New as of: 2023-07

Dentsply Sirona

Primeprint

Instructions for Use

English

Table of contents

1 General data

Please read this document completely and follow the instructions exactly. You should always keep it within reach.

Original language of the present document: German.

1.1 Dear Customer,

Thank you for your purchase of this Primeprint® unit from Dentsply Sirona.

This unit enables you to use computer aided manufacturing of dental applications.

Improper use and handling can create hazards and cause damage. Please therefore read and follow these operating instructions carefully. Always keep them within easy reach.

Also pay attention to the safety instructions to prevent personal injury and material damage.

Your
Primeprint team,

1.2 Contact data

Dentsply Sirona Product service

Log in to register your units and make service requests:
https://dentsplysirona.service-pacemaker.com/

Manufacturer's address

Sirona Dental Systems GmbH
Fabrikstrasse 31
64625 Bensheim
Germany

Tel.: +49 (0) 6251/16-0
Fax: +49 (0) 6251/16-2591
E-Mail: contact@dentsplysirona.com
www.dentsplysirona.com

1.3 General information about this operating manual

Follow the instructions for use

Please familiarize yourself with the unit by reading through these instructions for use before putting it into operation. It is essential that you comply with the warning and safety information listed.

Retain documents

Keep the instructions for use so that they are always at hand in case you or another user requires information at a later point in time. Save the instructions for use on the PC or print them out.

If you sell the unit, make sure that the instructions for use are included with it either as a hard copy or on an electronic storage device so that the new owner can familiarize himself with its functions and the specified warning and safety information.

"Download Center" for technical documents

We have set up a "Download Center" for the technical documents at dentsplysirona.com/ifu. From here, you can download these instructions for use along with other documents. Please complete the online form if you would like a hard copy of the instructions for use or operator's manual. We would be happy to send you a printed copy, free of charge.

Help

If you need help despite having thoroughly studied the instructions for use, please contact your dental depot.

1.4 General conventions and structure of the document

1.4.1 Structure of the document

1.4.1.1 Identification of danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in these operating instructions. Such information is highlighted as follows:

⚠ DANGER

An imminent danger that could result in serious bodily injury or death.

⚠ WARNING

A possibly dangerous situation that could result in serious bodily injury or death.

⚠ CAUTION

A possibly dangerous situation that could result in minor or moderate bodily injury.

NOTICE

A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT

Application instructions and other important information.

Tip: Information on making work easier.

1.4.1.2 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✓ Prerequisite **1.** First action step **2.** Second action step or ➢ Alternative action ↳ Result ➢ Individual action step	Request for action.
see “Formats and symbols used [→ 9]”	Identifies a reference to another text passage and specifies its page number.
• List	Identifies a list.
"Command / menu item"	Indicates commands, menu items or quotations.

1.4.2 Notes to the repository

It is mandatory to keep this operating manual in an easily accessible place for the purpose of later reference. In the event of a sale or transfer of the device to another user, make sure that the device is supplied along with the operating manual, so that the new owner can get acquainted with the operation and the appropriate precautions and warnings

1.5 Scope of these Operating Instructions

Equipment options

This document describes the full version of your system. It may therefore cover components that are not included in the system you purchased.

1.6 Warranty and liability

Maintenance

In the interest of the safety and health of patients, users or third parties, it is necessary that maintenance work is carried out at fixed intervals to ensure the operational safety and reliability of your product.

The operator must ensure the implementation of the maintenance work.

As a manufacturer of medical electrical equipment, we can consider ourselves responsible for the safety characteristics of the device only if maintenance and repairs are carried out by us or by companies authorized explicitly by us for this purpose and if components are replaced with original spare parts in case of failure.

Exclusion of liability

If the operator does not meet the obligation to carry out such maintenance or error messages are ignored,Dentsply Sirona or its authorized dealer does not assume any liability for resulting damage.

1.7 Legend

Year of manufacture

Product disposal symbol (see "Disposal [→ 98]").

Accompanying documents

This symbol can be found on the rating plate on the unit.

Meaning: Observe the Operating Instructions when operating the unit.

This symbol can be found on the rating plate on the unit.

Meaning: The accompanying documents are available on the Dentsply Sirona homepage.

Electrostatic discharge (ESD)

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures. See also "Electrostatic charge [→ 18]" and "Electromagnetic compatibility".

Disconnection of the power supply during maintenance work

If the device-sided electronics box must be opened during maintenance work, this may be done only after disconnection of the power supply to the device.

General danger notice

Observe the Operating Instructions.

Wear protective gloves.

"Warning of optical radiation" symbol

Warning of injuries to eyes and skin in the vicinity of optical radiation.

"Hot surface" symbol

Symbols on the packaging

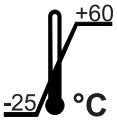
Take note of the following symbols on the packaging:

Up

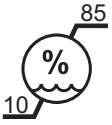
Keep dry

Fragile; handle with care

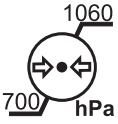
Stack limit



Temperature during storage and transport



Relative humidity during storage and transport



Air pressure during storage and transport

2 Safety instructions

2.1 Basic safety information

2.1.1 Prerequisites

NOTICE

Important information on building installation

In order to prevent the risk of an electric shock, this unit must only be connected to a supply mains with a ground wire.

The building installation must be performed by a qualified expert in compliance with the national regulations.

NOTICE

Restrictions regarding installation site

The system is not intended for operation in areas subject to explosion hazards.

NOTICE

Do not damage the unit!

The unit can be damaged if opened improperly.

It is expressly prohibited to open the unit with tools!

2.1.2 Maintenance and repair

As manufacturers of dental instruments and laboratory equipment, we can assume responsibility for the safety properties of the unit only if the following points are observed:

- The maintenance and repair of this unit may be performed only by Dentsply Sirona or by agencies authorized by Dentsply Sirona.
- Components which have failed and influence the safety of the unit must be replaced with original (OEM) spare parts.
- Only original cables may be used, so that EMC requirements are met.

Please request a certificate whenever you have such work performed. It should include:

- The type and scope of work.
- Any changes made in the rated parameters or working range.
- Date, name of company and signature.

2.1.3 Modifications to the product

Modifications to this product which may affect the safety of the operator, patients or third parties are prohibited by law!

2.1.4 Accessories

In order to ensure product safety, this device may be operated only with original Dentsply Sirona accessories or third-party accessories expressly approved by Dentsply Sirona. In particular, only the power cable also supplied or the corresponding original spare part may be used with the unit. The user is responsible for any damage resulting from the use of non-approved accessories.

2.1.5 In case of damage

In case of noticeable malfunctions or damage, stop using the instrument immediately and notify your authorized dealer or the manufacturer.

2.2 Electromagnetic compatibility

Observance of the following information is necessary to ensure safe operation regarding EMC aspects.

Primeprint complies with the requirements for electromagnetic compatibility (EMC) according to DIN EN 61326-1:2013-07

Primeprint is hereinafter referred to as "UNIT".

2.2.1 Electromagnetic emission

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Emission measurement	Conformity	Electromagnetic environment - guidelines
RF emissions according to **CISPR 11**	Group 1	The **UNIT** uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions according to **CISPR 11**	Class B	The **UNIT** is intended for use in all facilities, including residential areas and in any facilities connected directly to a public power supply providing electricity to buildings used for residential purposes.
Harmonics according to **IEC 61000-3-2**	Class A	
Voltage fluctuations / flicker according to **IEC 61000-3-3**	coincides	

2.2.2 Immunity to interference

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Interference immunity tests	DIN EN 61326-1 Test level	Compliance level	Electromagnetic environment – guidelines
Electrostatic discharge (ESD) according to **IEC 61000-4-2**	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst according to **IEC 61000-4-4**	± 1 kV for input and output lines ± 2 kV for power supply lines	± 1 kV for input and output lines ± 2 kV for power supply lines	The quality of the line power supply should be that of a typical commercial or hospital environment.
Surge voltages according to **IEC 61000-4-5**	± 1 kV differential mode voltage ± 2 kV common mode voltage	± 1 kV differential mode voltage ± 2 kV common mode voltage	The quality of the line power supply should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and variations of the power supply according to **IEC 61000-4-11**	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5sec. (>95% dip of U_T	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5sec. (>95% dip of U_T	The quality of the line power supply should be that of a typical commercial or hospital environment. Continued operation of the **UNIT** is possible following interruptions of the power supply, since the **UNIT** is powered by an uninterruptible power supply backed up by a storage battery.
Magnetic field of power frequencies (50/60 Hz) according to **IEC 61000-4-8**	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: U_T is the AC supply voltage prior to application of the test level.			
			Portable and mobile radio equipment must not be used within the recommended working clearance from the **UNIT** and its cables, which is calculated based on the equation suitable for the relevant transmission frequency. Recommended working clearance:

Interference immunity tests	DIN EN 61326-1 Test level	Compliance level	Electromagnetic environment – guidelines
Conducted RF interference **IEC 61000-4-6**	3 V_{eff} 150 kHz to 80 MHz	3 V_{eff}	d= [1.2] √P
Radiated RF interference **IEC 61000-4-3**	3 V/m 80 MHz to 800 MHz 3 V/m 800 MHz to 2.5 GHz	3 V/m 3 V/m	d= [1.2] √P at 80 MHz to 800 MHz d= [2.3] √P at 800 MHz to 2.5 MHz where P is the nominal transmitter output in watts (W) specified by the transmitter manufacturer and d is the recommended working clearance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[1] should be less than the compliance level[2] in each frequency range. Interference is possible in the vicinity of equipment bearing the following graphic symbol. 

Remark 1
The higher frequency range applies at 80 MHz and 800 MHz.

Remark 2
These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

1. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM/FM radio and TV broadcasts, cannot be predicted theoretically with accuracy. An investigation of the location is recommended to determine the electromagnetic environment resulting from stationary RF transmitters. If the measured field strength in the location in which the **UNIT** is used exceeds the applicable RF compliance level specified above, the **UNIT** should be observed to verify normal operation. If unusual performance characteristics are observed, it may be necessary to take additional measures such as reorientation or repositioning of the **UNIT**.
2. Over the frequency range 150kHz to 80 MHz, field strengths should be less than 3 V/m.

2.2.3 Working clearances

Recommended working clearances between portable and mobile RF communication devices and the UNIT

The **UNIT** is intended for operation in an electromagnetic environment, where radiated RF interference is checked. The customer or the user of the **UNIT** can help prevent electromagnetic interference by duly observing the minimum distances between portable and/or mobile RF communication devices (transmitters) and the **UNIT**. These values may vary according to the output power of the relevant communication device as specified below.

Rated maximum output power of transmitter [W]	Working clearance according to transmission frequency [m]		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
	d= [1.2] √P	d= [1.2] √P	d= [2,3] √P
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters whose maximum nominal output is not specified in the above table, the recommended working clearance d in meters (m) can be determined using the equation in the corresponding column, where P is the maximum nominal output of the transmitter in watts (W) specified by the transmitter manufacturer.

Remark 1

An additional factor of 10/3 is applied when calculating the recommended working clearance between transmitters in the 80 MHz to 2.3 GHz frequency range in order to reduce the probability that a mobile/portable communication device unintentionally brought into the patient area could lead to interference.

Remark 2

These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

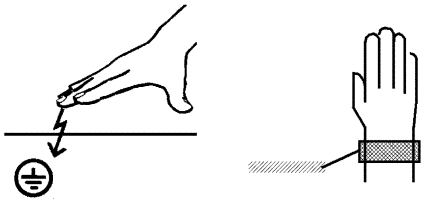
2.3 Electrostatic charge

2.3.1 ESD protective measures

ESD

ESD stands for **E**lectro**S**tatic **D**ischarge.

ESD protective measures



ESD protective measures include:

- Procedures for preventing electrostatic charge build-up (e.g. air conditioning, air moistening, conductive floor coverings and non-synthetic clothing)
- Discharging the electrostatic charges of your own body on the frame of the UNIT, the protective ground wire or large metallic objects
- Connecting yourself to ground using a wrist band.

Training

We therefore recommend that all persons working with this system be instructed on the significance of this warning label. Furthermore, they also should receive training in the physics of electrostatic discharges which can occur in the practice and the destruction of electronic components which may result if such components are touched by electrostatically charged USERS.

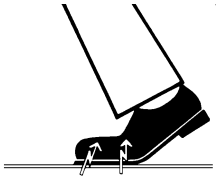
The content of this training is explained in the Chapter "About the physics of electrostatic charges" [→ 18].

2.3.2 About the physics of electrostatic charges

What is an electrostatic charge?

An electrostatic charge is a voltage field on and in an object (e.g. a human body) which is protected against conductance to ground potential by a nonconductive layer (e.g. a shoe sole).

Formation of an electrostatic charge



Electrostatic charges generally build up whenever two bodies are rubbed against each other, e.g. when walking (shoe soles against the floor) or driving a vehicle (tires against the street pavement).

Amount of charge

The amount of charge depends on several factors:

Thus the charge is higher in an environment with low air humidity than in one with high air humidity; it is also higher with synthetic materials than with natural materials (clothing, floor coverings).

Electrostatic discharge must be preceded by electrostatic charging.

The following rule of thumb can be applied to assess the transient voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

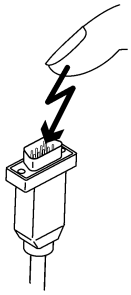
- perceptible at 3,000 V or higher
- audible at 5,000 V or higher (cracking, crackling)
- visible at 10,000 V or higher (arc-over)

The transient currents resulting from these discharges have a magnitude of 10 amperes. They are not hazardous for humans because they last for only several nanoseconds.

Background

Integrated circuits (logical circuits and microprocessors) are used to implement a wide variety of functions in dental/X-ray/CAD/CAM systems.

The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to structure thicknesses as low as a few ten thousandths of a millimeter.



It is obvious that integrated circuits which are connected to plugs leading outside of the unit via cables are sensitive to electrostatic discharge.

Even voltages which are imperceptible to the user can cause breakdown of the structures, thus leading to a discharge current which melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the system.

To prevent this from happening, the ESD warning label next to the plug warns of this hazard. ESD stands for **E**lectro**S**tatic **D**ischarge.

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures.

2.4 Connecting the unit

Perform connection by following the directions given in the present operating instructions.

2.5 Connection of external equipment

If any devices not approved by Dentsply Sirona are connected, they must comply with the applicable standards (see "Standards/ approvals/ certifications [→ 21]").

2.6 Ventilation slots

Under no circumstances may the ventilation slots on the rear of the unit be covered, since otherwise the air circulation will be obstructed. This can cause the unit to overheat.

Do not spray into the ventilation slots

Do not spray liquids such as disinfectants into the ventilation slots. This may lead to malfunctions. Use wipe disinfection only in the vicinity of the ventilation slots.

2.7 Product-specific safety instructions

⚠ CAUTION

Status LED illuminated red

In the event of any faults, the status bar lights up red.

➢ Switch off the unit at the main switch before reaching into the processing area. You can switch the unit on again after remedying the fault.

⚠ CAUTION

Risk of injury and damage to the unit

An excessive load on the open door may cause the unit to tip over.

➢ Make sure that no one leans or rests on the open door.

⚠ CAUTION

Reduced quality of the print object

There can be a negative effect on print quality if the heater plate window is not inserted.

➢ Always operate the unit with the heater plate window inserted.

⚠ CAUTION

Do not use component

In the rare event that the component falls from the build platform, carefully removal of the component from the Primeprint unit or the transport container is recommended.

When removing such objects, always take appropriate protective measures such as wearing nitrile gloves, a gown and safety glasses.

Because it cannot be excluded that the component has not been fully printed, this component must not be used.

⚠ CAUTION

Do not use faulty printed objects

Faulty printed objects must not be used.

2.8 Material-specific safety instructions

⚠ CAUTION

Handling printed materials

For general handling of the printed materials, please refer to the safety data sheet of the manufacturer. The materials must be handled properly and in compliance with all manufacturer's specifications and local legal requirements.

Independent of the specific requirements in the safety data sheet of the material, we recommend wearing protective goggles, protective clothing and gloves during maintenance and cleaning.

