

# VistaScan Perio Plus



EN

Installation and Operating Instructions

CE

9000-618-167/30



 DÜRR  
DENTAL

2010/01/13E.7



# Contents



## Important Information

<b>1. General</b>	4
1.1 Note on Conformity	4
1.2 General Notes	4
1.3 Disposal of appliance	4
1.4 Notes concerning medical appliances	4
1.5 Notes on EMC and medical products	5
1.6 Correct usage	5
1.7 Incorrect usage	5
1.8 Connecting peripheral appliances	5
1.9 Using image plates	5
1.10 Using software	5
<b>2. Safety</b>	6
2.1 General Safety Notes	6
2.2 Electrical safety instructions	6
<b>3. Warnings and symbols</b>	7
3.1 Installation and operating Instructions	7
3.2 VistaScan Perio Plus	7
<b>4. Delivery Contents</b>	8
4.1 Special accessories	8
4.2 Disposable materials	9
<b>5. System requirements</b>	10
5.1 Monitor	10
5.2 PC system	10
<b>6. Technical Data</b>	11
6.1 VistaScan Perio Plus	11
6.2 Environmental conditions	11
<b>7. Functional layout</b>	12
7.1 Function of individual components	13
<b>8. Functional Description</b>	14



## Mounting

<b>9. Transport and packing</b>	15
<b>10. Moving the VistaScan Perio Plus</b>	15
<b>11. Set-up</b>	16
11.1 Room for Set-up	16
11.2 Set-up alternatives	16
<b>12. Electrical Connections</b>	18
<b>13. Commissioning</b>	19
13.1 VistaScan Perio Plus	19
13.2 X-ray device settings	20
13.3 Commissioning and Constancy Checks	20



## Use of the Appliance

<b>14. Image plate</b>	21
14.1 General	21
14.2 Working with image plates	22
14.3 Storing image plates	22
<b>15. Light protection covers</b>	23
<b>16. Foil cassettes</b>	23
<b>17. Bite protector</b>	23
<b>18. Hygienic covers</b>	24
<b>19. Storage box with image plate storage tray</b>	24
<b>20. X-ray</b>	25
20.1 Preparing to X-ray	25
20.2 X-ray exposures	26
20.3 Preparing to scan image data	27
20.4 Scanning the image data	29
20.5 Erasing the image data	31
20.6 Removing the image plate from the cassette	31
<b>21. Disinfection and Cleaning</b>	32
21.1 Light protection covers	32
21.2 Image plates	32
21.3 Foil cassettes	33
21.4 Storage box with image plate storage tray	33
21.5 VistaScan Perio Plus	34
<b>22. Maintenance</b>	35
22.1 Changing fluorescent lamps	35
22.2 Maintenance intervals	35



## Trouble-shooting

<b>23. Tips for Operators and Technicians</b>	36
23.1 VistaScan Perio Plus	36
23.2 Error message on display	40

## Appendix

<b>Image process times</b>	41
<b>File size (uncompressed)</b>	41



## Important Information

### 1. General

#### 1.1 Note on Conformity

This product has been tested for conformity according to the appropriate directives as laid down by the European Union and has been found to conform to all the required specifications.

#### 1.2 General Notes

- These Installation and Operating Instructions form an integral part of the unit. They must be kept close to the unit at all times. Precise observance of these instructions is a precondition for use of the unit for the intended purpose and for its correct operation. New personnel must be made aware of the contents, and they should be passed on to future operating staff.
- Safety for the operator as well as trouble-free operation of the unit are only ensured if use is made of original equipment parts. In addition, only those parts and accessories listed in the Installation and Operating Instructions or specifically approved by Dürr Dental may be used with this appliance. In the case that accessories, parts or disposable materials from third party suppliers are used, then Dürr Dental cannot guarantee the safe operation or smooth running of the unit. No liability on the part of the manufacturer will be accepted in the case that damage arises through the use of non-approved accessories.
- Dürr Dental are only responsible for the equipment with regard to safety, reliability and proper functioning where assembly, resets, changes or modifications, extensions and repairs have been carried out by Dürr Dental or an agency authorized by Dürr Dental and if the equipment is used in conformity with the Installation and Operating Instructions.
- These Installation and Operating Instructions conform to the relevant version of the equipment and the underlying safety standards valid at the time of going to press. All circuits, processes, names, software and appliances quoted are protected under industrial property rights.

- This translation of the Installation and Operating Instructions has been carried out in good faith. The manufacturer bears no liabilities in the case of a mistake in the translation. The enclosed German version of the Installation and Operating Instructions is the original; in the case of any confusion please consult your dealer or our hotline service.
- Any reprinting of the technical documentation, in whole or in part, is subject to prior written approval of Dürr Dental.
- Retain the packaging for possible return of the product to the manufacturers. Only the original packaging provides adequate protection during transport of the unit.
  - If the product must be returned to the manufacturer during the guarantee period, Dürr Dental accepts no responsibility for damage occurring during transport where the original packaging was not used! Ensure that the packaging is kept out of the reach of children.

#### 1.3 Disposal of appliance

- The EU-guidelines 2002/96/EG - WEEE (Waste Electric and Electronic Equipment) ) of 27th January 2003 and the current integration into national law states that dental products come under the above-mentioned guidelines and, within the European Union, are subject to special disposal measures.

#### image plate

Observe local and regional rules and regulations when disposing of image plates.

If you have any questions concerning disposal of the product, please contact Dürr Dental or your specialist dental supplier.

#### 1.4 Notes concerning medical appliances

- This product is a technical medical appliance and, as such, may only be operated by such persons who, as a result of training or experience, can be confidently expected to operate it correctly and safely for patients and staff alike.
- Do not lie multi-socket units on the floor. Observe standard EN 60601-1-1 when using multi-socket units.
- Other systems should not be plugged into the same multi-socket unit.

## 1.5 Notes on EMC and medical products

Medical products should be treated with respect when it comes to electro-magnetic compatibility and special safety measures must be taken. Special instructions concerning electro-magnetic compatibility for medical products can be found in our special leaflet, order number 9000-606-67/30, or the information can be found on the internet ([www.duerr.de](http://www.duerr.de)) in the Technical Documentation download pages.

- Portable and mobile HF-communication appliances can interfere with the effectiveness of electrical medical appliances.
- VistaScan Perio Plus should not be used in the vicinity of other appliances or stored or used on top or underneath other appliances. Where VistaScan Perio Plus will be used or stored in the vicinity of other appliances, then the unit in its configuration as used should be very carefully monitored in order to ensure normal and trouble-free operation.

## 1.6 Correct usage

- VistaScan Perio Plus has been solely designed for the optical scanning and editing of image data using image plates.
- This appliance is not suitable for monitoring patients over longer periods of time.
- VistaScan Perio Plus is intended to be set up in a central location. The device must be installed away from patients (1.5 m) according to IEC 60601-1-1 (EN 60601-1-1).
- Correct Usage of the appliance also involves observing the Installation and Operating Instructions and adhering to those instructions concerning set-up, operating and maintenance.

Every usage which is not in accordance with the Correct Usage above will lead to the guarantees and warranties of Dürr Dental becoming null and void.

The operator is liable for any damage arising through incorrect usage.

- Correct Usage also involves observing all local and national regulations concerning health and safety at work and radiation prevention.

