar Vivadent S.A. de C.V.
Calzada de Tlalpan 564,
Col Moderna, Del Benito Juárez
03810 México, D.F.
México
Tel. +52 (55) 50 62 10 00
Fax +52 (55) 50 62 10 29
www.ivoclarvivadent.com.mx

Ivoclar Vivadent BV
De Fruittuinen 32
2132 NZ Hoofddorp
Netherlands
Tel. +31 23 529 3791
Fax +31 23 555 4504
www.ivoclarvivadent.com

Ivoclar Vivadent Ltd.
12 Omega St, Rosedale
PO Box 303011 North Harbour
Auckland 0751
New Zealand
Tel. +64 9 914 9999
Fax +64 9 914 9990
www.ivoclarvivadent.co.nz

Ivoclar Vivadent Polska Sp. z o.o.
ul. Jana Pawla II 78
00-175 Warszawa
Poland
Tel. +48 22 635 5496
Fax +48 22 635 5469
www.ivoclarvivadent.pl

Ivoclar Vivadent LLC
Prospekt Andropova 18 korp. 6/
office 10-06
115432 Moscow
Russia
Tel. +7 499 418 0300
Fax +7 499 418 0310
www.ivoclarvivadent.ru

Ivoclar Vivadent Marketing Ltd.
Qlaya Main St.
Siricon Building No.14, 2nd Floor
Office No. 204
P.O. Box 300146
Riyadh 11372
Saudi Arabia
Tel. +966 11 293 8345
Fax +966 11 293 8344
www.ivoclarvivadent.com

Ivoclar Vivadent S.L.U.
Carretera de Fuencarral nº24
Portal 1 – Planta Baja
28108-Alcobendas (Madrid)
Spain
Tel. +34 91 375 78 20
Fax +34 91 375 78 38
www.ivoclarvivadent.es

Ivoclar Vivadent AB
Dalvägen 14
169 56 Solna
Sweden
Tel. +46 8 514 939 30
Fax +46 8 514 939 40
www.ivoclarvivadent.se

Ivoclar Vivadent Liaison Office
: Tesvikiye Mahallesi
Sakayik Sokak
Nisantas' Plaza No:38/2
Kat:5 Daire:24
34021 Sisli – Istanbul
Turkey
Tel. +90 212 343 0802
Fax +90 212 343 0842
www.ivoclarvivadent.com

Ivoclar Vivadent Limited
Compass Building
Feldspar Close
Warrens Business Park
Enderby
Leicester LE19 4SD
United Kingdom
Tel. +44 116 284 7880
Fax +44 116 284 7881
www.ivoclarvivadent.co.uk

Ivoclar Vivadent, Inc.
175 Pineview Drive
Amherst, N.Y. 14228
USA
Tel. +1 800 533 6825
Fax +1 716 691 2285
www.ivoclarvivadent.us

Translation of the original operating instructions
Version: 4
Date of issue: 2020-06

ivoclar
digital®