3 General information on the device

3.1 Standards/ approvals/ certifications

CE mark

CE

This product bears the CE mark in accordance with the provisions of Council Directives 2014/53/EU (RED), 2006/42/EC (Machinery Directive), 2014/30/EC (EMC Directive) and 2011/65/EU (RoHS) including 2015/863/EC as Annex II. As such, the following standards apply: ETSI EN 301 489-3 V2.1.1 (2017-03), DIN EN 61010-1:2020-03, DIN EN ISO 14971:2020-07 and DIN EN 61326-1:2013-07.

⚠ CAUTION

CE mark for connected products

Further products which are connected to this unit must also bear the CE mark. These products must be tested according to the applicable standards.

Examples of CE mark for connected products:

- EN 60601
- EN 61010-1
- EN 60950
- EN 62368-1
- UL 60950
- UL 62368-1

RoHS compliance

This symbol indicates that this product does not contain any toxic or hazardous substances or components above the maximum concentration value set out in the Chinese standard SJ / T 11364-2014, and can be recycled following disposal and should not be carelessly discarded.

Compliance statement

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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.

IC declaration (For Canada only)

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

3.2 Intended use

The Dentsply Sirona 3D printer is designed to produce three-dimensional dental applications from printable viscous materials. It hereby represents a part of an overall system of Computer Aided Imaging (data acquisition), Computer Aided Design (modelling of the application) and Computer Aided Manufacturing (production).

The product only covers the initial manufacturing process. For this purpose, a light-curing process is used to produce three-dimensional objects layer-by-layer in a single operation using a projection unit and printable viscous materials from specific material cartridges.

The subsequent washing and post-exposure treatment that is to be carried out in the associated post-processing unit after this printing process is not part of the product.

The data preparation (alignment, positioning, slicing etc.) is part of an additional CAM software and, like the material used (printable viscous material), is not part of the product.

⚠ CAUTION

Follow the instructions

If the instructions for operating the unit described in this document are not observed, the intended protection of the user may be impaired.

⚠ CAUTION

Federal Law (USA) restricts the sale of this device to or on the order of a physician, dentist, or licensed practitioner.

3D printing process

⚠ CAUTION

The Primeprint 3D printer processes light-curing plastics. These are not finally polymerized before and after the machining process and require further post-processing. The materials can lead to injuries if they are not fully cured. Observe the safety data sheets of the materials used and use the corresponding and named accessories (Primeprint PPU) for the post-processing of the printing results.

For cleaning the print results, observe the safety data sheets of the materials used. These can be obtained from the respective material manufacturer.

The post-processing of all materials validated in the Dentsply Sirona Primeprint 3D printer is performed with the Primeprint PPU of the Dentsply Sirona, REF 6745561 in a validated post-processing process. Observe the separate operating instructions (REF 6745272).

NOTICE

Observe local regulations for the disposal of all operating materials such as cartridges, gloves, and cleaning supplies associated with use of the Primeprint 3D printer.

NOTICE

Observe the local legal requirements for operating the 3D printer.

3.3 Scope of supply

- Primeprint
- Primeprint material unit without cartridge
- Primeprint box
- Primeprint activated carbon filter
- USB license stick
- CAM service
- inLab CAM SW license voucher
- Wipe cards
- Crossed LAN cable
- Unpacking slip
- Transport container insert (pack of 5)
- Microfiber cloth
- Purosol lens cleaner
- Cotton swabs
- Torque screwdriver, TX10 x 89 with blade, 1.3 Nm
- Collection container 450 ml
- Power cable
- Suction cup for removing the window heater plate
- Heater plate window
- inLab CAD SW license voucher

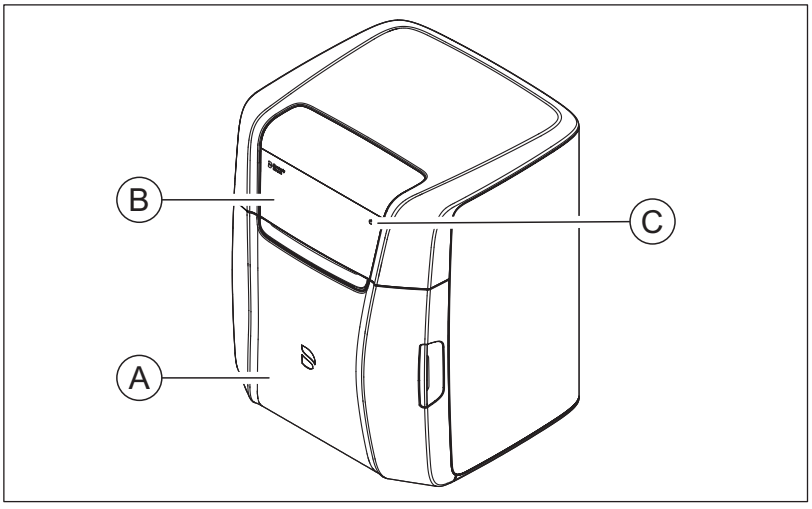
Optional accessories

- inLab PC
- Monitor
- LAN switch including LAN cable (2 m)

3.4 Technical description (component and interfaces)

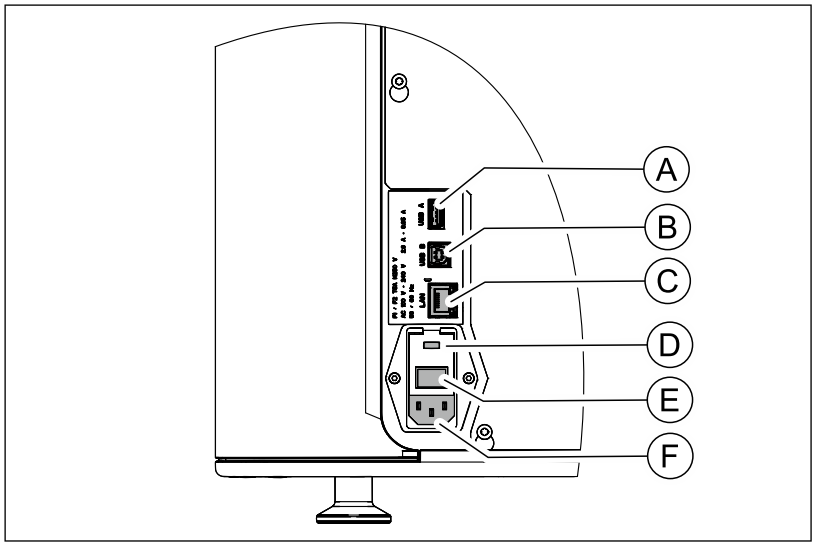
3.4.1 Major components

3.4.1.1 Front view



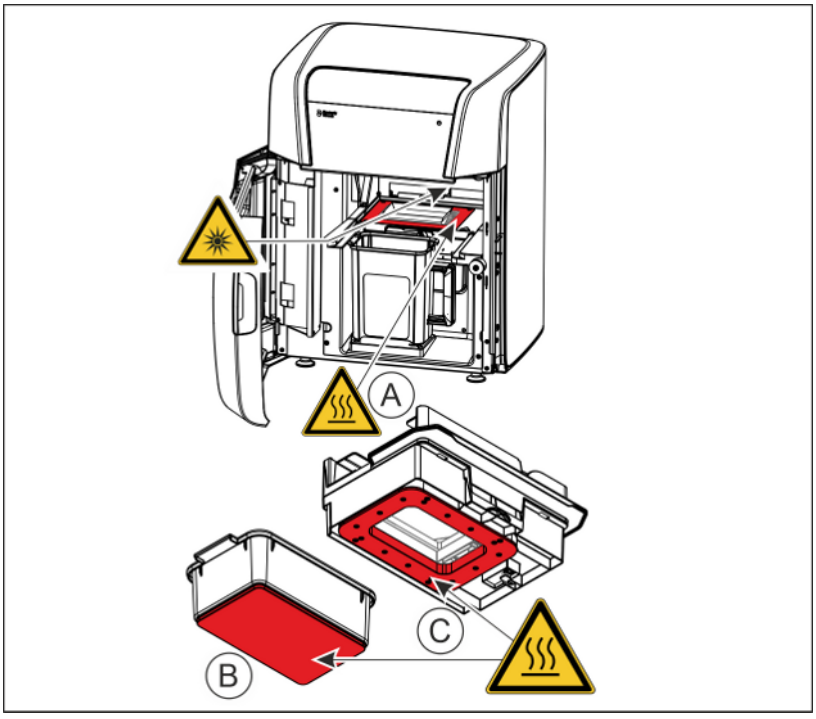
A	Printer door
B	Touch display
C	ON/OFF button

3.4.1.2 Connections



A	USB 1 type A
B	USB 1 Type B
C	LAN – RJ45 / Ethernet / CaT5 or higher
D	Fuse cover
E	Main switch I = ON, 0 = OFF
F	Power connection Connected loads: 100 V AC - 240 V AC, 2.0 A - 0.85 A Fusing: T5A, H250V

3.4.1.3 Build chamber



A	Heater plate
B	Build platform floor
C	Tensioning frame of the material unit

⚠ CAUTION

Risk of burning

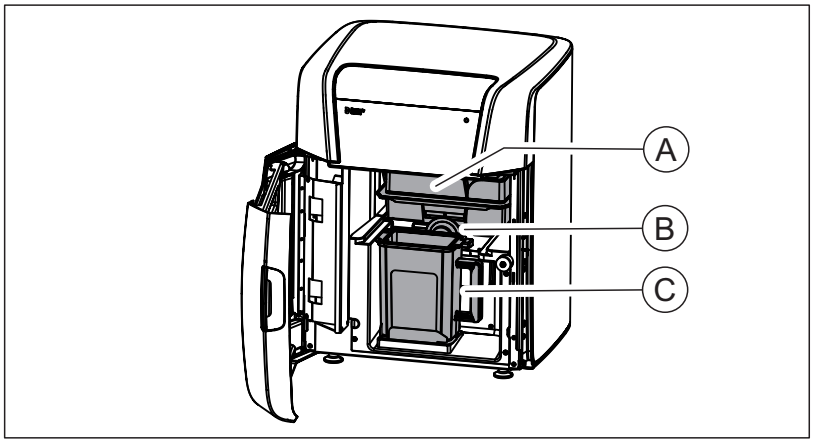
The Primeprint 3D printer uses a heating system integrated into the build chamber. Make sure that you do not touch this when loading and unloading with the material unit or when reaching into the build chamber.

The areas marked in red in the figure become hot.

⚠ WARNING

Potentially hazardous optical radiation

The unit may only be operated with the door closed.



A	Material unit (inserted)
B	Material unit lock
C	Primeprint box (inserted)

IMPORTANT

Printing resin is preconditioned

The respective printing resin is preconditioned (mixed and heated) according to the material. If the resin does not reach the required temperature, heating continues as appropriate. If the temperature is exceeded, automatic shut down results.

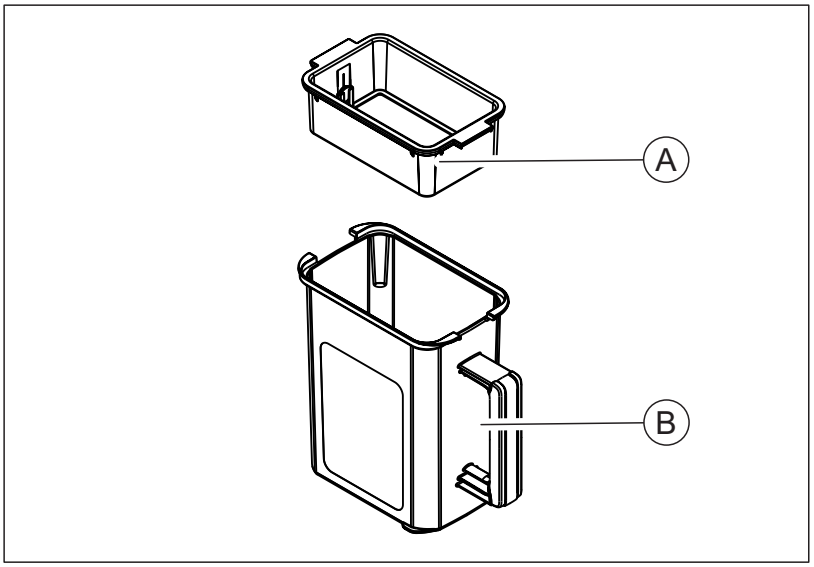
Th ideal processing temperatures for the resin are stored in the system and automatically used when heating.

3.4.1.4 Primeprint box

NOTICE

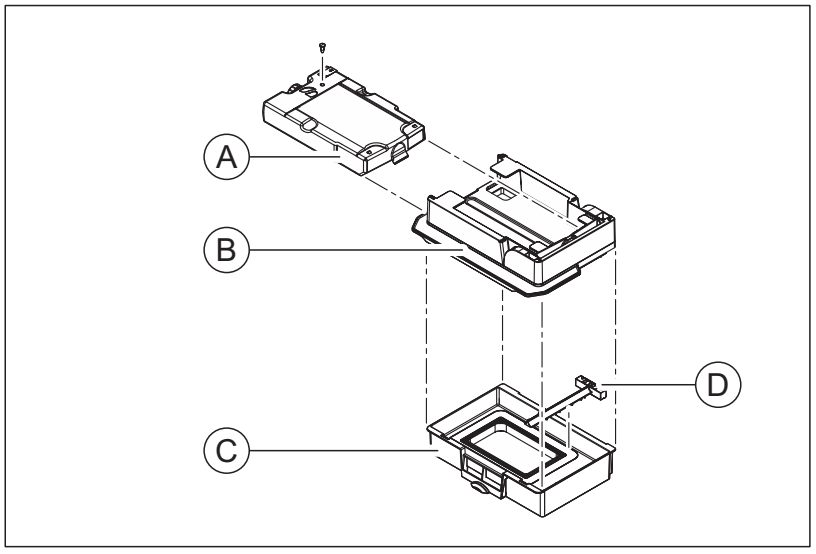
Replace damaged transport containers

Damaged (broken, cracked, etc.) Transport containers must not be used any further and must be replaced by a corresponding spare part (Primeprint box, REF 6744895).



A + B	Primeprint box (REF 6744895)
A	Build platform
B	Transport container

3.4.1.5 Primeprint material unit



A	Material cartridge
B + C	Primeprint material unit without cartridge (REF 6744903)
B	Material unit, cover
C	Material unit, vat
D	Conditioning unit

3.5 Technical data

Type designation	Primeprint
Rated line voltage	100 V AC to 240 V AC
Rated power frequency	50/60 Hz
Nominal current	2.0 A - 0.85 A
Permissible line voltage fluctuations	±10% of nominal voltage
Type of protection against electric shock	Class I unit
Degree of protection against ingress of water	Usual unit (without protection against ingress of water), IP 20
Overvoltage category	II
Ambient conditions	For indoor use Pollution degree 2 Air pressure: 700 hPa – 1060 hPa Operating height: ≤3000 m above sea level
Temperature range	+15 °C to +35 °C (+59 °F - 95 °F)
Humidity range	80% rel. up to 31 °C (88 °F) decreasing to 50% rel. up to 40 °C (104 °F)
Operating mode	Continuous operation
Dimensions W x H x D	
in mm	530 x 670 x 515
in inches	20.86 x 26.37 x 20.27
Weight, approx.	41 kg (90.38 lb)

4 Transportation and installation

4.1 unpacking

All products from Dentsply Sirona are carefully checked prior to shipment. Please perform an incoming inspection immediately after delivery.

1. Check the delivery note to ensure that the consignment is complete.

Tilt and **shock indicators** are attached to the unit packaging.

These indicators are used to detect whether the unit has been transported improperly or had an impact during transport.

- Signal colors of the tilt indicators:
  - Red indicator: Improper transport
- Signal colors of the shock indicators:
  - White indicator: No shock
  - Red indicator: Shock

➢ Check the SHOCKWATCH und TILTWATCH transport indicators on the outside of the package. If one of both of the indicators has been tripped, check the packaging and the unit for visible damage.