## 1.7 Incorrect usage

Any usage above and beyond that described here is to be considered as incorrect usage of the appliance. The manufacturer is not liable for any damages arising from incorrect usage. The operator bears all risks and liabilities.



**This appliance must not be used in operating theatres or similar rooms, or any room where dangers such as combustion of flammable materials could result.**

## 1.8 Connecting peripheral appliances

- Only peripheral devices (computer, monitor, printer) may be connected to this appliance which conform to standard IEC 60950-1 (EN 60950/1).  
The computer must be out of the vicinity of the patients according to IEC 60601-1-1 (EN 60601-1-1). If for any reason this is not possible then the computer set up must be installed according to the IEC 60601-1 -1 (EN 60601-1).
- Appliances may only be connected together or connected to any other assemblies where complete and utter safety of the patients, operators and staff and of the environment will not be affected in any way.  
Where any doubts remain concerning the safety when connecting to other units then the operator is obliged to ascertain that such connection can in no way affect the safety of operator, patient or other staff by referring to the manufacturer or a fully qualified and competent expert.

## 1.9 Using image plates

VistaScan Perio Plus may only be used in combination with Dürr Dental image plates PLUS. See also the section on image plates.

## 1.10 Using software

Only use x-ray software, e.g. DBSWIN from version 5.0.2, which has been specifically approved by Dürr Dental. Further information can be found on the internet under [www.duerr.de](http://www.duerr.de).



Please refer to the leaflet on minimum PC system requirements, order number 9000-618-148/01, or under [www.duerr.de](http://www.duerr.de).

## 2. Safety

### 2.1 General Safety Notes

This appliance has been designed and constructed by Dürr Dental so that correct usage of the appliance is virtually free of any possible injury or danger. In spite of this, we feel it is our duty to mention the following safety measures in order to prevent any possible danger.

- When using this appliance all local and relevant regulations must be observed! Converting or modifying the appliance in any way is strictly prohibited. In such cases, any and all guarantees immediately become invalid. The operation of modified appliances can be punishable by law. In the interests of trouble-free operation the operator is responsible for observing these regulations.
- Installation must be carried out by a qualified technician.
- Before every use the operator must check the functional safety and the condition of the appliance.
- The operator must be knowledgeable in the operation of the appliance.
- The product is not designed to be used in medical treatment areas where there exists the danger of explosion. Areas where explosions could occur are those where flammable anesthetic material, skin cleansers, oxygen and skin disinfectants are present. This appliance is not to be used in areas where the atmosphere could cause fire.

### 2.2 Electrical safety instructions

- The appliance may only be connected to a correctly installed earthed safety socket.
- Before connecting to the electricity supply the appliance must be inspected and checked that the supply voltage and the supply frequency correspond to that of the local electrical supply.
- Before initial use and start-up the appliance and all supply lines must be checked for any signs of damage. Damaged supply lines and connections must be replaced immediately.
- Never come into contact with patients and open plug-in connections on the appliance at the same time.
- When using the appliance observe all the relevant electrical safety procedures.



Before opening the unit  
unplug at the mains and remove all power!

# 3. Warnings and symbols

## 3.1 Installation and operating Instructions

In the operating instructions the following warnings and symbols have been used:



**Information and/or mandatory regulations or prohibitions for the prevention of personal injury or substantial property damage**



Special instructions concerning economic usage of the appliance and other notes.



Unplug at the mains and remove all power!



ON / OFF key



Operational LED, green  
Standby



Operational LED, blue  
Data transmission



Only use once (disposable)



Wear protective gloves

## 3.2 VistaScan Perio Plus

The model identification plate can be found on the rear side of the VistaScan Perio Plus.

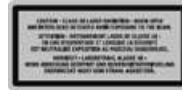
The following terminology and/or symbols are applied on this appliance, in this appliance, the model identification plate and the power unit:



Warning Laser



Warning dangerous voltage.



Laser beam class 3B



Protection class 2



Date of manufacturer



Observe notes in accompanying documentation!



Dispose of correctly according to EU directive (2002/96/EG-WEE)

**IP20**

Fuse type

**REF**

Order No. / Model No.

**SN**

Serial No.



CE-label without  
Notified Body number



## 4. Delivery Contents

### VistaScan Perio Plus 2140-21

VistaScan Perio Plus . . . . .	2140-000-80
Mains cable (EUR). . . . .	9000-118-71
Mains cable (GB). . . . .	9000-119-065
Power unit . . . . .	2140-470-00
Data cable (USB 3m) . . . . .	9000-119-067
Data cable (RJ 45 3m) . . . . .	9000-119-071
software DBSWIN Standard . . . . .	2100-725-02
2 Dürr image plates	
-Size 0- 2x3 (22x35 mm). . . . .	2130-040-50
4 Dürr image plates	
-Size 2- 3x4 (31x41 mm). . . . .	2130-042-50
1 foil cassettes	
-Size 0- 2x3 . . . . .	2140-010-00
2 foil cassettes	
-Size 2- 3x4 . . . . .	2140-012-00
Light protection covers	
-Size 0- 2x3 (100 pieces) . . . . .	2130-070-00
Light protection covers	
-Size 2- 3x4 (300 pieces) . . . . .	2130-072-00
Cleaning wipes for	
image plates . . . . .	CCB351B1001
Foil pad . . . . .	2140-002-01
Fluorescent lamp . . . . .	9000-109-75E
Installation and	
Operating Instructions . . . . .	9000-618-167/30

## 4.1 Special accessories

The following parts are not supplied with the contents of delivery.

Please order as required!

Wall mounting bracket. . . . .	2141-001-00
Test body Intra - Extra . . . . .	2121-060-54
Hygienic cover	
-Size 0- 2x3 (100 pieces) . . . . .	2130-070-60
Hygienic cover	
-Size 2- 3x4 (300 pieces) . . . . .	2130-072-60
2 Dürr image plates	
-Size 0- 2x3 (22x35 mm). . . . .	2130-040-50
2 Dürr image plates	
-Size 1- 2x4 (24x40 mm). . . . .	2130-041-50
4 Dürr image plates	
-Size 2- 3x4 (31x41 mm). . . . .	2130-042-50
2 Dürr image plates	
-Size 3- 2.7x5.4 . . . . .	2130-043-50
1 Dürr image plate	
-Size 4- 5.7x7.6 . . . . .	2130-044-50
Data cable (USB 5m) . . . . .	9000-119-027
Data cable (RJ 45 5m) . . . . .	9000-118-036
Storage box	
with image plate storage tray . . . . .	2141-002-00



The usage of other components, transformers and cables as those specifically listed under accessories, can lead to either increased signal output or reduce the resistance to interference of the system.