NOTICE

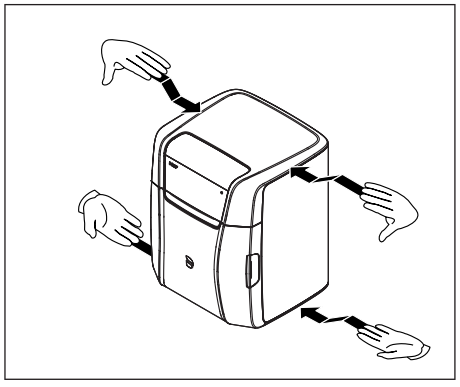
Damage during transport

If the product was damaged during transport, please contact your carrying agent.

If a return is necessary, use the original packaging for the shipment.

If the original packaging is no longer available, you can order a new return packaging (REF 6796721).

Transportation without packaging



⚠ CAUTION

Damage to the unit or risk of injury during transport without packaging

There is a risk of dropping the unit if it is handled only by its plastic housing.

Note the weight of 41 kg! The unit must always be removed from the packaging and installed by two persons.

➢ The unit must always be carried by two persons.

➢ Per person:
Each holds the unit tightly between the unit feet with one hand and balances the top of the unit with the other hand.

4.2 Disposal of packaging materials

The packaging must be disposed of in compliance with the relevant national regulations. Observe the regulations applicable in your country.

4.3 Installation requirements

4.3.1 Requirements on the place of installation

Ensure that the unit is installed on an even, horizontal surface of approx. 530 x 570 mm (W x D). The load carrying capacity should be at least 50 kg.

If you place two or more units side by side, you must also take into account the weight of the other units
(e.g. Unit 1 ≙ 50 kg + Unit 2 ≙ 60 kg = 110 kg total weight).

The height of the unit is approximately 670 mm.

Install the unit so that access to the power plug is guaranteed at all times. Make sure that the ventilation slots on the rear of the unit remain unobstructed.

The distance between the back of the unit and the wall must be at least 5 cm.

Note the weight of 41 kg!

The unit must not be stacked. The unit covers are not designed for high loads.

Do not install the unit at sites with a high level of humidity or dust!

4.3.2 Requirements for the storage of the material units

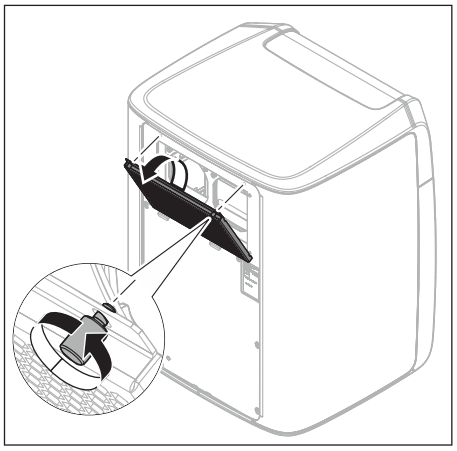
At least one Primeprint material unit and one Primeprint box is required to operate the 3D printer. Please observe the following instructions regarding storage.

For storage, observe the requirements of the material manufacturer.

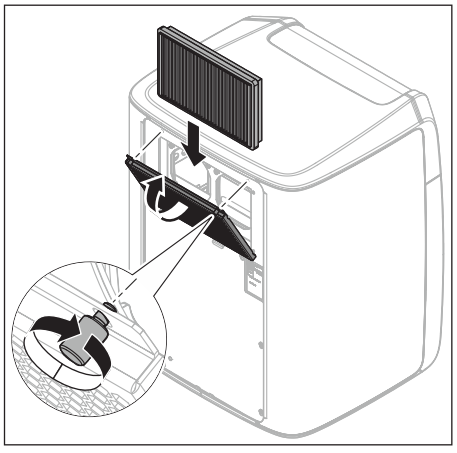
4.4 Inserting the activated carbon filter

⚠ CAUTION

Use of the device is only permitted when the activated carbon filter is inserted.



1. Before putting the unit in its place, insert the supplied activated carbon filter.
2. To open the cover, turn the two latches counterclockwise and fold open the cover.



3. Insert a new activated carbon filter (REF 6747823).
4. Close the cover by shutting it and retightening the two fasteners (knurled screws) in the clockwise direction.

4.5 Connecting the unit to the power supply and existing network

Connecting the unit to the power supply

Only use the power cord supplied in the package for connecting to the mains. The unit must be connected directly to a fixed socket and must not be bridged via an extension cable.

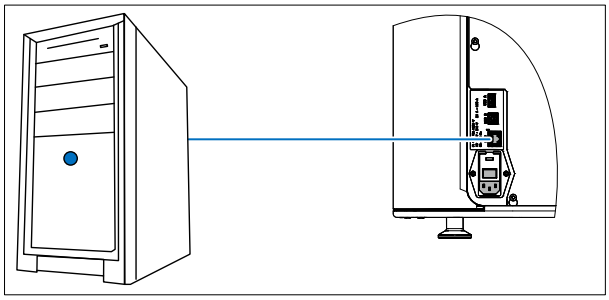
➢ Connect the unit to the power supply.

Connecting the unit to the network

➢ Integrate your unit into your existing network via the LAN "Ethernet" connection. Use the network cable supplied for this and the LAN switch delivered as an option if applicable.

4.6 Connecting to the PC via LAN

An Ethernet port is located on the rear of the unit, which can be used to connect the PC to the unit. Use a network cable to do this (LAN connection).

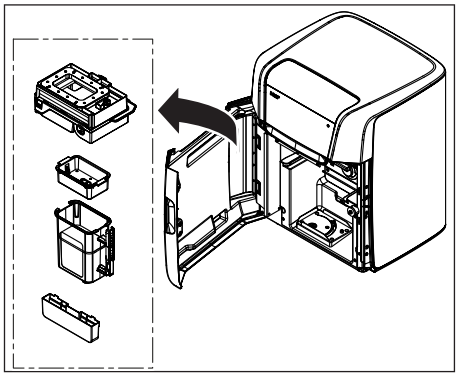


Using a network cable

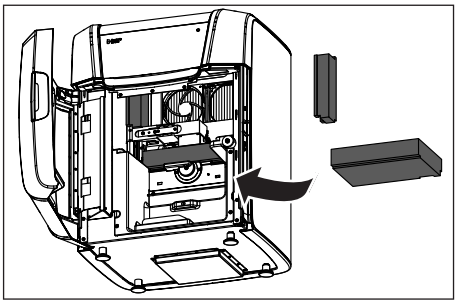
Connect the unit to the network card of your PC or to a free port of the optionally supplied network switch using the provided network cable.

IMPORTANT
If you wish to integrate the unit into an existing network, contact your responsible IT technician and follow instructions for checking the installation.

4.7 Repacking



1. Use the return packaging for repacking (REF 6796721).
2. Remove the material unit, the Primeprint box and the collection container.
3. Move to the transport position via the service software.



NOTICE

Do not close door before switching off

Do not close the door before switching off the unit.

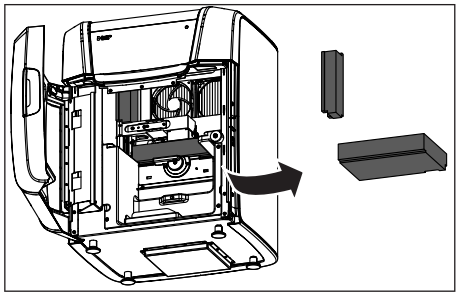
4. Insert the transport locks supplied with the return packaging **and switch off the printer without** closing the door first.
5. Close the door and unplug the power cable and the LAN cable from the rear of the unit.
6. Pack the printer according to the supplied instructions.

4.8 Storage

Store the **unpacked** unit in a closed and dry room at a temperature of -10 °C to 50 °C for a maximum period of 12 months.

Store the **packed** unit in a closed and dry room at a temperature of -25 °C to 60 °C for a maximum period of 12 months.

Prior to initial switch-on



NOTICE

Unit damage possible

Prior to initial switch-on, the two transport locks must be removed, as unit damage may otherwise occur.

➢ Remove the two transport locks.

Switching on the unit

✓ The unit is connected to the power supply.

✓ The two transport locks are removed.

1. The main switch on the left rear of the unit is set to position **I** (ON).
2. Press the ON/OFF button on the front panel.

↳ The unit switches on.

5 Commissioning

5.1 Putting the optionally supplied inLab PC into operation

Observe the following steps in order to put the unit into operation using the inLab PC (optional).

5.1.1 Startup prerequisites

5.1.1.1 Required accessories

Supplied

If you have ordered the inLab PC, it comes with the following accessories:

- inLab PC with power cable
- Keyboard
- Mouse
- Ethernet cable for connecting the unit to the PC.

Also required

- PC monitor and a suitable monitor connection cable, such as a DVI, HDMI or display port cable (not included in scope of supply).

⚠ CAUTION

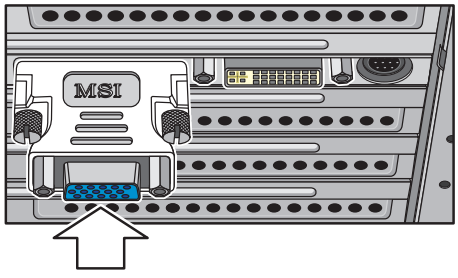
Image may not display

Note the required minimum monitor resolution of 1920 x 1080 at 70 Hz. Refer to the technical documentation of the monitor for the correct resolution and frame rate settings.

Recommendation:

- Dentsply Sirona inLab system PC monitor, Order No.: 60 42 548 D3446

Depending on the connection type of the monitor, the monitor cable converters must be used (not included in scope of supply).



Example of monitor cable converter

5.1.1.2 Making connections

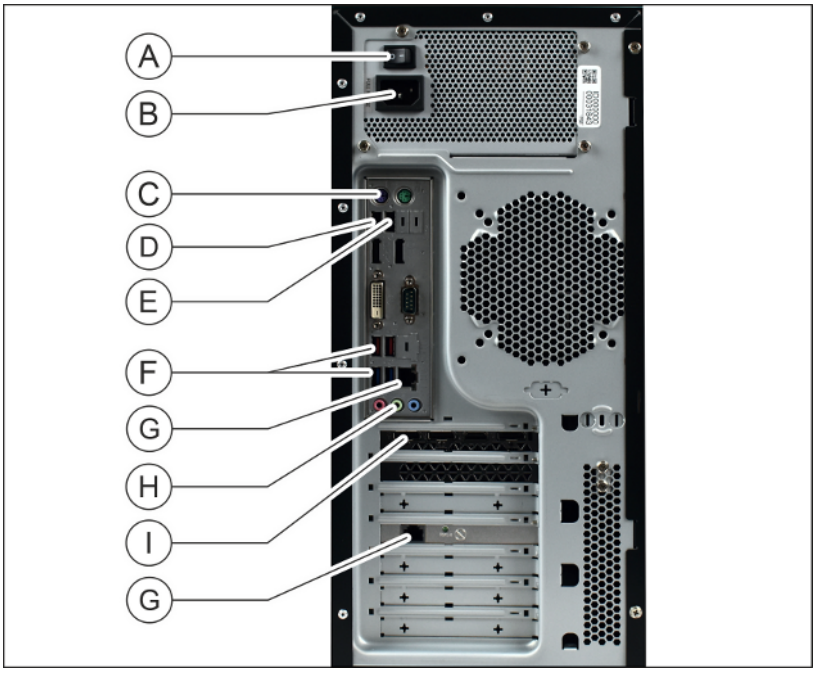
NOTICE

Do not connect and turn on the device yet!

First, connect the PC to the monitor, keyboard, and mouse.

Follow the instructions in this document exactly in order to successfully perform start-up of your device.

You must install the user software prior to connecting the device to the PC.



A	Power switch
B	Line voltage connection
C	Keyboard/mouse Alternatively: Connection via USB
D	USB license stick
E	USB port
F	USB ports
G	Ethernet connection
H	Optional: Audio output
I	Monitor

1. Connect the keyboard and the mouse to the PC.
2. Connect the monitor to the PC using the DVI/HDMI/Display Port cable.
3. Connect the Ethernet port on your device to the Ethernet port on your PC.
4. Supply the monitor and PC with line voltage.
5. Turn on the power switch on the rear panel of the PC (if present).

5.1.2 Safety

The inLab-PC is equipped with Windows 10. The Windows Firewall is activated. The software Microsoft Security Essentials is also pre-installed by default. Please activate the automatic update function in the settings of this software for optimal protection.

⚠ CAUTION

Damage to the system and data loss:

If you exchange files and programs with other PC systems and/or operate this PC in a network (LAN or Internet), damage may be caused by software viruses.

- ➢ Activate the "Automatic Updates" function of Microsoft Security Essentials.
- ➢ Activate the "Automatic Updates“ function of Windows 10.
- ➢ Run backups of all your important files at regular intervals.

5.2 Installing the software

NOTICE

Initial installation without device

Perform the initial installation of the software **without** the connected device.

The software requires the firmware 2.00 or higher of the license stick. Update the firmware version if necessary. For additional information, refer to the "License manager" section in the inLab CAM user manual.

The software requires at least an inLab PC 5.0.1 or higher.

Use the version of the license manager provided with this version to install licenses from the license certificate provided.

Preparing the installation

NOTICE

inLab CAM SW requires the "CAM Service" database to function properly. CAM Service can be installed locally, e.g. on an inLab PC, or on a PC in a network, e.g. on a server PC. CAM Service may be installed on only one PC in the network.

✓ The USB license stick firmware is available in at least version 2.00.

✓ The PC is powered up and all programs are closed.

1. Download the inLab CAM SW 22.1.0 or higher software from the Internet (www.dentsplysirona.com).
2. Unpack the downloaded file and run the *"Setup.exe"* file.
   ↳ This installation program starts.

Installing the application

CAM Service requires at least 500 MB of available hard disk space.

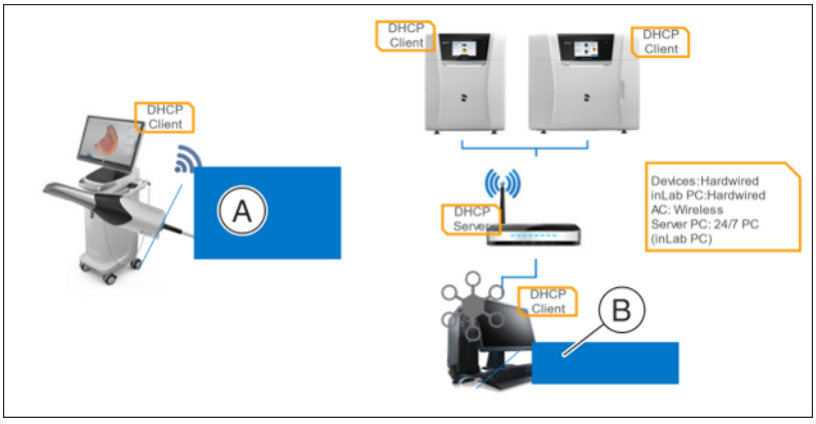
When the inLab CAM SW software is started for the first time, the data inventory (*.cam and *.blc) is converted. This conversion cannot be undone afterwards. If necessary, create a new directory for future data and reference it.

1. Start the installation of the inLabCamWizard on the PC on which the CAM service is desired. If this is the server or a PC other than the inLab PC, abort after installing the CAM Service and continue on the inLab PC. **NOTICE!** In this case, the inLab PC and the server must be networked before installation so that the CAM Service can be found in the network.
   If the CAM Service is to run together with the inLab CAM SW on the inLab PC, the installation can be performed there in one go.
   ↳ During the installation you are prompted to specify the memory location where CAM Service is to store the database. The selection of a UNC path for assigning a network storage is possible. In this case, an uninterruptible connection to the storage location must be ensured.
2. Once CAM Service has been installed or found, the installation of the inLab CAM SW can be continued.
3. Select the language for the following installation and then press the *"Next"* button.

4. Read the information on copyright carefully and then press the *"Next"* button.
5. In the next step, select the language and application region for the application and then press the *"Next"* button.
6. In the next step you are prompted to specify the memory location where the software is to read tool data (CommonData) and restoration and workpiece data (CAMData).
   Then press the *"Next"* button. The path to the storage location can still be changed after the installation via the configuration menu.
   ↳ The application is now installed. This may take several minutes.
7. Following successful installation, press the *"Start"* button to complete the installation and to start the application immediately after this. At this point, you have the option to subscribe to a Dentsply Sirona newsletter.
   Tip: If you do not want to start the application immediately, remove the tick from the *"Start application directly"* check box and then press the *"Exit"* button.
   ↳ The installation program closes.