## 4.2 Disposable materials

FD 350 Disinfectant wipes. . . . .	CDF350C0140
FD 333 Quick-acting disinfectant . . . . .	CDF333C6150
FD 322 Quick-acting disinfectant . . . . .	CDF333C6150
Light protection covers	
-Size 0- 2x3 (100 pieces) . . . . .	2130-070-00
Light protection covers	
-Size 1- 2x4 (100 pieces) . . . . .	2130-071-00
Light protection covers	
-Size 2- 3x4 (300 pieces) . . . . .	2130-072-00
Light protection covers	
-Size 3- 4 2.7x5.4 (100 pieces) . .	2130-073-00
Light protection covers	
-Size 4- 5.7x7.6 (100 pieces) . . .	2140-074-00
Light protection covers Plus	
-Size 0- 2x3 (100 pieces) . . . . .	2130-070-50
Light protection covers Plus	
-Size 2- 3x4 (300 pieces) . . . . .	2130-072-50
Bite protectors	
-Size 4- (100 pieces) . . . . .	2130-074-03
Cleaning wipes for image plates . . . . .	CCB351B1001

## 5. System requirements

To operate VistaScan Perio Plus, the components listed under sections 5.1 and 5.2 will be required. These are not included within the standard scope of delivery with the VistaScan Perio Plus.

### 5.1 Monitor

Monitors designed for digital x-ray processes with a higher light intensity and broad contrast range should be used. Strong room lighting, direct sunlight and reflections all serve to reduce the diagnostic capabilities of the X-ray exposures. See also the supplied system explanation in No.: 9501-21-016 supplied.

### 5.2 PC system



Please refer to the leaflet on minimum PC system requirements, order number 9000-618-148/01, or under [www.duerr.de](http://www.duerr.de).

## 6. Technical Data

### 6.1 VistaScan Perio Plus

#### Electrical Details

##### power unit

Voltage (V)	100 - 240
Maximum fluctuation in rated current (%)	+/- 10
Frequency (Hz)	50 - 60
Current (A)	max. 1,5
Current consumption (W)	<70
Fuse type	IP20
Protection class	II
Overvoltage category	II

#### Electrical ratings and connection data

##### VistaScan Perio Plus

Voltage (V, DC)	24
Maximum fluctuation in rated current (%)	+/- 10
Current (A)	max. 2,5
Current consumption (W)	<60

#### Dimensions

W = 310 mm, H = 523 mm, D = 293 mm

#### Weight

VistaScan Perio Plus (kg) ca. 12.5

#### Noise levels

Stand-by (db(A))	approx. 42
at scanning (db(A))	approx. 45

#### General values

Laser protection class 1 (EN60825-1)

Wave length  $\lambda$  635 nm

10 mW

EN 60825-1:2006-04

Heat radiation (W) <70

#### Pixel size

can be selected from range ( $\mu\text{m}$ ) 12.5 to 50

#### Resolution (depending on image

plate)

line pairs/mm (Lp/mm) max. ca. 40

#### Conformity Acceptance Procedure

Medical device .93/42/EWG

#### Medical device classification

VistaScan Perio Plus	I
Light protection cover	I
Hygienic covers	I
Image plate	Ila

#### EMC

Conducted HF-disturbance $V_1$ according to IEC 61000-4-6 ( $V_{\text{eff}}$ )	3
Radiated HF-disturbance $V_1$ according to IEC 61000-4-3 ( $V_{\text{eff}}$ )	4

### 6.2 Environmental conditions

#### VistaScan Perio Plus

##### Temperature ranges

Appliance in operation ( $^{\circ}\text{C}$ )	+10 to +35
Storage and transport ( $^{\circ}\text{C}$ )	-20 to +60

##### Ambient air pressure

Appliance in operation (%)	.750 - 1060
Operational altitude (m)	<2000
Storage and transport (%)	.750 - 1060
Operational altitude (m)	<16000

##### Relative humidity

Appliance in operation (%)	20 - 80
Storage and transport (%)	10 - 95

##### image plate

##### Storage and transport

Temperature ( $^{\circ}\text{C}$ )	<33
Relative humidity (%)	<80

##### Use of the Appliance

Temperature ( $^{\circ}\text{C}$ )	<4518
Relative humidity (%)	<80

## 7. Functional layout



## 7.1 Function of individual components

### 1. Image plate

The image plate serves as the exposure medium for X-rays and stores the image data.

### 2. Light protection covers

- Light protection covers protect the patient from infection by contaminated image plates.
- Reduces the risk of damage to the image plate in the patient's mouth.
- Protects the image plate from contamination and dirt.
- Prevent image data on the image plate from being erased.

### 3 a. and 3 b. Input unit:

The foil cassettes are positioned on the input unit and run to the transport slot.

### 4. Control LED:

Green LED:

VistaScan Perio Plus is ready for operation.

Blue LED "illuminated":

VistaScan Perio Plus is switched on but is not yet initialised or there is no active data connection to the PC.

### 5. Status LED's

#### Transport slot 1 (5 a) and 2 (5 b) :

Green LED:

Cassette can be pushed into the respective transport slot.

Yellow LED:

1 or 2 cassettes in the respective transport slot.

Read LED:

Fault in respective transport slot.

### 6. On / Off key:

To switch on or off, press the key for 2 seconds.

### 7. Transport slot:

The foil cassette runs through the transport slot of the input buffer, the scanner unit and the erasure unit.

### 7 a. Input buffer:

When inserting two cassettes, they are fed into the scanner unit one after the other.

### 7 b. Scanner unit:

Here, the image data is read from the image plates and digitalised.

### 7 c. Erasure unit:

The remaining image data on the image plate is erased automatically after reading.

### 8. Output unit with output buffer:

After erasing, the foil cassette is transported into the output unit. Up to 3 foil cassettes can be put there in a row.

### 9. Foil cassette:

The foil cassette consists of a cover, a cassette and a cassette cover:

#### 9 a. Cover:

Half open (Cover locked in):

- Image plates can be inserted.

Open:

- Cassette can be cleaned.

- Image plates can be removed from the cassette

#### 9 b. Cassette:

- Image plates are pushed into the cassette.
- The image plate is transported through the transport slot and are scanned with no contact.

#### 9 c. Cassette cover:

- Protects the image plate from light in the cassette.
- Positions the cassette on the input unit.
- Feeds the cassette into the transport slot.

### 10. Foil pad:

After removing the cassette from the output unit, the image plates are tipped onto the foil pad.

### 11. Display

This display module presents, depending on the software used, various information on the appliance status, e.g. in combination with DBS-WIN the patient name, room used or the tooth number.



In the case that an error message is displayed, see section on Tips for Operators and Service Technician.

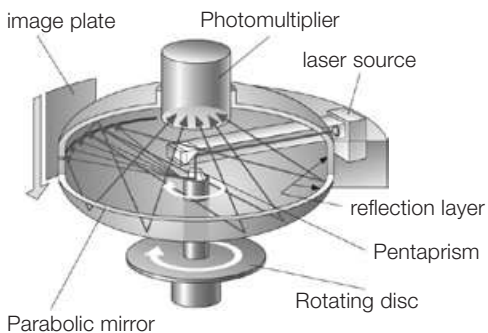
### 12. Wall mounting bracket:

The VistaScan Perio Plus can be inserted into the wall mounting bracket when not in use.

## 8. Functional Description

VistaScan Perio Plus transforms the image data stored on an intraoral image plate into a digital X-ray. This image can then be viewed and edited using the connected PC system.

VistaScan Perio Plus is a multi-slot scanner with input and output buffer. Image data can be read and erased simultaneously from 4 foil cassettes with up to 8 installed image plates via the two transport slots.



### EN X-ray:

The intraoral image plate (1) is placed inside the disinfected light protection cover (2), placed into the patient's mouth and exposed.

After exposure the light protection cover is disinfected and the image plate is removed and slid into a foil cassette (9) of the appropriate size. The foil cassettes can take up to two image plates with formats size 0 to size 3 and one image plate with format size 4.

### Scanning the image data

Pressing the on/off button (6) switches on the VistaScan Perio Plus. The image data editing and the archive software, e.g. DBSWIN from V 5, of the scanning mode is then activated. If the status LEDs (5) are illuminated in green, the foil cassette (9) can be installed on one of the two input units (3).

The cassette (9b) is then pushed out of the cassette cover (9c) into the transport slot (7) with the fingers. The cassette cover (9c) remains locked in the input unit and can be removed afterward. It is possible to push in up to 2 cassettes into the transport slots, one after the other, through the input buffer (7a). (Observe status LED's (5)!)

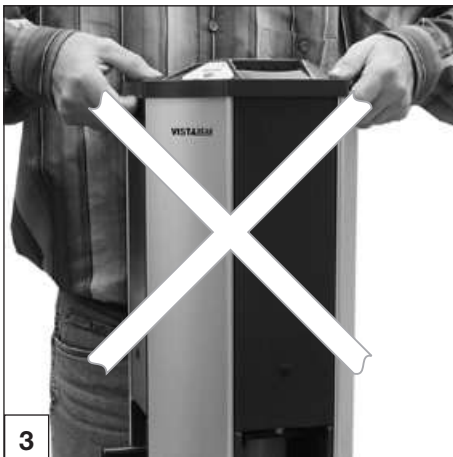
Inside the transport slot (7), the cassette runs through the scanner unit (7b). Here the image data on the image plate is scanned and transmitted to the PC. A window on the monitor shows the progress of this procedure. If more than one image plate is being scanned simultaneously then this will take place at the same resolution.

After scanning, the cassette (9b) runs through the erasure unit (7c), where remaining image data is erased on the image plate. The cassette is then transported into the output unit (8). Up to 3 cassettes can then be put in a row there and can then be picked up.

### Further X-ray images

After removing the cassette from the output unit (8), the cover (9a) of the cassette is opened and the image plates are tipped onto the foil pad (10). The image plates can then be pushed into the light protection cover again and used for new X-rays.

If used carefully it is possible to reuse the image plates several hundred times. Before reuse the image plates should be checked for signs of dirt or damage. Damaged image plates must not be reused.



## Mounting



Only suitably qualified personnel are permitted to set up, to install or to operate the appliance.

## 9. Transport and packing

- Check that the delivery contents are complete and check for any signs of transport damage.
- Completely empty the packaging.
- Do not expose the VistaScan Perio Plus to any strong shocks which could damage the appliance.



**Damage throughshock.**

During operation and the switching off process (blue and green operational LEDs blinking alternately) ensure that the appliance is not moved in any way whatsoever, as the moving parts must be allowed to stop moving completely.

## 10. Moving the VistaScan Perio Plus



Always carry the VistaScan Perio Plus by the underside of the housing (Fig. 1).

Never carry the VistaScan Perio Plus with the output slot or the cover, since this can damage sensitive components of the VistaScan Perio Plus. (Figs. 2 and 3)



## 11. Set-up

### 11.1 Room for Set-up

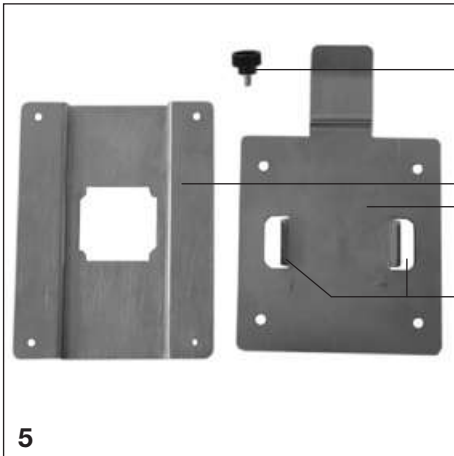
- The VistaScan Perio Plus should be set up in a closed, dry and well-ventilated room.
- The room temperature should not fall below + 10°C or exceed + 35°C.



**Danger of short circuit due to build up of condensation.**

**The system can only be put into operation once the appliance has warmed up to room temperature and it is dry.**

- Installation in a purpose-built room, e.g. in a boiler room or in a wet room is not permitted.
- Do not expose the VistaScan Perio Plus to direct sunlight. It may be necessary to reduce the amount of light within the room. The maximum light intensity is 1000 Lux.
- There must be no source of interference in the room for set-up (e.g. strong magnetic field). Any such disturbances can interfere with the operation of the VistaScan Perio Plus.



12a

12b

12c

12d

### 11.2 Set-up alternatives

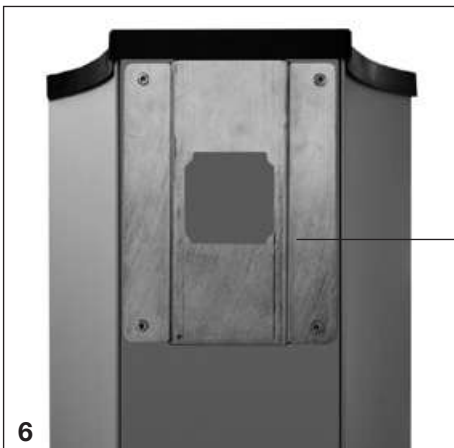
#### Wall mounting

- Choose the installation location (Fig. 4) so that VistaScan Perio Plus is accessible for maintenance.
- VistaScan Perio Plus can be mounted on a wall with a wall mounting bracket (Fig. 5) (Order number 2140-001-00).



The wall mounting bracket (Fig. 5) is supplied without any fastening materials. Safe fixing should be carried out by a qualified person. The mounting fixture used must be able to support a weight 4-times higher than the actual weight of the VistaScan Perio Plus.

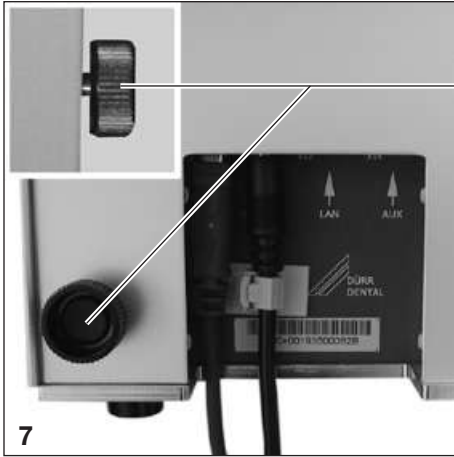
The 4 bore holes in the wall mounting bracket have a diameter of  $\varnothing$  7 mm.



12b

- Fasten wall mounting bracket part 1 (11b) on the rear of the VistaScan Perio Plus.
- Mount the wall mounting bracket part 2 (11c) on the wall.





12a

- Place the spacer screw (11a) into the thread on the rear.
- Hang the VistaScan Perio Plus in the wall mounting bracket.
- Align the VistaScan Perio Plus using the spacer screws (11a).



8

### Table Set-up

VistaScan Perio Plus can also be mounted on a table.