5.3 Connecting to the PC via WLAN (option)

Making the connection



Connect access point / DHCP server

A	Acquisition unit, do **not** install CAM service!	B	inLab PC, constant connection to the Internet.

NOTICE

Stability not guaranteed

If CAM service is installed on the acquisition unit, stability is not guaranteed.

➢ Do **not** install CAM service on the acquisition unit.

➢ Install CAM Service on the inLab PC, which must have a permanent connection to the Internet.

➢ Connect the devices as shown.

Positioning the access point

1. As a test, place the access point near the production unit at head level or higher.
2. Perform a communication test.
3. After you have found the optimum setting, take the acquisition unit and place it in the position in which it will be operated that is farthest away from the access point.
4. From this position, repeat the communication test you conducted earlier. If the results are satisfactory, leave the access point permanently in this position.
5. If the connection quality is not adequate, WLAN communication cannot be easily achieved under the local conditions. In this case, ask your network administrator for assistance.

NOTICE

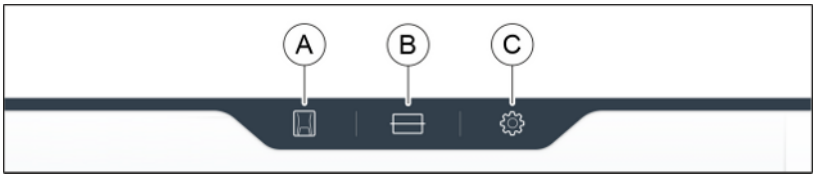
LAN connection

Operation via a LAN cable connection is possible at any time.

5.4 Putting the unit into operation

5.4.1 Functional elements

5.4.1.1 Touch display



A	Unit status
B	Material unit management
C	Configuration

This document describes how to operate the unit by executing and confirming commands via the touch display. All inputs that are required on the unit can be made here.

5.4.1.2 Color status of the light strip

The LED light strip can display various statuses of the unit.

LED light strip	Operating status
White	Unit ready for operation. Door closed.
Yellow, Continuous illumination	Unit ready for operation. Door open.
Green, Slowly flashing	Unit ready for operation. All elements available for print job.
Blue, x% progress, Rest is white	Processing is in progress.
Green, 100% lit	Processing concluded in a controlled manner.
Yellow Flashing at x%	Process interrupted with Stop.
Red, Flashing at x%	Process interrupted because of error.
Yellow, Rapidly flashing	Unit is switching off.
Red, Continuous illumination	Internal error. Restart required.
Color of your choice, except blue, red, green, yellow, white Pulsating	Unit in Idle mode.

5.4.2 Note on tracked elements

All RFID-tracked elements: Primeprint box, material unit, material cartridge and wash tank can only be registered within a system, i.e. within a CAM service. The number of units in the system does not matter. For example, loaning a unit of material to another laboratory / practice will not work after it has already been registered elsewhere.

5.4.3 Inserting the collection container

➢ Insert the supplied collection container (REF 6757434). Position the container in the slots provided and gently press it down.

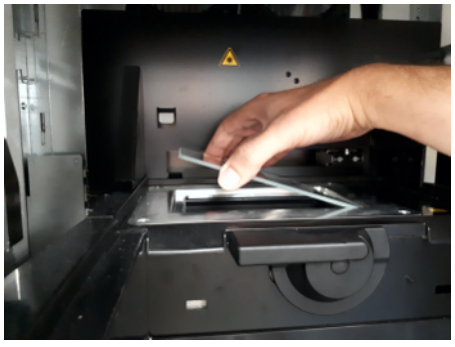
↳ The collection container is used to collect resin in the event of a leak in the vat.

5.4.4 Inserting the heater plate window

✓ The heater plate window (REF 6710126) is supplied as an accessory.

1. Before inserting it, remove the covering foil (A) from the heater plate (B), starting at the front corner.

2. Remove the window carefully from its packaging. Hold it at the edges only.
3. If dirt (fingerprints, deposits, dust) is visible on the window, clean it with the supplied cleaner (REF 6782481) and the supplied cleaning cloth (REF 6802917).



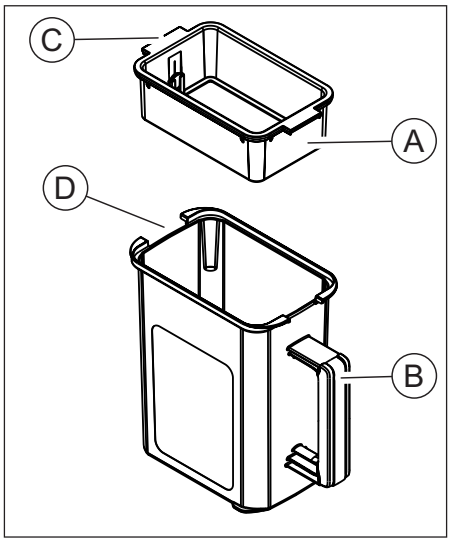
4. Insert the window into the corresponding cutout of the heater plate.

5.4.5 Preparing the Primeprint box

IMPORTANT

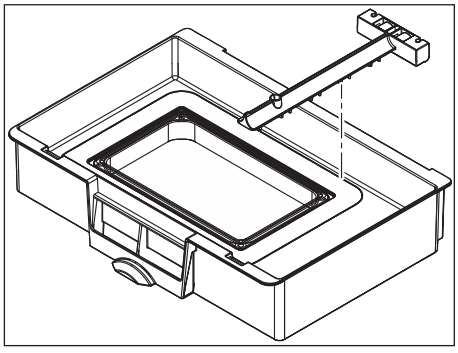
Cleaned platform

Before using a build platform for a printed object, make sure that it is empty and clean.

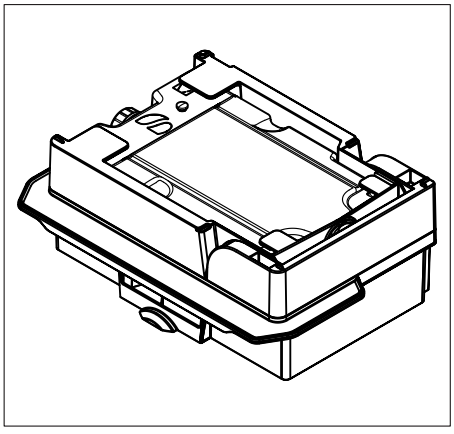


1. Use an empty build platform (A).
2. Make sure that the build platform is free of adhesive and grease.
3. Use an empty transport container (B).
4. Place the build platform into the transport container in such a way that the bars (C) on the build platform fit between the recesses (D) in the transport container.

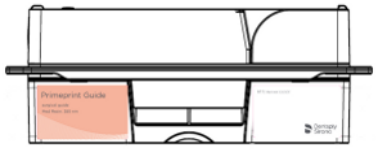
5.4.6 Preparing the Primeprint material unit and cartridge



1. Pay attention to the orientation of the conditioning unit in the material unit vat. The bars must point toward the bottom and the rollers must point toward the rear.



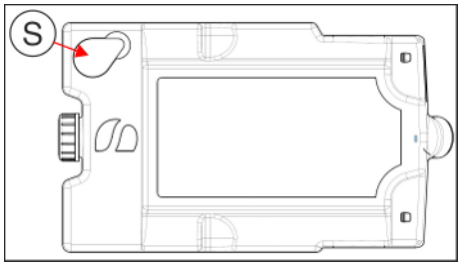
2. Use an empty material vat.
3. Take a new cartridge of the material you want to use for the printing process.



4. For visualization, you can apply the color-coded sticker included with the cartridge to the left vat side of the material unit. This is done to make it easier to relocate materials in the material cabinet.
5. Shake the cartridge for about 10 seconds so that the contents are well mixed.

6. The valve must be pressed in once to relieve the outlet valve for the first time. To do this, stand the cartridge upright and briefly press the valve in.

↳ The valve tappet should then move back to its original position.



NOTICE

Resin can leak

Once the seal label has been opened, the ventilation opening is exposed. The cartridge must be stored with its ventilation opening facing upward, as resin can otherwise leak.

➢ Only store cartridge with its ventilation opening facing upward.

➢ Avoid applying pressure to the cartridge.

7. Remove the seal label (S) from the cartridge.
8. Insert the cartridge into the material unit.
   - With an RFID tag on the cartridge and Primeprint material unit, the unit automatically pairs these two components.
   - The name of the vat assigned ex works can be found on the white sticker on the right side of the material unit vat. The name corresponds to the numerical value assigned to the RFID code.
9. The name can also be customized in the software.

IMPORTANT

Use material units, vats and wash tanks only in a CAM service environment

The material units, vats and wash tanks registered in a system can only be used in this system (in a CAM service environment).

Storage of Dentsply Sirona Primeprint material cartridges

Exposure of photopolymer plastics to any type of solar radiation or light should be strictly avoided.

Resin-filled cartridges should always be stored between 15 °C and 28 °C, irrespective of whether their seal has been broken.

The ideal temperature of the printing resins for automatic filling of the vat is about 22°C. If the temperature is significantly lower than 22°C, the printing resin becomes more viscous and therefore takes longer to flow out of the cartridge. This delays the start of the printing process. In the vat, the printing resin is then automatically heated to the ideal temperature (usually about 30°C, depending on the resin).

5.4.7 Switching the unit ON and OFF

NOTICE

Do not put the unit into operation at low temperatures!

If you move the unit to the operating site from a cold environment, condensation may form and result in a short circuit.

The unit contains grease depots for lubricating components that may cause error messages at low temperatures.

✓ Install the unit at room temperature.

➢ Wait until the unit has reached room temperature and is absolutely dry (for at least one hour).

↳ The unit is dry and can be put into operation.

NOTICE

The glass pane may steam up

If there are significant differences in temperature (transport/ installation site), the glass in the unit may steam up.

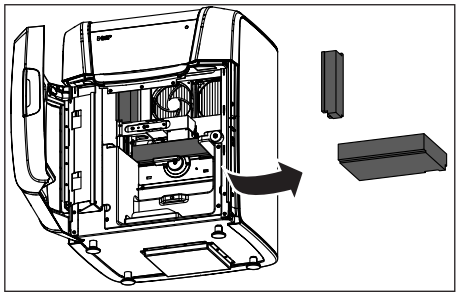
➢ Before starting up the unit, check that the unit is dry.

NOTICE

Do not adjust the line voltage

The unit automatically adjusts to the line voltage.

Prior to initial switch-on



NOTICE

Unit damage possible

Prior to initial switch-on, the two transport locks must be removed, as unit damage may otherwise occur.

➢ Remove the two transport locks.

Switching on the unit

✓ The unit is connected to the power supply.

✓ The two transport locks are removed.

1. The main switch on the left rear of the unit is set to position **I** (ON).
2. Press the ON/OFF button on the front panel.

↳ The unit switches on.

Switching off the unit

✓ The unit has finished the print job.

➢ Briefly press the ON/OFF button on the front panel.

↳ When you let go of the button, the unit switches off.

5.4.8 Installing and configuring the unit

5.4.8.1 Installing the unit

You must connect the unit to the PC before putting it into operation. This is described in the section "Connecting the PC/interfaces".

IMPORTANT

The Primeprint unit can be operated with both a static as well as an automatically assigned IP address.

The Primeprint unit is always configured for operation ex works with a static IP address. The standard IP address is as follows: 192.168.230.xy. The digits x and y are made up from the last two digits of the unit serial number. These can be found on the label on the rear of the device If the serial number ends in "00" then the xy value is always"100".

The MAC address of the network card can be found in the configuration menu of the unit.

To change the IP configuration always establish a direct connection with static IP address to your PC's network card. The network address for the inLab 6 PC used is 192.168.230.101. The subnet mask is 255.255.255.0.

5.4.8.1.1 Automatic unit search

✓ The unit is connected to the PC using a direct connection via Ethernet cable.

✓ The unit is switched on.

1. Start the *"inLab CAM"* software.
2. Click the *"Machine and Instrument tray Management"* button in the system menu.

3. Click on the *"Scan for New Devices"* button.
   ↳ All units connected to the PC are recognized.
4. Enter a name for the new unit.

5.4.8.1.2 Manual unit search

✓ The unit is connected to the PC using a direct connection via Ethernet cable.

✓ The unit is switched on.

1. Start the *"inLab CAM"* software.
2. Click the *"Machine and Instrument tray Management"* button in the system menu.

3. Click on the *"Add Device (Manual)"* button.
4. Select *"Network"*.
5. Enter the network address.
6. Click on the *"Ok"* button.
   ↳ The software attempts to contact the device.

If the connection fails, check the connection. If necessary, ask a qualified technician.

5.4.8.1.3 Updating devices

With the *"Refresh Devices"* button you can:

- display the status; e.g. check whether a unit has finished producing in the meantime, or
- check the current availability of a unit.

5.4.8.1.4 Remove the unit

If you no longer require a unit (e.g. a unit is replaced), you can remove it.

✓ The unit is not in operation.

1. Click the *"Machine and Instrument tray Management"* button in the system menu.
2. Click on the unit that you wish to uninstall.

3. Click on the *"Delete Device"* button.
   ↳ You will be asked if you would like to remove the unit.
4. Click on the *"YES"* button.

↳ The device is removed.

5.4.8.2 Configuring the device

In the *"Machine and Instrument tray Management"* software *"inLab CAM"* area you can make subsequent amendments to the various settings for your unit.

1. Click the *"Configuration"* button in the system menu.
2. Click on the *"Machine and Instrument tray Management"* button.
3. Click on the unit that you wish to configure.

5.4.8.2.1 Primeprint – Editing device settings

Using the touch display, you can change or view the following settings subsequently via menu item *"Settings"*:

- Language setting
- Sound and light settings
- IP settings
  - Automatic IP setting
  - Manual IP settings
  - Display of the MAC address
- Configuring DS hub connections
- Firmware download

5.4.8.2.1.1 Device settings

Manual IP settings

The IP address can be changed in order to integrate the unit into existing networks. To do this, proceed as follows:

1. Establish a direct connection to the inLab 6 PC (see Installing the unit [→ 53]).
2. If you want to change the static IP address, click *"Edit Device Settings"*.
3. Enter the network settings in accordance with your local network configuration.
4. Confirm the new network settings with *"Ok"* or press *"Cancel"* in order not to save the changed settings.
5. Disconnect the Ethernet connection to the PC and connect the unit to the network socket of your local network (see Connecting the PC/ interfaces).

Auto IP settings

There is an option to integrate the unit into an existing network with DHCP server in such a way that the IP address is received automatically from the DHCP server. To do this, proceed as follows:

1. Establish a direct connection to the inLab 6 PC (see Installing the unit [→ 53]).
2. If you want to change the IP address to automatic addressing, click *"Edit Device Settings"*.
3. Now click *"Auto IP settings"*.

IMPORTANT
Ensure that the network in which you are integrating the unit has an active DCHP server for the allocation of IP addresses.

4. Confirm the new network settings with *"Ok"* or press *"Cancel"* in order not to save the changed settings.
5. If you have changed the setting to *"Automatic"*, you must now disconnect the Ethernet connection to the PC and connect the unit to the network socket in your local network.
6. If you wish to change the settings back again, then change over to *"Manual IP settings"*.

IMPORTANT

If the unit is in *"Auto IP settings"* mode and does not detect any active DHCP server, the IP address is automatically reset to 192.168.230.1. With the help of a direct connection to a PC, the unit can be added and managed again using the *"Add Device (Manual)"* function.

Firmware download

Each CAD/CAM unit of the Dentsply Sirona requires a firmware version that is compatible with the respective version of the inLab CAM software.

You start the download of the appropriate firmware for your unit with this button.

IMPORTANT

If a unit does not have the correct firmware version, this is in fact detected by the software, yet it cannot be used for production. It is indicated as "invalid firmware" both in the device management and in the production phase.

6 Operation

6.1 Referencing run

NOTICE

Observe the Operator's Manual

Please also observe the information in the Operator's Manual for inLab CAM SW software.

The referencing run is used for the function check of the sensors and the position check of movable parts in the build chamber. The referencing run takes place automatically via the firmware. A complete referencing run always takes place following switch-on of the unit immediately before starting the first print job. A shortened referencing run takes place before every new print job.

6.2 Production process

3D printing is done on the build platform, which is placed in the 3D printer with the Primeprint material unit.

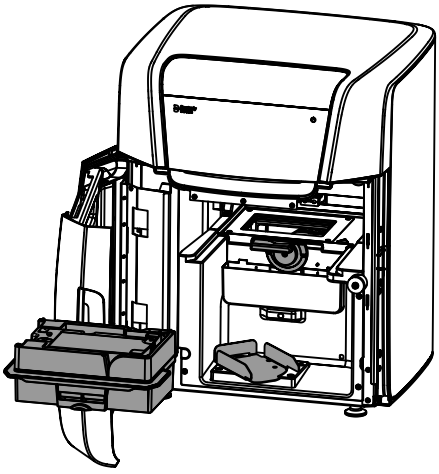
6.2.1 Equipping the Primeprint material unit

The Primeprint material unit consists of the lower material unit (vat) and the upper material unit (cover).

The desired cartridge is inserted into the Primeprint material unit. The cartridge is supplied with a sticker material unit which is applied to the left side of the vat material unit. This means that the vat can be visually mapped and that the operation can be significantly simplified later.

The cartridge must be preconditioned before inserting the cartridge into the material unit. Shake the cartridge for about 10 seconds so that the contents are well mixed. The seal label of the cartridge must then be peeled off in order to vent it (for a more detailed description, see chapter "Preparing the Primeprint material unit and cartridge [→ 50]").

6.2.2 Loading with material unit



⚠ CAUTION

Risk of injury when reaching into the build chamber

There is the risk of cut and crush injuries caused by sharp edges and movable parts.

➢ Be sure not to touch the sharp edges and movable parts.

During each change, ensure clean contact surfaces of all parts; otherwise, the fixation and the correct positioning cannot be guaranteed. Depending on your choice of materials, also follow the processing instructions of the manufacturer.

NOTICE

Make sure that you only process material whose expiration date has not passed.

NOTICE

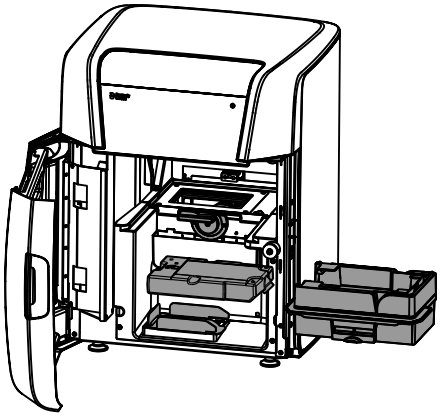
Store material properly

Store the material unit only with a cartridge inserted. Do not expose the material unit to sunlight and take basic steps to prevent UV light incidence on the material unit filled with resin.

To load the 3D printer with the Primeprint material unit, follow these steps:

✓ The print job is shown on the touch display and you are prompted to insert the appropriate material unit.

1. Follow the instructions of the 3D printer on the display.



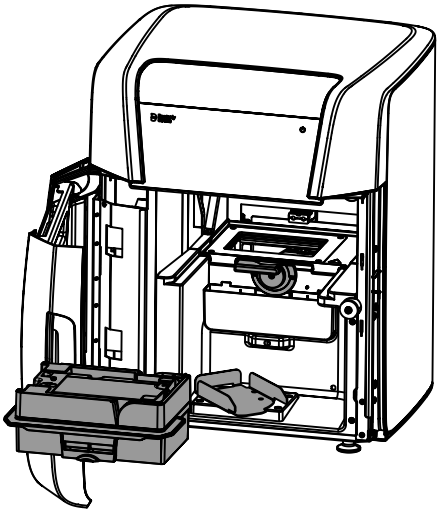
2. Open the door of the unit.
3. Optional: Unlock the material unit lock by turning it counterclockwise.

⚠ CAUTION

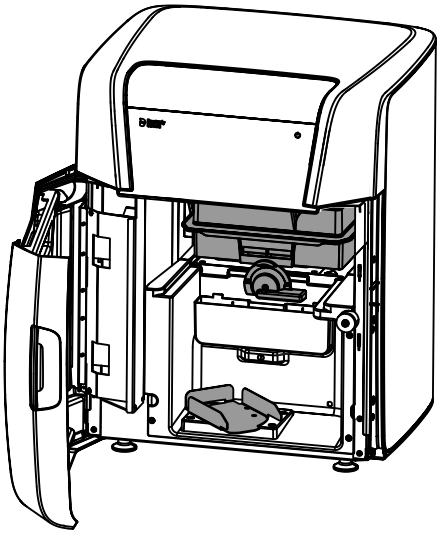
Correct handling of the material unit

Always handle the material unit by grasping the edge sticking out from the side with both hands.
Be sure to hold the material unit horizontal at all times to prevent the resin from leaking.

4. Optional: Remove the currently used material unit.
5. Insert a correct material unit. Make sure that the material unit is correctly guided in the guide rails provided.



6. The 3D printer recognizes and checks the Primeprint material unit used.
7. Optional: The touch display prompts you to configure and insert a suitable material unit.



8. Lock the material unit lock.
9. Follow the instructions for loading the Primeprint box (see "Loading with Primeprint box [→ 60]").

6.2.3 Loading with Primeprint box

⚠ CAUTION

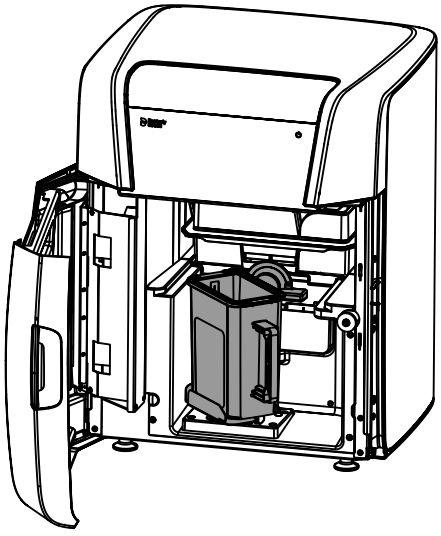
Risk of injury when reaching into the build chamber

There is the risk of cut and crush injuries caused by sharp edges and movable parts.

➢ Be sure not to touch the sharp edges and movable parts.

During each change, ensure clean contact surfaces of all parts; otherwise, the fixation and the correct positioning cannot be guaranteed. Depending on your choice of materials, also follow the processing instructions of the manufacturer.

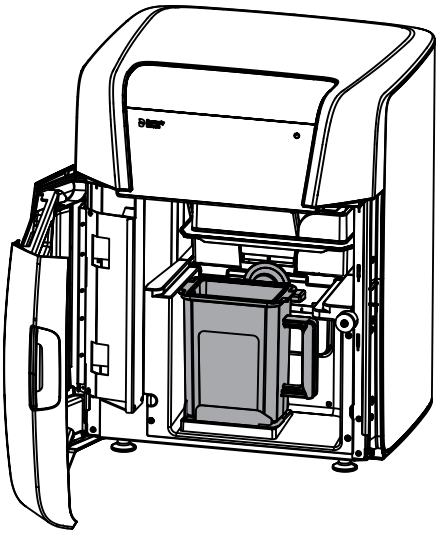
To load the 3D printer with the Primeprint box, follow these steps:



✓ The print job is shown on the touch display and you are prompted to insert a prepared Primeprint box.

✓ For preparation and cleaning of the build platform, observe section "Cleaning the build platform [→ 68]".

1. Follow the instructions of the 3D printer on the display.
2. Rotate the holder for the Primeprint box by approx. 45° out of the printer.
3. Place the prepared Primeprint box in the guide rails of the holder.
4. Push the Primeprint box into the holder until the unit clicks noticeably into place.



5. Rotate the Primeprint box back into the starting position.
6. The 3D printer recognizes and checks the inserted unit and, if necessary, the touch display prompts you to insert a correct build platform into the unit.
7. To start the 3D printer, close the door and follow the instructions on the touch display.

6.2.4 Process start

➢ Follow the instructions that appear on the touch display.

6.2.5 After successful completion of process

➢ After the successful printing process, visually inspect the printed result for completeness.
Errors can be identified based on section 8 "Errors" [→ 86].

6.3 Display mirroring

The content of the unit display can also be displayed on the monitor of a connected computer.

As a precondition for this, the connected computer must be in the same network as the Primeprint unit.

1. Open the installed Internet browser on the connected computer.
2. Enter the IP address of your Primeprint unit and the characters `:50928` and confirm the entry (example: for Primeprint with IP address 10.90.138.55, the entry would look like this: `http://10.90.138.55:50928/`).
3. The content of the device display is now displayed.

Tip: The operating elements can be operated via the connected computer's mouse, touchpad or touch display.

Tip: To find the IP address of your Primeprint unit, go to Network settings under Settings.

7 Maintenance and cleaning

NOTICE

Observe country-specific Regulations!

Some countries have legal regulations which require regular safety inspections of electrical devices or systems by the operator.

NOTICE

Perform maintenance regularly!

Observe the regular maintenance intervals (see "Maintenance intervals [→ 63]").

NOTICE

Observe error messages

You must observe error messages shown on the display on in the software. If the error message does not disappear even after you have performed the prompted action, contact your service engineer.

⚠ CAUTION

Observe the requirements regarding the environment and cleaning aids

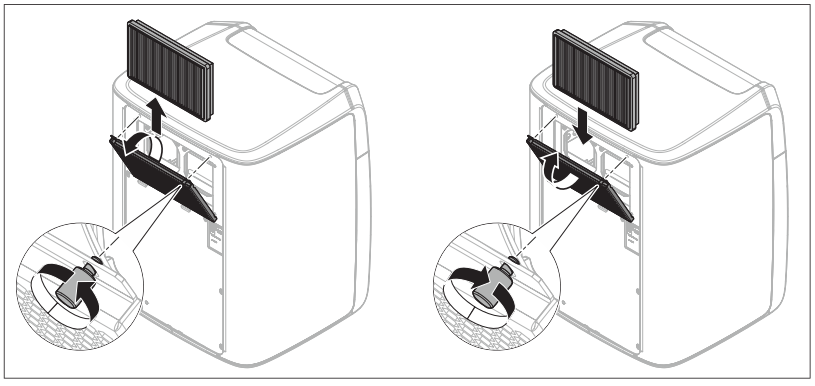
When cleaning and disposing of operating materials, make sure that this always takes place in a well-ventilated room and that protective goggles and gloves are worn.

⚠ CAUTION

Replace the activated carbon filter at regular intervals

The activated carbon filter must be replaced regularly.

➢ Replace the activated carbon filter when prompted to do so on the unit's display. Instructions for replacement are included in the packaging of the new filter.



7.1 Care and cleaning agents

Clean dirt from the cover parts with commercially available mild cleaning agents or soap solution.

Promptly remove resin residues on the inside and outside with isopropanol.

Clean the cover glass pane of the projector with the supplied lens cleaner (REF 6782481) and microfiber cloth (REF 6802917).

7.2 Maintenance intervals

Interval	Scope of maintenance
Daily	Check the processing area, in particular the support of the material unit, for contamination and clean if necessary.
Weekly	Check the heater plate window (glass pane above the projector) for contaminants and clean if necessary.
Monthly	Remove the heater plate window and clean it, replace the transport container insert every 2 months.
Annually	Have service engineer perform system maintenance.

Further maintenance/replacements may be necessary over time and are indicated on the unit's display. This information should always be observed. For example, replacement of:

- Activated carbon filter

7.2.1 Unit and process control with test body

The unit can be tested after setup or in case of malfunction. The test body is a cross. If successfully printed, the legs of the cross should measure 6 cm. The data set is available from Product Service.

7.3 Cleaning surfaces

NOTICE

Do not allow liquids to run into the ventilation slots!

7.3.1 Protection against medicaments

Due to their high concentrations and the substances they contain, many medicaments can dissolve, etch, bleach or discolor surfaces. Therefore, any substance that comes into contact with the unit should be immediately removed.

NOTICE

Damage to the surface

Clean the surface immediately with a moist cloth and a cleaning agent.

7.3.2 Removing dirt

Remove dirt and disinfectant residues regularly using mild, commercially available cleaning agents or soap solution.

7.4 Cleaning the inside of the unit

7.4.1 Cleaning the heater plate window

NOTICE

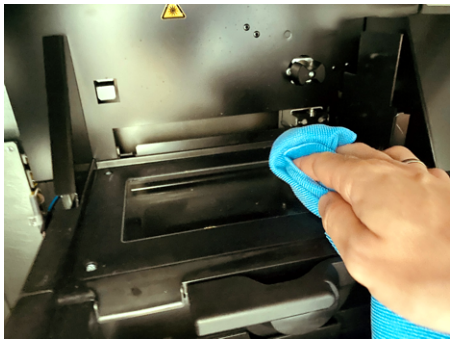
Avoid reduced image sharpness or misprints

Changes to or contamination of the window above the projector can impair the sharpness of the image or lead to misprints due to misdirected light.

➢ Clean the window regularly as needed with the supplied Purosol lens cleaner (REF 6782481) and microfiber cloth (REF 6802917).

7.4.1.1 Cleaning the top of the window

1. If there is resin residue on the window, clean it with a paper towel and isopropyl alcohol. Then wet the supplied microfiber cloth with the supplied lens cleaner and wipe over the glass pane. Then check the cleanliness of the glass pane in the installed state.



2. Wipe the window clean with the microfiber cloth.

7.4.1.2 Cleaning the whole window

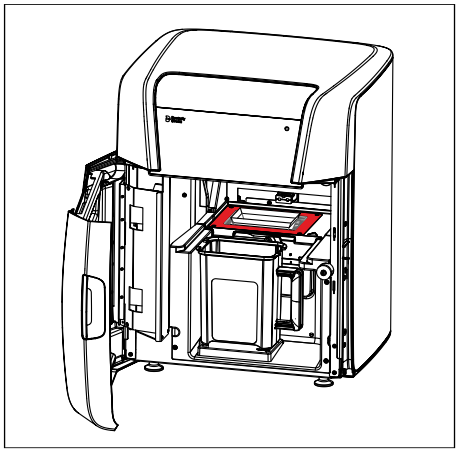
1. To clean the whole window, remove it from the heater plate. Use one of the supplied suction cups (REF 6810506) for this purpose.

2. Place the suction cup on one corner of the window and lift the window.

3. Now grasp the window by the edges with the other hand and remove it from the unit.
4. To clean, spray the top and bottom of the window with the cleaner provided. Wipe both sides clean with the microfiber cloth.

5. When inserting the window, make sure to touch the window only at the edges to avoid contamination. Carefully insert the window into the heater plate.

7.4.2 Cleaning the heater plate



NOTICE

Do not obstruct heat transfer

When cleaning, make sure that the surrounding heater frame of the pane is always clean so that heat transfer is not obstructed.

If resin gets in the groove under the window, wipe it away with isopropanol and a cloth or the enclosed cotton swab.

7.4.3 Cleaning the light engine lens

Visible soiling (particles, coating, fingerprints) on the light engine lens should be removed.

1. Spray some lens cleaner on the tip of an enclosed cotton swab.

2. Wipe the lens carefully with the cotton swab to remove the dirt.

7.4.4 Cleaning the collection container

The collection container serves to collect leaking resin, which can occur in the event of a film tear.

The collection container is designed so that the entire contents of the vat fit into the container. As a rule, the vat cannot empty completely, but it is still possible for resin to end up in the container. In this case, stop using the resin!

➢ Remove the collection container and clean it with a paper towel and then with a little isopropanol.

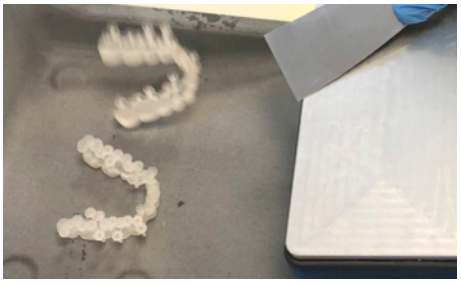
7.5 Cleaning the build platform

⚠ CAUTION

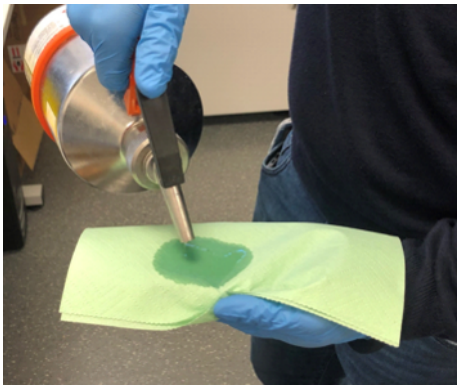
Risk of injury when reaching into the build chamber

There is the risk of cut and crush injuries caused by sharp edges and movable parts.