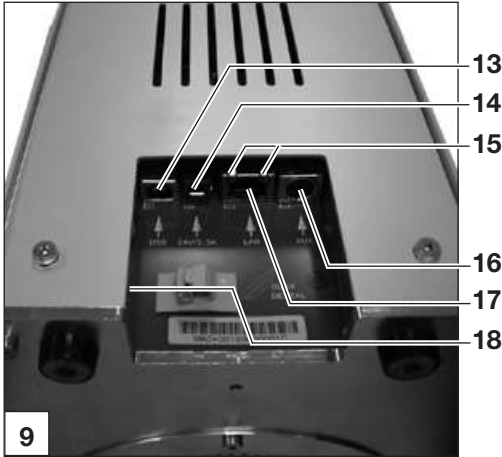
In order to avoid problems when scanning the image data, the VistaScan Perio Plus should be set up so that will not be subject to knocks, vibration or similar.

## 12. Electrical Connections

Before initial start-up compare the operating voltage of 24 V DC and the supply voltage 100 V - 240 V are consistent with the information on the model identification plate.

The connection ports are in the recesses on the rear side of the appliance.

- Connect the mains cable to the appliance power unit and to the mains supply.
- Connect the power cable to the socket on the VistaScan Perio Plus.
- Fasten the cable with the cable clip.
- Place the power cable into the power outlet socket.



## 13. Commissioning

### 13.1 VistaScan Perio Plus

**i** Installation and configuration may only be carried out by a Dürr Dental trained and certified person or one of our own service technicians.

VistaScan Perio Plus is equipped with four connection ports which are located under the cover on the rear side of the unit:

#### 13. USB-connection

VistaScan Perio Plus can be operated using USB connections.

**i** Where VistaScan Perio Plus is connected to both USB and a network, the network takes priority.

#### 14. 24 V - Connection

The 24 V -connection provides the power to operate the VistaScan Perio Plus.

#### 15. Network connection status LEDs

The status LEDs for networking show whether connection to a network has been established and whether data can be transmitted.

#### 16. AUX-connection

The AUX-connection is used for diagnosis purposes by our Service Technician. The AUX-connection can be used to connect auxiliary devices for testing and for trouble-shooting.

**i** Only use auxiliary devices specifically approved or manufactured by Dürr Dental.

#### 17. Network connection

VistaScan Perio Plus can be operated on a network as well.

#### 18. Reset button

Pressing and holding the Reset button for 15 - 20 seconds while switching on returns all network settings of the unit to the original factory settings. Reset is confirmed and the VistaScan Perio Plus display shows "Factory Reset".

## 13.2 X-ray device settings

Check the following appliance-specific standard values and adapt as required.

### Reference conditions:

- Adult patient

Parameter	DC-emitter, 7 mA, tube length 20 cm		DC-emitter, 7 mA, tube length 30 cm	
	recommended exposure time (s)		recommended exposure time (s)	
<b>upper jaw</b>	<b>60kV</b>	<b>70kV</b>	<b>60kV</b>	<b>70kV</b>
incisors	0.1	0.08	0.2	0.16
pre-molars	0,125	0.1	0.25	0.2
molars	0.16	0,125	0.32	0.25
<b>lower jaw</b>	<b>60kV</b>	<b>70kV</b>	<b>60kV</b>	<b>70kV</b>
incisors	0.1	0.08	0.2	0.16
pre-molars	0,125	0.1	0.25	0.2
molars	0,125	0.1	0.25	0.2
<b>Bitewing</b>	0.16	0,125	0.32	0.25



Where it is possible to set the x-ray tube to 60 kV, this setting should be selected. The usual exposure values for F-Film (e.g. Kodak Insight) can be used.

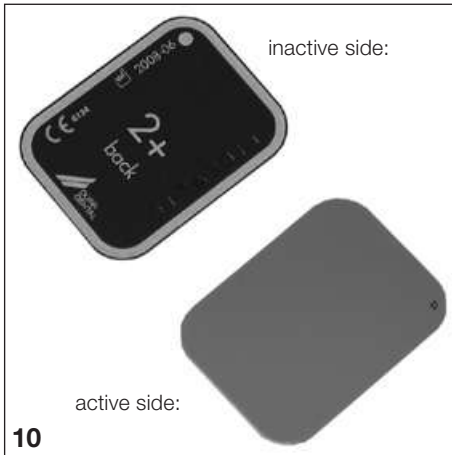
## 13.3. Commissioning and Constancy Checks



Before the appliance can be used the first time a handover test (commissioning test) of the X-ray system must be carried out according to national and local regulations. The test body for Intra / Extra (order number 2121-060-54) will be required.

The Constancy Check of the X-ray system must be carried out by surgery staff at frequent intervals. The Constancy Check is based on those results obtained during the handover test.

\* observe all rules and regulations!



## Use of the Appliance

### 14. Image plate



**Image plates are toxic: for this reason image plates must be placed in a light protection cover before placing into the mouth of a patient. In the case of a patient swallowing an image plate or a part of one then a doctor must be consulted immediately and the image plate removed. If a patient damages a light protection cover when biting on it, then the mouth must be rinsed out thoroughly with copious amounts of water.**

EN

#### 14.1 General

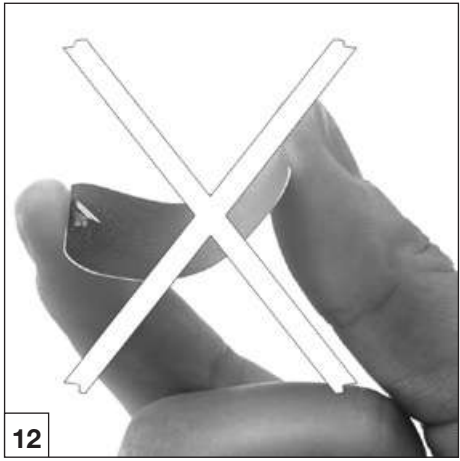
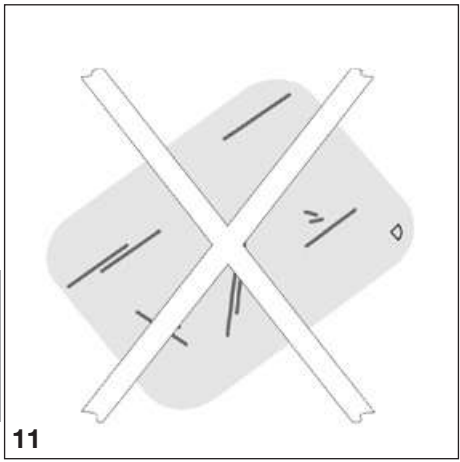
VistaScan Perio Plus should only be used in combination with PLUS image plates from Dürer Dental. The use of image plates from other manufacturers could result in poorer image quality. Exposure of the image plate must always be carried out on the active side:

active side:

- the active side is light blue. This side is also marked with a  positioning guide.

inactive side:

- the inactive side is black. This is printed with the size, manufacturer's information and the word "Back". Furthermore, the inactive side is surrounded by a silver edge which makes positioning together with the light protection cover into the patient's mouth easier. In one corner there is a silver dot; this replaces the slight indentation found on conventional X-ray film. This dot should always be set in the direction of the occlusal plane. This allows easier orientation of the X-ray exposure.