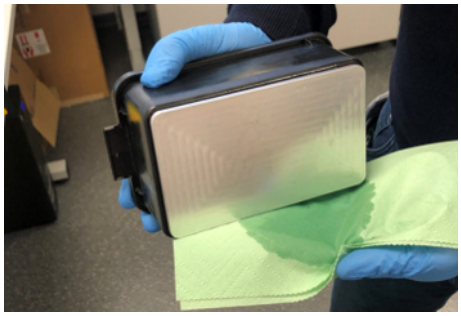
➢ Be sure not to touch the sharp edges and movable parts.



1. Remove all residues from the build platform using the spatula.



2. In addition, clean the build platform with a paper towel moistened with a little isopropanol.



3. First pull the paper towel over the edge and then, if necessary, over the entire surface of the build platform until there is no residual resin left.

NOTICE

Film can become irreversibly damaged

In rare cases, buildups can occur on the film on the bottom of the vat.

➢ Remove them very carefully with the supplied plastic playing card (wipe cards: REF 6753631).

➢ Never use a spatula or other tools, as you could irreversibly damage the film.

IMPORTANT

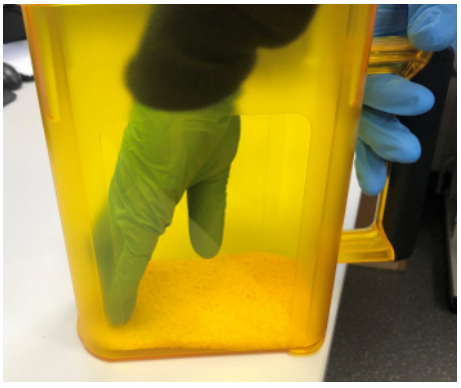
Never use damaged build platforms

Do not use damaged build platforms. Smaller scratches are not critical.

7.6 Replacing the sponge insert of the transport container

There is a sponge insert in the bottom of the transport container, which should be replaced approx. every 2 months if the transport container is used regularly.

1. **CAUTION! Avoid eye contact.** Always wear gloves when removing the sponge insert, as the sponge is soaked with uncured printing resin.
2. **CAUTION! Keep out of reach of children.** For curing purposes, it is best to place the sponge on a non-absorbent surface in fresh air in the sun. When the resin has cured in the sponge, the sponge can usually be disposed of as normal waste.
3. Clean the transport container by placing some isopropanol on a paper towel and wiping the bottom of the container until no more resin residues are visible.



4. Place a new sponge in the transport container. Replacement sponges are included with the Primeprint (transport container insert REF 6754241).

7.7 Resetting the vat for use of another material

⚠ CAUTION

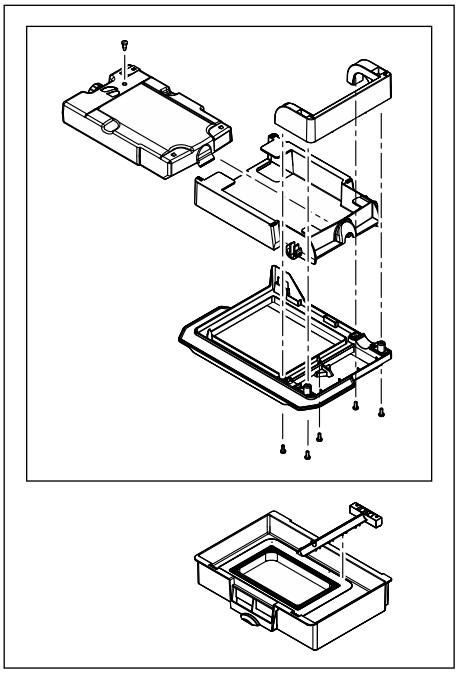
Handling isopropanol 99%

Follow the instructions for using isopropanol set forth by the manufacturer's instructions for use. Wear gloves and protective goggles and only work in well-ventilated rooms.

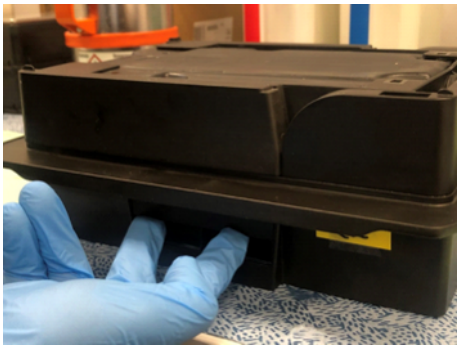
Isopropanol 99%, disposable gloves, absorbent paper towels and a mouthguard is required to clean the vat.

We recommend that you also cover the work surface with absorbent fleece before cleaning.

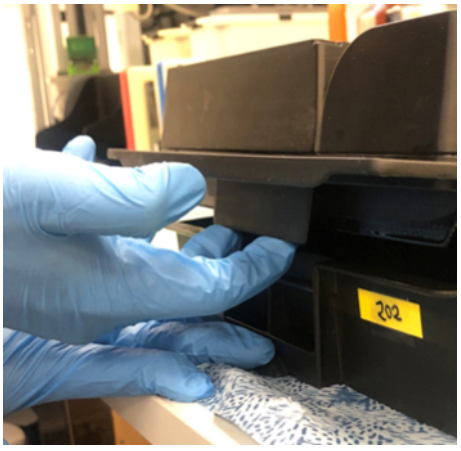
7.7.1 Removing the cover of the material unit



In order to clean the vat, replace the film insert or remove the conditioning unit, the cover of the material unit must be removed so that you have free access to the vat. Always wear gloves during all steps of the vat cleaning process to protect yourself and to keep the film grease-free.



1. To remove the lid, pull the lever forward with your index and middle fingers.



2. With the other hand, fix the vat so that you can fold the cover up and away.

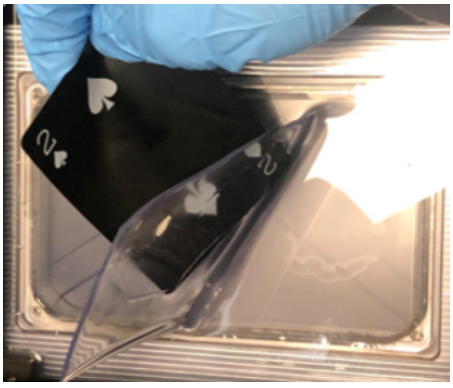
3. Use both hands to lift up the cover of the material unit. Place the cover on a separate paper towel to keep the furniture surfaces clean.

7.7.2 Changeover/cleaning of the vat

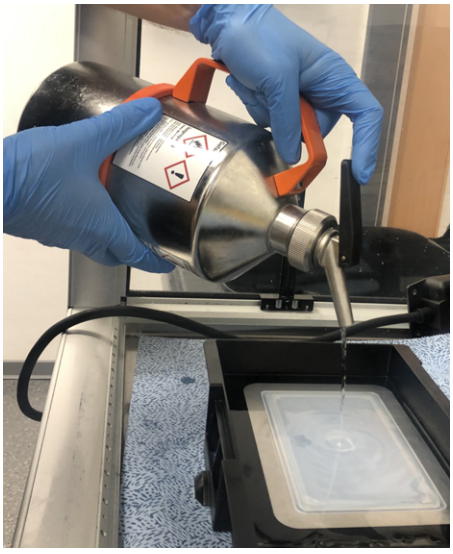
IMPORTANT

The procedure described here should be carried out quickly step by step. Do not leave the vat open with residual resin, as the resin residues could harden.

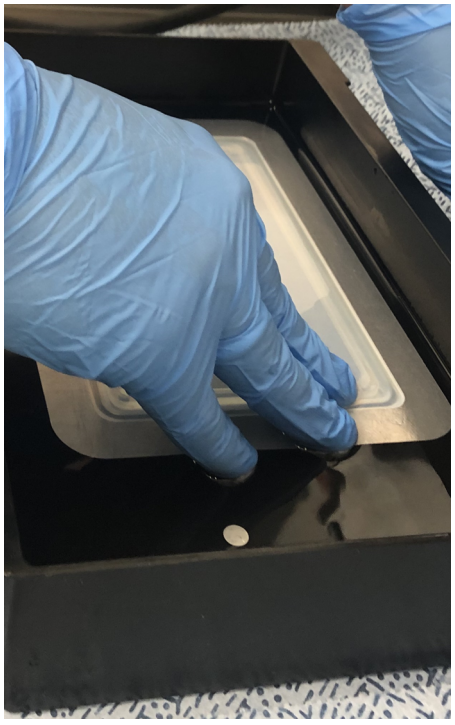
1. Remove the cover of the material unit by opening the lock.
2. Remove the conditioning unit from the vat.
3. Remove the remaining material from the vat into a disposal container. Observe the disposal instructions of the material manufacturer.



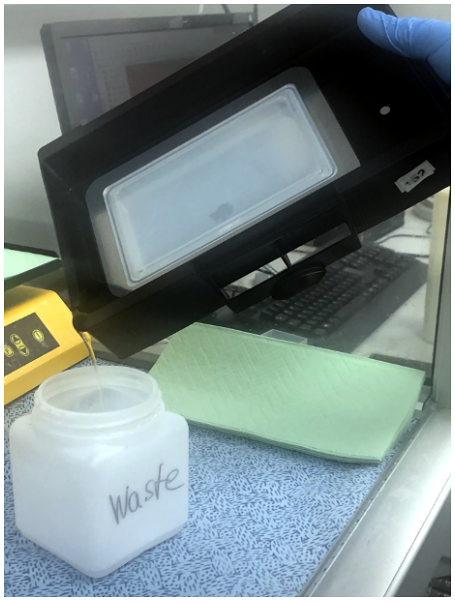
4. Draw off the residual material into the container using one of the wipe cards provided.
5. Now roughly wipe the residues out of the vat with a paper towel.



6. Fill approx. 100 ml isopropanol 99% into the vat so that the entire vat floor is covered and the isopropanol can reach all places inside the vat. Allow it to react for approx. 5 min.



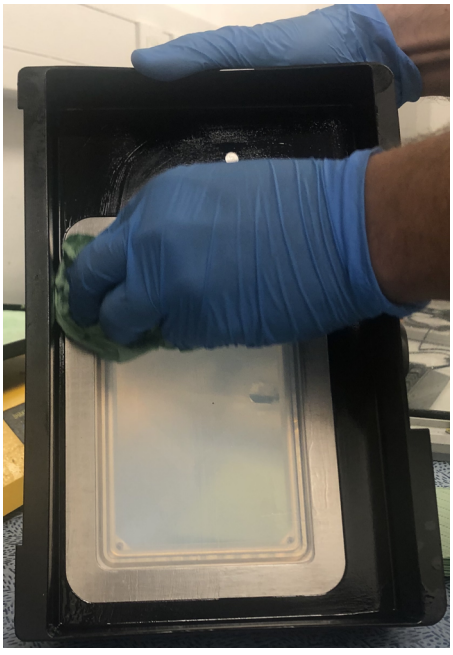
7. Remove the resin residues by rubbing the entire vat floor with your fingers until no more residue sticks to the vat floor.
8. Clean the conditioning unit in a separate container with 99% isopropanol; the best way to rub off the resin residues is with your fingers in isopropanol.



9. Empty the isopropanol with the residual resin from the vat into a resealable disposal container provided for this purpose.

NOTICE

Observe the local waste disposal regulations.



10. Wipe the vat with a clean cleaning cloth. Make sure that all resin residues are removed.
11. For fine cleaning, add a small amount of isopropanol to the edges of the film insert and clean these joints.
12. Repeat the last 3 steps.
13. Dispose of the gloves. Fresh clean gloves should also be worn when replacing the film (see "Replacing the film insert").
    - ↳ The vat has been cleaned and can be used for another material.

7.7.3 Replacing the clamping frame with film (film insert)

If the service life of the film in a vat is exhausted, this is shown on the touch display.

IMPORTANT

Worn-out film

There are different indications that the film has worn out. A clear-cut indication is a leak, tear or hole in the film. Deformation of the film is another less clear-cut indication. The film is a wear part and should last about 250-300 jobs. The phenomena mentioned above may then occur. If you detect print errors even though the bottom of the vat is clean, empty and clean the vat so you can visually inspect the film. If there are bubbles or liquid between the film and window, that is a clear-cut indication that the film is defective and must be replaced.

Requirement

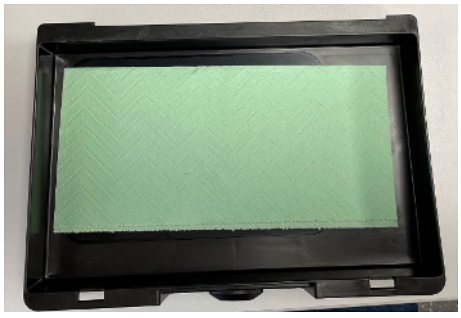
The vat must be free of resin and cleaned with isopropanol before starting the reprocessing process.

1. Follow the instructions for cleaning the vat (see "Changeover/ cleaning of the vat [→ 73]").
   ↳ The vat has been cleaned and the film insert can be replaced.
2. Use clean gloves to protect yourself from residual resin.
3. Use the supplied film change assembly aid, which you place under the film to prevent the clamping frame from falling down after the screws are loosened.

Required materials

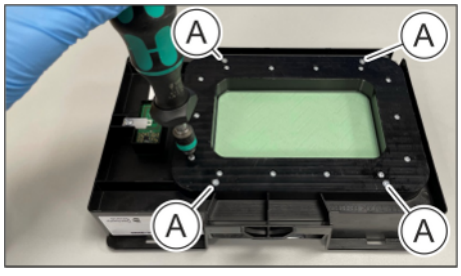
- Cleaned vat
- Isopropanol
- Microfiber cloth
- Paper cleaning wipes
- Film change mounting aid (foam block)
- Torque screwdriver (TX10)
- New clamping frame (not in the picture)

Reprocessing process

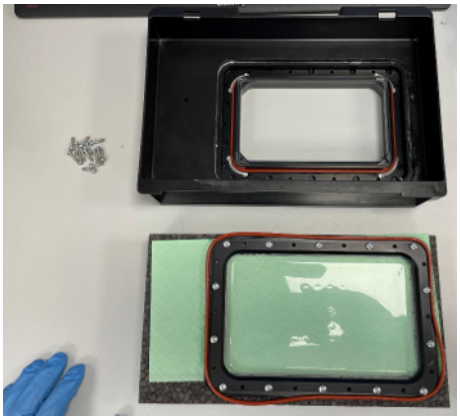


1. Place a paper towel in a cleaned vat.

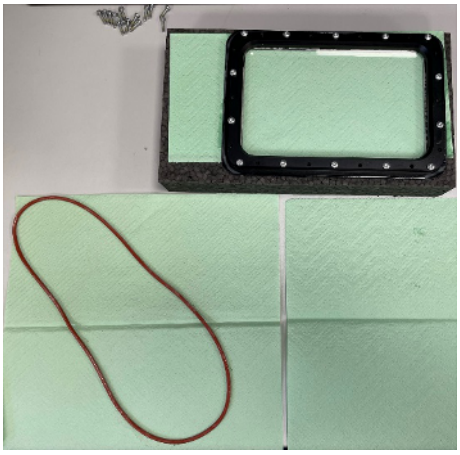
2. Place the film change mounting aid on the paper towel.



3. Turn the vat over so that it rests on the film change mounting aid and remove the 14 screws for the film clamp.
   The 4 outer screws (A) must not be loosened.



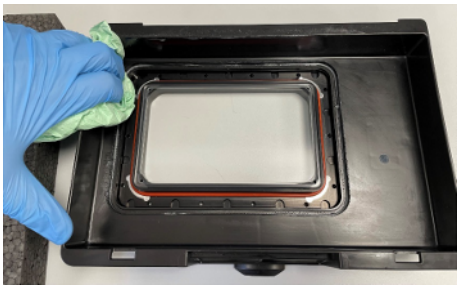
4. Carefully lift the vat so that the film clamp remains on the mounting aid. You may find that the film clamp is still somewhat stuck to the vat, so tap lightly to loosen it. Then turn the vat over. In addition to the film clamp, the outer sealing ring usually falls out as well.



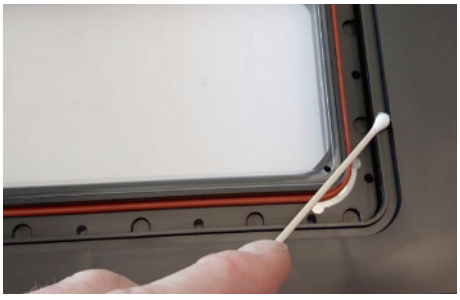
5. Separate the sealing ring from the clamping frame, if not already separated.
6. If the spare part film with clamping frame includes a new sealing ring:
   Replace the old sealing ring with the new one. The old sealing ring can be disposed of.

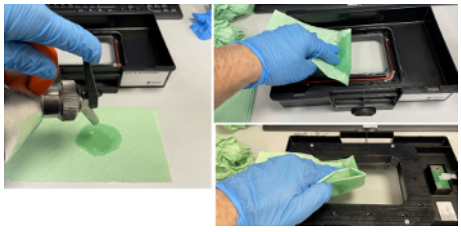
or

➢ If **no new** sealing ring is supplied with the spare part film with clamping frame:
   Clean the sealing ring by placing it in paper towels and crumpling them up. Do **not** clean it by pulling it through a paper towel, as this could damage the sealing ring!

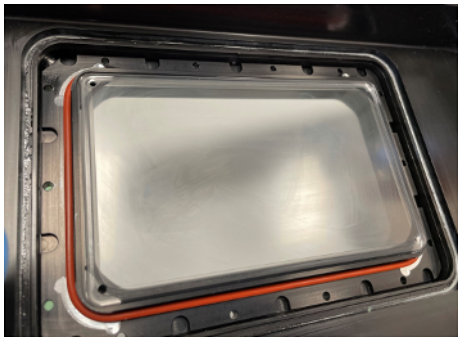


7. Clean the recess of the sealing ring with paper towels. Watch out for the glass!
   If necessary, use the supplied cotton swabs to clean the groove.

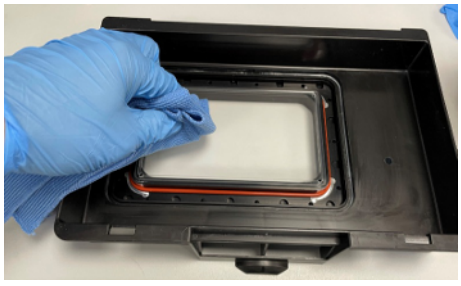




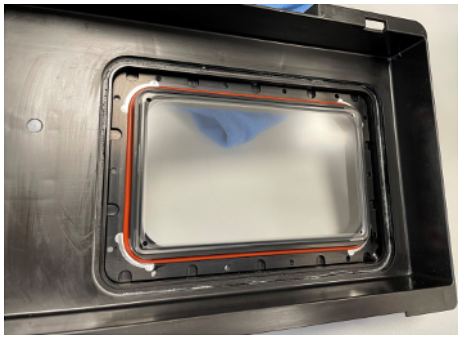
8. Clean possible resin residues on the window with a paper towel and some isopropanol. Isopropanol leaves a misty haze on the glass.



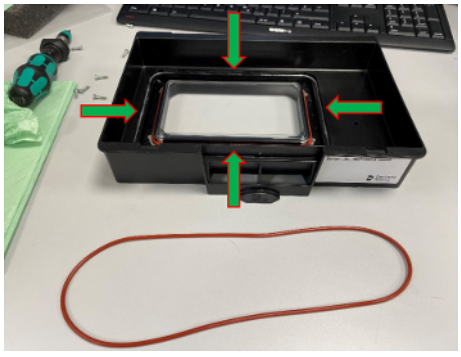
↳ Glass with misty haze



9. Remove the misty haze by buffing the window with a microfiber cloth and the supplied lens cleaner (it may take 1-2 minutes on each side for all of the misty haze to disappear).



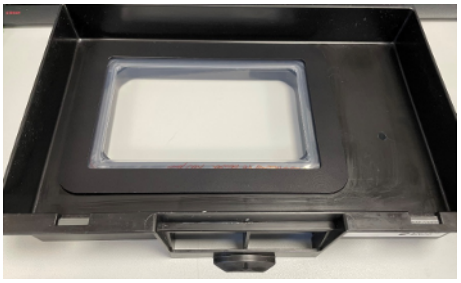
↳ Clean glass



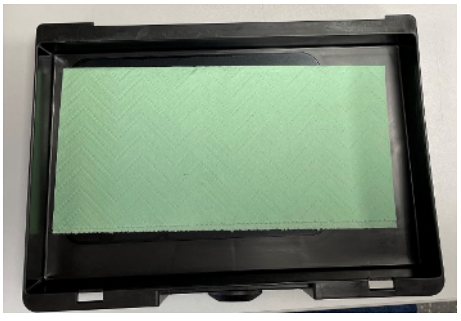
10. Insert the cleaned sealing ring into the recess. Ensure the clean and even fit of the sealing ring.

Inserting the new film clamp

1. Take a new film clamp (REF 6744911) and place it in the vat.

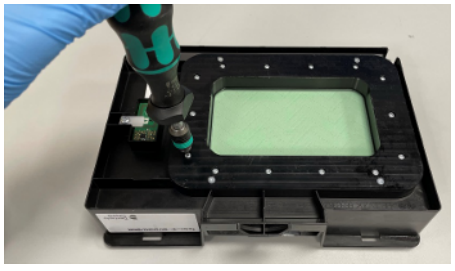


2. Carefully place the new film clamp in the vat. Make sure that the sealing ring underneath does not slip.

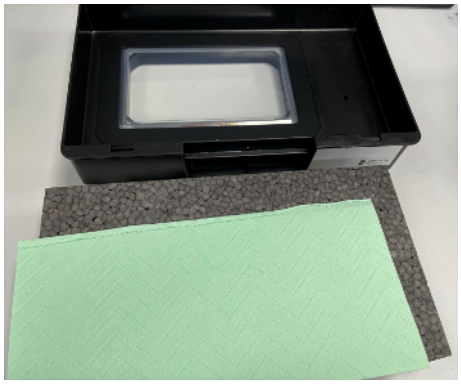


3. Put a paper towel on top.

4. Place the film change mounting aid on top.



5. Press the mounting aid into the vat and carefully turn the vat over.
6. Screw all screws back in and cross-tighten each screw until there is an audible click on the torque screwdriver.



7. Turn the vat over and remove the film change mounting aid and the paper towel.

IMPORTANT

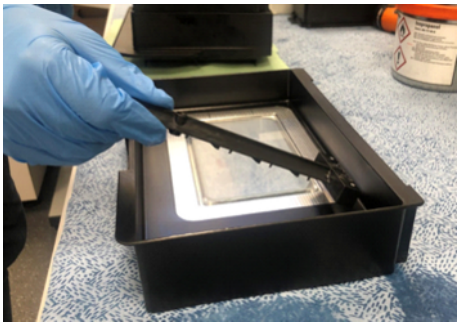
Check the leak tightness of the vat

Before reusing the vat, fill it with water so that the bottom of the vat is covered and let the vat stand for about 15 min. Then check whether water has leaked anywhere. If you have followed all steps of these instructions, this should not be the case. If it is leaking, redo the entire film replacement procedure.

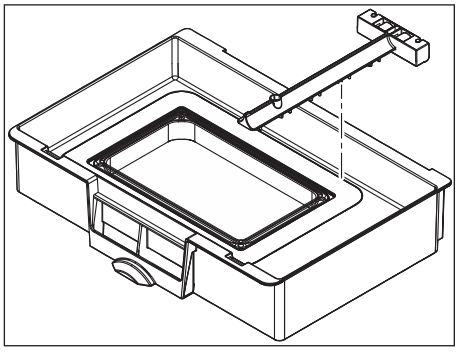
8. Remember to insert a cleaned conditioning unit back into the vat (see "Inserting the conditioning unit and placing the cover of the material unit back on the vat [→ 82]").

7.7.4 Inserting the conditioning unit and placing the cover of the material unit back on the vat

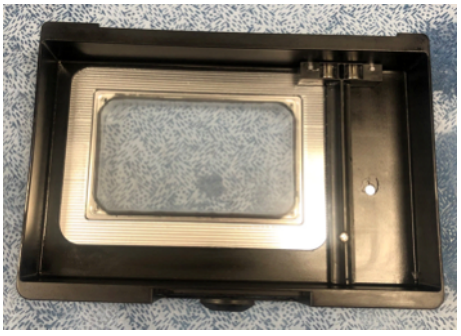
After cleaning and/or changing the film insert of the vat, the cleaned conditioning unit must be inserted back into the vat.



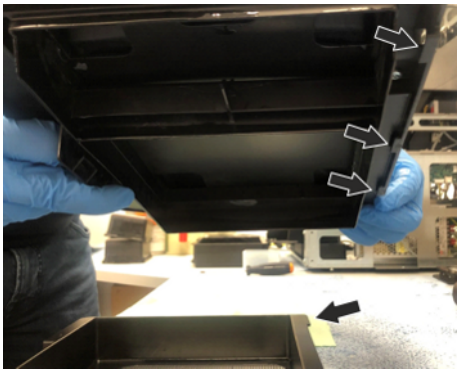
1. Insert the conditioning unit as shown in the figure.



2. Pay attention to the orientation of the conditioning unit in the material unit vat. The bars must point toward the bottom and the rollers must point toward the rear.

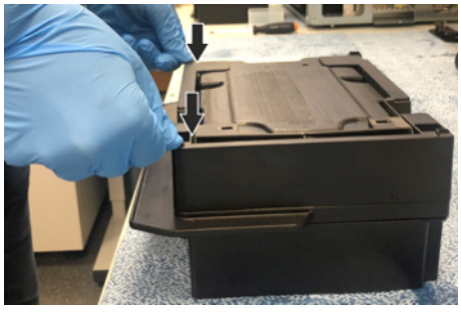


3. Position the conditioning unit perpendicular to the clamping frame with the left side of the conditioning unit flush with the right side of the clamping frame.



4. After the conditioning unit has been inserted, the cover of the material unit is now reconnected to the vat. For this purpose, the 3 latching hooks of the cover must engage in the edge of the vat.

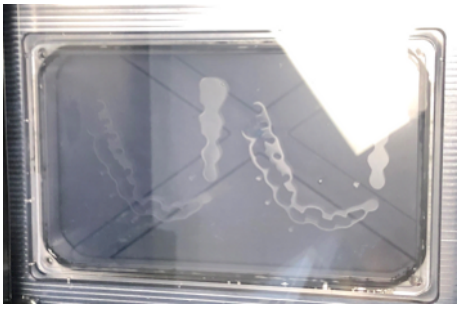
5. First hook the cover in at the back and then fold the cover down at the front.



6. To engage the cover, press it down until it clicks.

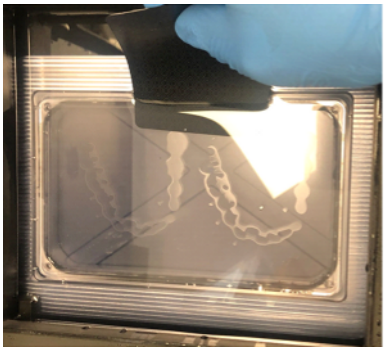
IMPORTANT
Do not press on the cartridge, press only on the frame of the cover.

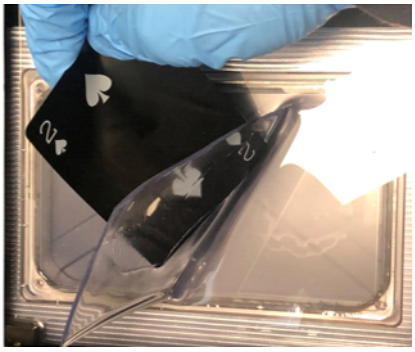
7.8 Cleaning the vat after a printing error



This way the fragments can be simply removed as one piece.

1. To print the cleaning layer, select "Print cleaning layer" on the printer.
2. Remove the cover of the material unit (see "Removing the cover of the material unit [→ 71]").
3. Arrange a paper towel and wear gloves to avoid contact with liquid resin. Avoid all skin contact.
4. Use the supplied plastic playing card to remove the cleaning layer (wipe cards: REF 6753631).





5. Lift the detached cleaning layer out of the vat and let the resin drip off over the vat.
6. Place the layer on the previously arranged paper towel and then place both in the fresh air in the sun to harden (out of reach of children).
7. Dispose of the hardened layer and the paper towel with household waste.

IMPORTANT

Check film for integrity

If a printing process was aborted due to foreign bodies or unexpected blockages in the system, the film must be checked for integrity before the next print.

7.9 Replacing the main fuse

⚠ WARNING

Electric shock

Disconnect the power plug at the unit end before replacing the fuses.

NOTICE

Fuse type

The main fuses F1 and F2 are of type T5A H250V. They are available under REF 6757525 (replacement Primeprint fuses).

➢ Use only fuses of the same type in the fuse holder!

✓ The power plug must be disconnected.

1. Use a screwdriver to carefully pry off the cover of the fuses on the back side of the unit.
2. Pull out the fuse holder.
3. Replace the defective fuses.
4. Reinsert the fuse holder.
5. Close the cover.

7.10 Consumables:

The following consumables and spare parts are available for the Primeprint unit.

- Wipe cards (REF 6753631)
- Activated carbon filter (REF 6747823)
- Microfiber cloth (REF 6802917)
- LAN cable 2M (REF 6006626)
- Torx torque wrench (size 10) (REF 6506815)
- Film with clamping frame (REF 6744911)
- Purosol lens cleaner (REF 6782481)
- Transport container insert (pack of 5) (REF 6754241)

8 Error scenarios

8.1 Discoloration of components

Description

Discoloration of components

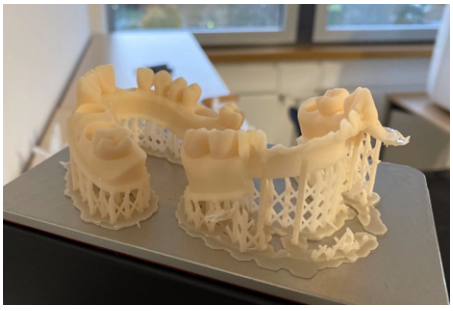
Possible causes

- After changing from one material to another, resin residues of another material have remained in the vat.
- The component was light-cured too long or possible post-cured manually (yellowed).
- The washing agent in the wash tank has been contaminated with resin residues of another material.
- A different curing in the case of significant wall thickness differences within the object.
- A different color impression due to a different light refraction in the case of significant wall thickness differences in the object.
- Inadequate cleaning of the wash tanks.

Action instructions for customer

1. Check whether the resin in the tanks has been contaminated. That can happen if the vat was not thoroughly cleaned when changing from one material to another.
2. Check whether the cleaning agent has been contaminated with another material.
3. Check whether manual post-curing took place, thereby exceeding the permissible light-curing time.
4. Perform the necessary steps to restore the desired condition.

8.2 Delamination (within the component)



Description

Delamination (within the component)

Possible causes

- The window above the exposure unit has been contaminated.
- The window at the bottom of the vat has been contaminated.
- The film is defective, enabling resin to penetrate between the film and glass and cause large pull-off forces, which results in a split in the component.
- The ventilation channels in the vat are clogged (e.g. by resin).
- The component has too few supports or the supports are too small.
- The UV power is too low.

Action instructions for customer

1. Check the window in the Primeprint for contaminants and clean it if necessary (see "Cleaning the heater plate window [→ 65]").
2. Check the window on the underside of the vat for contaminants and clean it, if necessary (take care that the resin does not spill when tipping the vat).
3. Check the condition of the film and change it, if necessary. When changing the film, ensure that cleaning agent is allowed to vent to prevent any liquid film remaining between the film and glass. Also ensure that the ventilation channels are not clogged so that air can reach between the glass and film.
4. Perform the necessary steps to restore the desired condition.