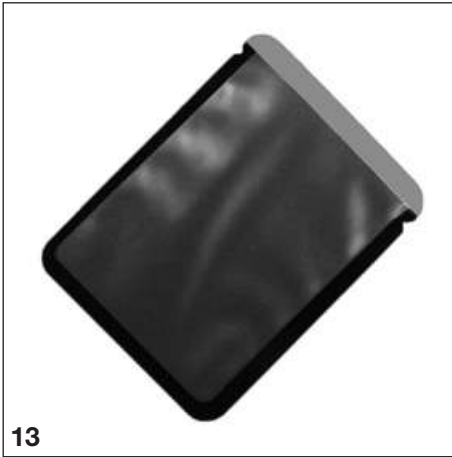
### 14.2 Working with image plates

Image plates must be visibly checked for signs of damage. Damaged image plates (e.g. a torn outer layer, or visible scratches, which will affect the diagnostic assessment) must be replaced.

- image plates are flexible like X-ray film.
- do not bend or subject to pressure.
- do not scratch or get dirty.
- do not put in an autoclave

### 14.3 Storing image plates

- store image plates in a dark place.
- do not store in hot or moist conditions.
- store intraoral image plates in a light protection cover of the appropriate size.
- if an image plate is stored for longer than 24 hours, then it should be erased again before the next X-ray exposure. See section 19.5
- protect from direct sunlight and ultraviolet beams.
- if stored in the X-ray room itself then the image plates must be protected from pre-exposure caused by X-ray radiation.



13

## 15. Light protection covers

light protection cover

- light protection covers protect the patient from infection by contaminated image plates.
- protect the image plate from contamination and dirt.
- protect the image plates from stray light.
- is available in different sizes just like image plates. Choose the most appropriate size.

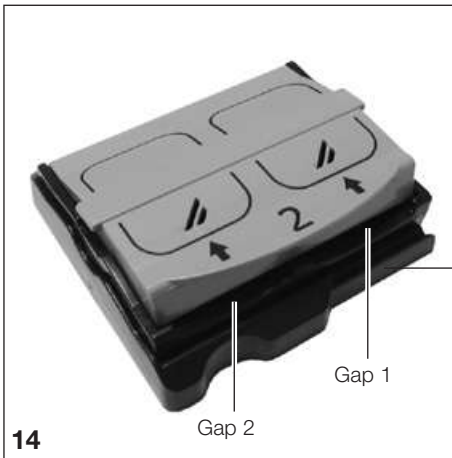


**The light protection cover is a disposable article and must not be reused.**



For information on using light protection covers see the appropriate instructions for use, order number 9000-618-30/30.

EN



14

## 16. Foil cassettes

- The installed cassette cover (9c) prevents the image data from being erased on the image plate.
- The image plate is positioned on one of the input units with the foil cassette.
- The image plate is fed to the transport slot of the VistaScan Perio Plus with the foil cassette.
- Depending on the foil cassette, more than one image plates can be used.

**Foil cassette size 0 to 3:**

Up to 2 image plates (feed 1 and 2)

**Foil cassette size 4:**

1 image plate



**Do not autoclave the foil cassette**



15

## 17. Bite protector

The bite protector protects the size 4 image plate from damage through the patient biting down too hard on it during an X-ray exposure.



For information on using the bite protector see the appropriate instructions for use, order number 9000-618-101/01.

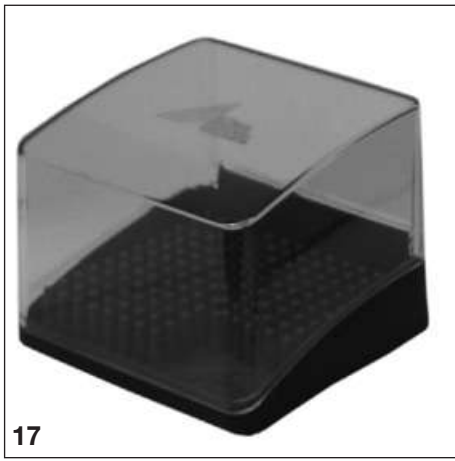


## 18. Hygienic covers

- provide added protection to the patients from infection by contaminated light protection covers and image plates.
- also protects the image plate from contamination and dirt.
- protect the device from contamination from contaminated light protection covers.
- is available in different sizes just like image plates. Choose the most appropriate size.

**!** **Loss of image data**  
**Image data on the image plate will be lost when exposed to light. Never handle exposed image plates without the light protection cover. The hygienic cover does not protect the plates from light exposure.**

**i** For information on using hygienic covers see the appropriate instructions for use, order number 9000-618-149/30.



## 19. Storage box with image plate storage tray

After taking the image plates from the foil cassettes, they can be placed in storage box. The image plate storage tray must be put in the storage box before use.

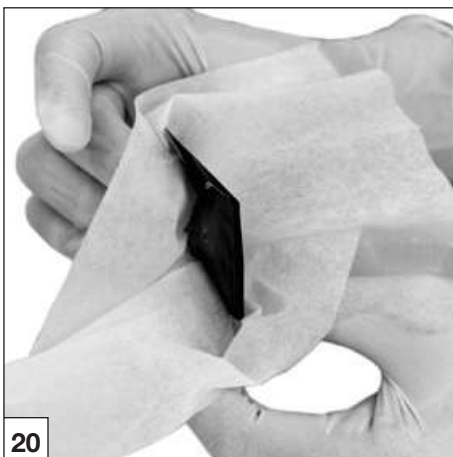




18



19



20

## 20. X-ray



Observe the notes on hygiene regulations under section 21. Cleaning and Disinfection.

### 20.1 Preparing to X-ray



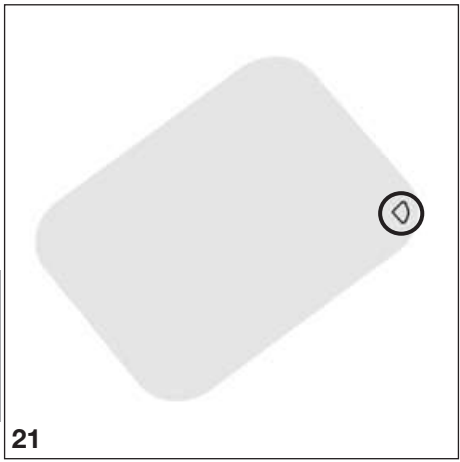
Image plates can be prematurely exposed by natural X-ray radiation or by stray X-ray radiation.

- The image plate should be erased before using it for the first time or after storage of more than 24 hours. Refer to section 20.5 Erasure of image data
- Slide the image plate completely into the light protection cover. The black (inactive) side of the image plate must be visible.
- Peel off the white sticky strip and press firmly to close the opening of the light protection cover.



**The light protection cover is a disposable article and must not be reused.**

- The light protection cover must be disinfected using a disinfectant wipe before positioning inside the patient's mouth (e.g. with Dürr FD 350). Alternatively, use a disinfectant spray (e.g. Dürr FD 322, FD 333) on a soft, fluff-free cloth instead of a disinfectant wipe.




## 20.2 X-ray exposures



**Danger of infection!**  
When placing the image plate into the patient's mouth always wear protective gloves.



The image plates are marked with a symbol . The symbol is visible in the X-ray exposure, and makes orientation during diagnosis easier.  
The image plate should be placed in the patient's mouth so that the symbol will not affect the diagnostic usefulness of the X-ray exposure.

- Place the image plate inside the light protection cover as normal into the patient's mouth. The silver point on the inactive side must face the occlusal area. The active side of the image plate must point in the direction of the X-ray tube.