Action instructions for service technician

Instructions for printing a specific test body.

8.3 Component is cracked

Description

Component is cracked.

Possible causes

The adhesion to the build platform is too weak in places. As a result, the support feet are lifted and the bending during pull-off causes the component to crack.

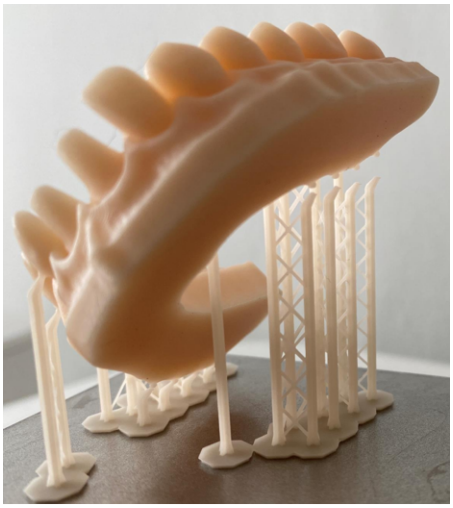
Action instructions for customer

1. Clean the build platform:
   Component residues must be completely removed and the surfaces must be thoroughly cleaned.
2. Check the vat support surfaces in the printer and on the vat for contamination and clean them, if necessary.
3. Check the build platform support surfaces on the build platform and in the printer for contamination and clean them, if necessary.

Action instructions for service technician

Instructions for printing a specific test body.

8.4 Tears between support and component



Description

Tears between support and component

Note: This error should not occur when the component is oriented on the build platform in Quality mode.

Possible causes

- The printed object has too few supports or the supports are too small.
- The printed object has wall thicknesses that are too thin, and it has too few supports or the supports are too small.

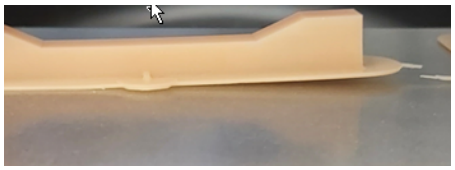
Action instructions for customer

1. Check the supports of the build object. Use Quality mode.
2. Increase the wall thicknesses if possible, or increase the support density.

Action instructions for service technician

Instructions for printing a specific test body.

8.5 Objects do not adhere, or only partially adhere, to the build platform



Description

Objects do not adhere, or only partially adhere, to the build platform.

Possible causes

- There are interfering bodies in the resin, such that the build platform cannot move to a short distance from the film but rather stands still at a longer distance from the film.
- There are component residues on the build platform.
- The build platform has been contaminated (e.g. with a dirt film or resin).
- There are dirt particles/resin residues between the build platform and the build platform holder in the unit such that the build platform is no longer aligned parallel with the bottom of the vat.
- There are dirt particles/resin residues between the vat and the vat support surface such that the build platform is no longer aligned parallel with the bottom of the vat.
- The build platform has not been aligned parallel with the bottom of the vat.
- The film in the vat is defective and there is resin under the film, and, as a result, the pull-off forces when separating the component from the film are too high and the component comes loose from the build platform.
- The UV power density is too low.

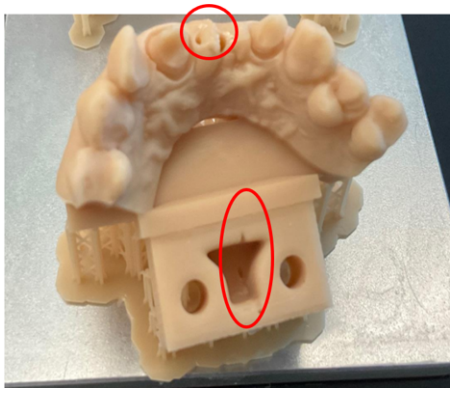
Action instructions for customer

1. Clean the build platform:
   Component residues must be completely removed and the surfaces must be thoroughly cleaned.
2. Via Routine Actions, produce a cleaning layer for removing cured resin residues from the film.
3. Check the condition of the film and change it, if necessary. When changing the film, ensure that cleaning agent is allowed to vent to prevent any liquid film remaining between the film and glass. Also ensure that the ventilation channels are not clogged so that air can reach between the glass and film.
4. Ensure that no dirt is on the vat support surface in the printer and on the vat.
5. Ensure that no dirt is on the build platform support surface on the build platform and in the printer.

Action instructions for service technician

Instructions for printing a specific test body.

8.6 Holes in the component (< approx. 1 mm)



Description

Holes in the component (< approx. 1 mm).

The holes are local and reproducible. They do not migrate with the component, when it is shifted on the build platform.

Possible causes

- There are dust particles or resin residues on the pane in the printer.
- There are dust particles or resin residues on the pane on the underside of the vat.
- There are dust particles or resin residues between the film and glass.

Action instructions for customer

1. Check the pane in Primeprint for contaminants and clean it, if necessary.
2. Check the pane on the underside of the vat for contaminants and clean it, if necessary. (Take care that the resin does not spill when tipping the vat).
3. Check the condition of the film and change it, if necessary. When changing the film, ensure that cleaning agent is allowed to vent to prevent any liquid film remaining between the film and glass. Also ensure that the ventilation channels are not clogged so that air can reach between the glass and film.

8.7 Vertical channels in the component (capillaries)

Description

The holes are local and reproducible. They do not migrate with the component, when it is shifted on the build platform.

Possible causes

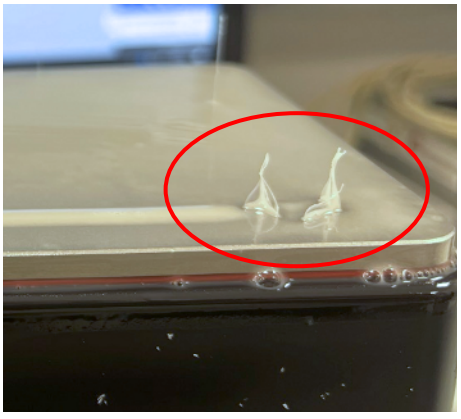
Multiple adjacent pixels have dropped out. A pixel error causes thin channels that run all the way through the component from bottom to top.

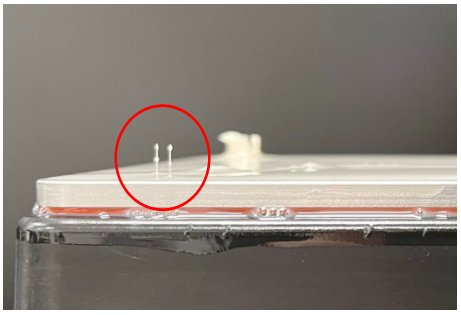
Action instructions for customer

If there is a pixel error, this cannot be solved by the customer.

8.8 Vertical rods / thin structures on the printing platform

Description





The rods / thin structures on the printing platform are local and reproducible.

Possible causes

Multiple adjacent pixels failed and always light up the resin. An "always-on pixel“ causes a thin rod/structure on the printing platform or on the part.

Instructions for the customer

If there is a pixel error, this cannot be solved by the customer.

8.9 Local bulgings in the component

Possible causes

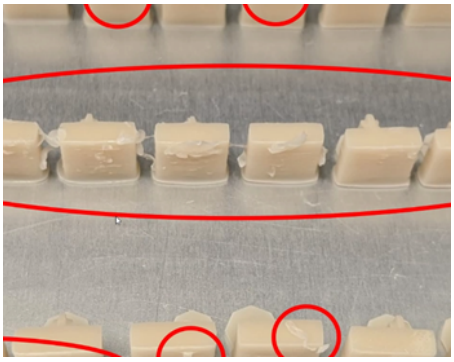
- There is a pimple on the film in the vat.

Action instructions for customer

➢ Check the condition of the film and change it, if necessary. When changing the film, ensure that cleaning agent is allowed to vent to prevent any liquid film remaining between the film and glass. Also ensure that the ventilation channels are not clogged so that air can reach between the glass and film.

8.10 Flakes

Description



The flakes are always located at the same spot of the build object and are oriented parallel to the build direction.

Flakes are only discernable if adhered to the component. In the resin, flakes are difficult if not impossible to discern.

Possible causes

- The pane above the light-curing unit has been contaminated or has streaks. A fogging of the pane on the side facing the light-curing unit can possibly be seen.
- The pane on the underside of the vat is contaminated or has streaks.
- There are dust particles or resin residues between the film and glass.
- The resin in the vat is too old. This is normally indicated by the software.
- Fillers in the resin have settled out.
- The focus plane of the light-curing unit is outside the build plane.

Action instructions for customer

1. Clean the build platform:
   Component residues must be completely removed and the surfaces must be thoroughly cleaned.
2. Check the pane in Primeprint for contaminants and clean it, if necessary.
3. Check the pane on the underside of the vat for contaminants and clean it, if necessary. (Take care that the resin does not spill when tipping the vat).
4. Via Routine Actions, produce a cleaning layer for removing cured resin residues from the film.

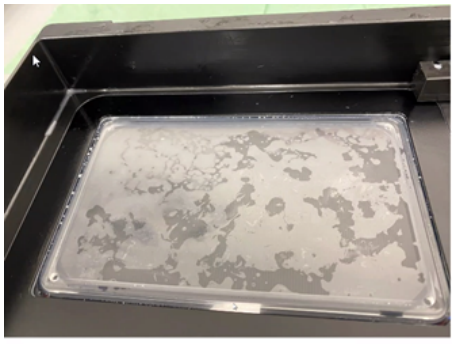
5. Check the condition of the film and change it, if necessary. When changing the film, ensure that cleaning agent is allowed to vent to prevent any liquid film remaining between the film and glass. Also ensure that the ventilation channels are not clogged so that air can reach between the glass and film.
6. Stir the resin and pour it through a screen to remove any cured resin residues, or change the resin.

8.11 Permissible pull-off force is exceeded

Description

Permissible pull-off force is exceeded.

Possible causes



- The film in the vat is defective and there is resin under the film, and, as a result, the pull-off forces when separating the component from the film are too high.
- The ventilation channels in the vat are clogged and, as a result, the pull-off forces when separating the component from the film are too high.
- The error is caused by a combination of highly adhesive resin and a large-area connection (in particular, when components are centered).
- There are dust particles or resin residues between the film and glass, which have remained there after a film change/cleaning.
- The film spacer was forgotten when assembling the film.
- The Z-arm force sensor is defective.

Action instructions for customer

1. Position large-area components at the edge of the vat and not in the center.

2. Check the condition of the film and change it, if necessary. When changing the film, ensure that cleaning agent is allowed to vent to prevent any liquid film remaining between the film and glass. Also ensure that the ventilation channels are not clogged so that air can reach between the glass and film.
3. Check whether the film spacer is present.

8.12 Component distorted/not true to dimension

Possible causes

- The component distortion results from missing or unrealizable supports.
- When feeding the build platform, the support structure gets bent because it has not been adequately cross-braced.
- There are (larger) dirt particles or resin residues on the bottom of the vat or on the heater plate such that the vat is out of square.
- There are artefacts on the surface of the 3D data set from the CAD/CAM software.
- The build object was connected directly on the build platform and not placed on a support structure, thereby impeding the material shrinkage in the vicinity of the build platform.
- The vat height was programmed incorrectly in the factory.
- The light-curing unit moves to an incorrect from the build plane (zero offset). This negatively affects the reproduction scale.
- The power density of the light-curing unit is not okay:
  - Too low: Component too small, hole too large
  - Too high: Component too large, hole too small

Action instructions for customer

1. Check the design of the component:
   Are sufficient supports present? Move the component and use Quality mode.
2. Make sure there are no artefacts in the 3D data set.
3. Connect the object to the build platform with supports.
4. Check the pane on the underside of the vat for contaminants and clean it, if necessary. (Take care that the resin does not spill when tipping the vat).

8.13 Component incomplete

Description

Component looks as though the top was cut off.

Possible causes

- There is too little resin in the vat. If the level is being determined incorrectly, this is not indicated by the software.
- The machine is standing at an angle and the resin has flowed into one corner.

Action instructions for customer

1. Check the level in the vat. The fill height should be about 5-10 mm.
2. Check whether the cartridge opens reliably. Push in the valve by hand; it is possibly stuck.
3. Check whether the unit is aligned horizontally. The unit feet can be used for leveling.

8.14 Holes in the component (>1 mm)

Possible causes

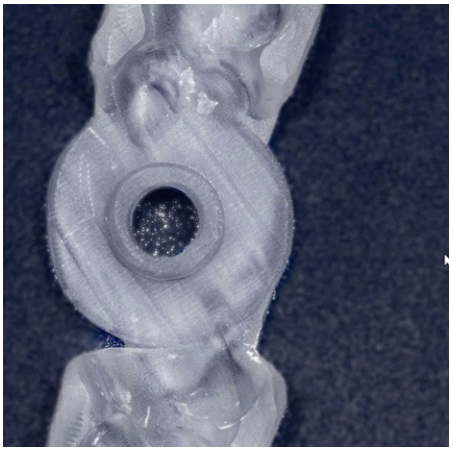
- The wall thickness of the build object is too small.
- The printed object has too few supports.
- There is a suction-cup effect when printing the object.

Action instructions for customer

1. Check the design in combination with the resin. Are the wall thicknesses less than the permissible wall thicknesses?
2. Increase the support density or use Quality mode.
3. Change the orientation of the component to prevent the suction cup effect.

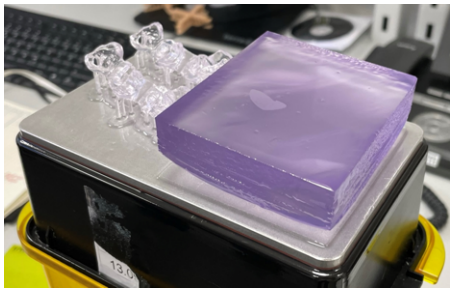
8.15 Visible layer transitions

Description



The appearance of visible layer transitions is not a functional problem. It is only a surface phenomenon that occurs with transparent/opaque materials.

8.16 Block with polymerized resin



Description

Block with polymerized resin.

Possible causes

The light-curing unit has been damaged.

Action instructions for customer

The error cannot be solved by the customer.

9 Disposal

In accordance with Directive 2012/19/EU and national disposal regulations regarding old electrical and electronic devices, please be advised that such items must be disposed of in a special way within the European Union (EU). These regulations require the environmentally friendly recycling/disposal of old electrical and electronic devices. Such items must not be disposed of as domestic refuse. This is indicated by the printed icon of the "crossed out trash can".

Disposal procedure

We feel responsible for our products from the first idea to their disposal. For this reason, we give you an option to return our old electronic and electrical devices.

If you wish to dispose of your equipment, please proceed as follows:

In Germany

To initiate return of the electrical equipment, please send a disposal request to enretec GmbH. You have the following options for this:

- Tel.: +49 800 805 432 1
- Email: services@enretec.de

You can arrange the transport to enretec GmbH yourself or commission enretec GmbH with the organization.

Prepare the device for transport in accordance with the "Important regulations for the return of old electrical equipment". Available online at (www.enretec.de).

In accordance with the national disposal regulations regarding old electrical and electronic devices (ElektroG), we as the manufacturer assume the costs for disposing of the electrical and electronic devices in question that were purchased from us on or after August 13, 2005. Disassembly, transport and packaging costs shall be borne by the owner/operator.

By using this return option, we jointly ensure that any substances harmful to the environment and health contained in the devices are disposed of in compliance with the law and that the equipment is recycled in the best possible way.

If your unit is movable, it will be collected from the practice. If it is permanently installed, it will be picked up curbside at your address by appointment.

⚠ WARNING

Before disassembling and disposing of the device, all parts must be properly prepared (cleaned, disinfected, sterilized).

Other countries

For country-specific information on disposal, contact your local dental dealer.

IMPORTANT
Operators of equipment with storage functions for customer and patient data are responsible for deleting all personal data before disposing of the equipment.

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We reserve the right to make any alterations which may be required due to technical improvements.

D3691.201.01.02.02 2023-07
Sprache: englisch
Ä.-Nr.: 132 960
Printed in Germany

SIRONA Dental Systems GmbH

Fabrikstraße 31
64625 Bensheim
Germany
www.dentsplysirona.com

Order No 67 45 173 D3691