**Damage to the image plate**  
**Only use handling systems which will not cause any damage to either the light protection cover or the image plates. Handling systems which have sharp edges should be avoided where possible. We strongly recommend using the Dürr Dental image plate and film handling system set, order number 2130-981-50; and Dürr Dental image plate and film handling upgrade set for endo-exposures, order number 2130-981-51.**

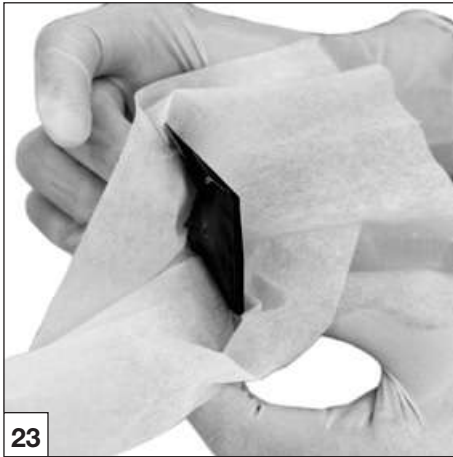
- Set exposure time and settings on the X-ray appliance.
- Produce an X-ray exposure.



**The image data present on the image plate must be processed and scanned within 30 minutes of exposure.**



22



## 20.3 Preparing to scan image data



Danger of infection!

Wear protective gloves when removing image plates from the patient's mouth.

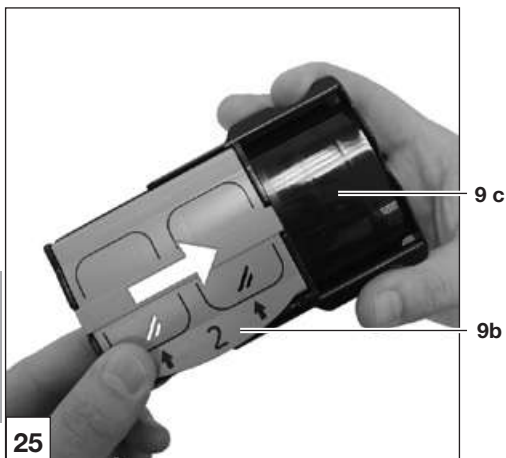
- Remove the image plate inside its light protection cover from the patient's mouth.
- If the light protection cover or the gloves are considerably dirty, e.g. from blood, then before disinfection the cover must be given a quick dry clean, e.g. by wiping with a clean piece of lint.
- Clean and disinfect the light protection cover and the gloves with a disinfectant wipe (e.g. Dürr Dental FD 350).  
Alternatively, use a disinfectant spray (e.g. Dürr FD 322, FD 333) on a soft, fluff-free cloth instead of a disinfectant wipe.
- Lay the image plate down in the light protection cover in the disinfectant wipe.
- Take off the protective gloves, disinfect the hands (e.g. with Dürr Dental HD 410) and clean (e.g. with Dürr Dental HD 430, HD 435).



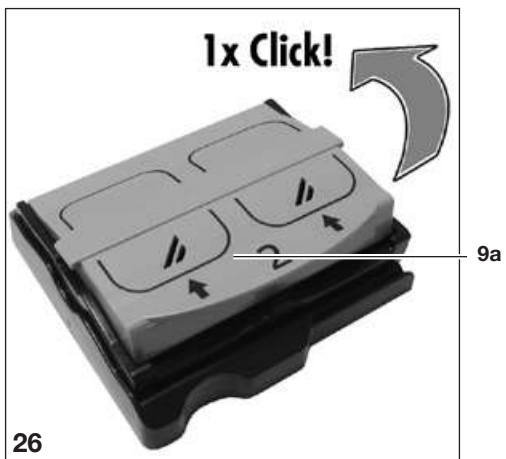
**Damage to the VistaScan Perio Plus**  
**Before handling the image plates,**  
**hands should be completely clean**  
**and free of any traces of powder**  
**from protective gloves.**

**This powder can damage the optical scanning unit of VistaScan Perio Plus during the scanning procedure of the image plate.**

- Open the light protection cover **straight along** the adhesive edge (V-cut).
- Choose a foil cassette of the correct size.



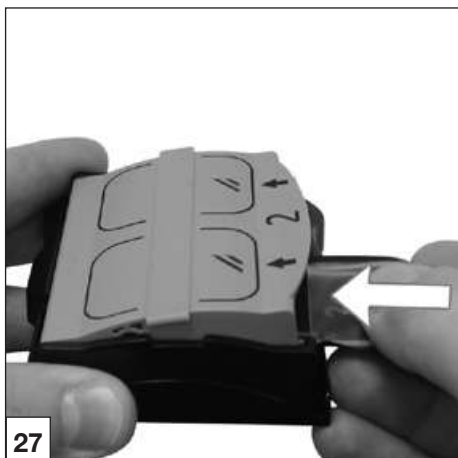
- Push the cassette (9b) into the cassette cover (9c).



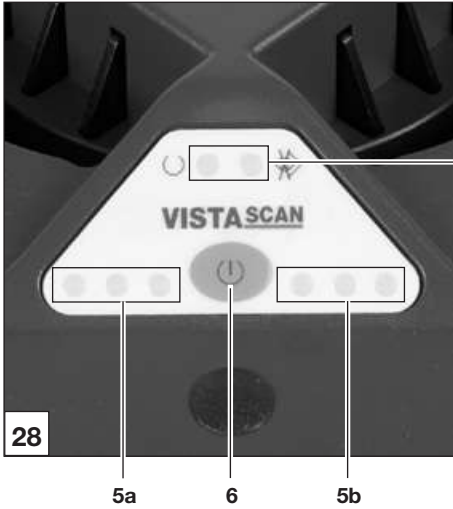
- Flip the cover (9a) of the foil cassette open until it latches once.
- Place the opened light protection cover tight against gap 1 or gap 2. The black (inactive) side of the image plate must be visible.
- Slide the image plate out of the light protection cover and immediately into the foil cassette until it is firmly in position.
- Close the cover (9a) on the foil cassette.



**Damage to the image plate:**  
The surface of the image plate can be sealed off if the foil cassette is pushed in improperly. The light protection cover must therefore lay firmly against the cover of the foil cassette.



**Loss of image data**  
Image data on the image plate will be lost when exposed to light. Exposed image plates should never be handled without either a light protection cover or a foil cassette without cassette cover.



## 20.4 Scanning the image data



With VistaScan Perio Plus, four cassettes with up to eight image plates can be read with the same resolution.

4



After switching on the appliance needs to go through initialisation. The display on the VistaScan Perio Plus will show "INIT SYSTEM". When ready both models display a green operating LED. Additionally VistaScan Perio Plus displays message "READY".

### Example of the imaging software DBSWIN



Further information on recording pictures, storage and editing can be found in the handbook to DBSWIN under Menu [Help], [Contents].

Start DBSWIN.

- Choose the respective patient.
- Choose the correct exposure values from the X-ray module.
- Set desired resolution .
- Click option "Scan".



### Confusing patient X-rays

**The software ensures that the x-rays are always allotted to patients one after the other in the order of activated patients.**

**In order to avoid confusing these X-rays from those of other patients only X-ray exposures for this (one) patient should be scanned at one time. VistaScan Perio Plus under DBSWIN provides additional data, e.g. patient number, room, etc. on the display.**

### Operational LEDs

		Operational
		Not ready for communication
		Shut down process



### Transport slot status LEDs

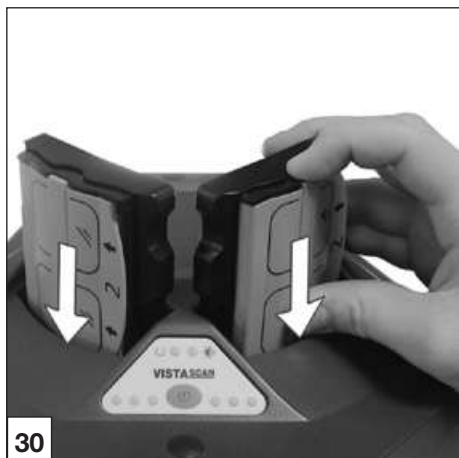
	Problem
	Image plate currently being processed
	Film feed slot ready
	Radiation deflector switches from standby mode to set value



EN



29



30



31

**The following actions are possible on both transport slots at the same time:**

Status LED is green:

- Insert the foil cassette with the image plate on the input unit (Fig. 27).
- Use your fingers to slide the cassette out of the cassette cover into the transport slot (Fig. 28).

Status LED illuminates in yellow and green:

- Remove the cassette cover.
- Insert the second foil cassette with the image plate on the input unit.
- Use your fingers to slide the cassette out of the cassette cover into the transport slot.

Status LED is yellow:

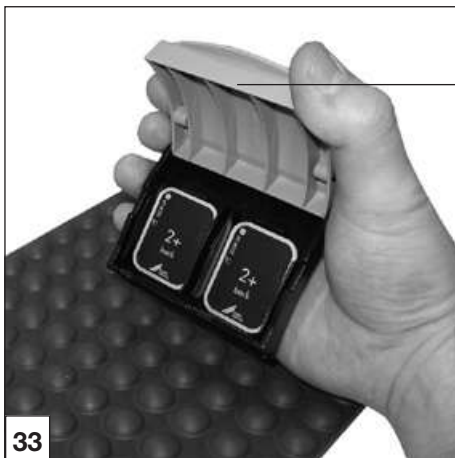
- Do not insert any more cassettes.

The progress of the read procedure is shown in the preview window on the monitor and on the display.

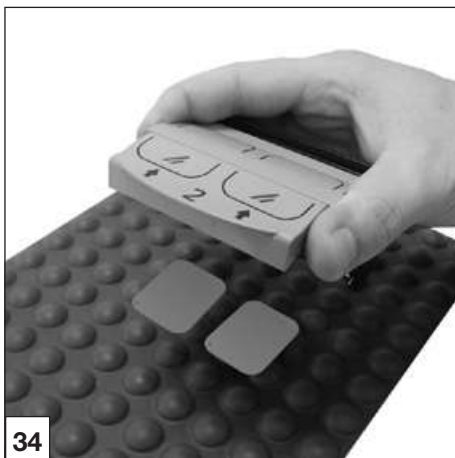
- The X-ray exposure will be saved in DBSWIN.



32



33



34

## 20.5 Erasing the image data

After scanning, the cassette proceeds to the erasure unit. Image data still held on the image plate will be erased. The cassette is then transported into the output unit. Up to 3 cassettes can then be put in a row in the output buffer and should be picked up there as soon as possible.

### Special mode "Erase"

The image plate must be erased again if:

- the image plate has been stored and not used for longer than 24 hours.
- The image data on the image plate has not been (completely) erased due to a malfunction of the VistaScan Intra. (Error message from software)



The special mode activates the erasure unit of the VistaScan Intra. No image data will be transmitted to the software.

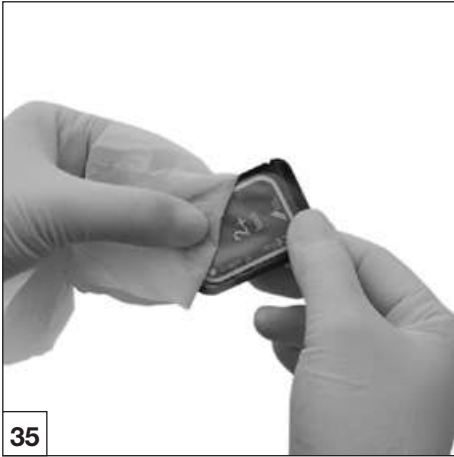
### To erase again:

- 9a • Insert the foil cassette with the image plate on the input unit.
- Choose the special mode "Erase" in the software.
- Use your fingers to slide the cassette out of the cassette cover into the transport slot.

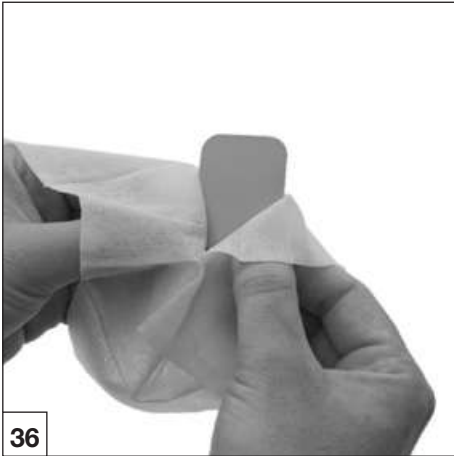
## 20.6 Removing the image plate from the cassette

Remove the image plate from the output unit

- Flip open the cover (9a) on the cassette.
- Hold the cassette over the foil pad.
- Tip the image plate with the active side facing upward out of the cassette on the foil pad.
- Prepare the image plates for further X-rays. (See from point 18.1)



35



36

## 21. Disinfection and Cleaning



Only use disinfection and cleaning agents specifically approved or manufactured by Dürr Dental.

Other cleaning and disinfectant agents could cause damage to the VistaScan Perio Plus and accessories.

### 21.1. Light protection covers

The light protection cover must be disinfected using a disinfectant wipe before positioning inside the patient's mouth and after extraction (e.g. with Dürr Dental FD 350). Alternatively, use a disinfectant spray (e.g. Dürr FD 322, FD 333) on a soft, fluff-free cloth instead of a disinfectant wipe. Observe the active working time of the solution carefully. The fluids must be completely dried.

### 21.2 Image plates



**Damage to image plates  
Do not put image plates in the autoclave!**

**Disinfectant baths will destroy image plates!**



We strongly recommend the use of special cleaning cloths for image plates, order number CCB351B1001

- Dirt on either side should be cleaned off using a soft non-fluffy cloth. Remaining dirt can be removed with a special cleaning agent from the cleaning set and by applying a circular wiping motion.
- Before reuse, the image plate must be completely dry.





### 21.3. Foil cassettes



**Damage to foil cassettes**  
**Do not put foil cassettes in the autoclave!**

**Visible dirt must be removed before the foil cassette is used again!**

- Alternatively, use a disinfectant spray (e.g. Dürr FD 322 or FD 333) on a soft, fluff-free cloth instead of a disinfectant wipe for disinfecting. Alternatively the foil cassettes can be immersed in a bath containing a non-aggressive disinfectant (e.g. Dürr ID 212 forte).
- Before reuse, the cassette must be completely dry.

### 21.4. Storage box with image plate storage tray

#### Storage box

Clean and disinfect surfaces with contamination or visible dirt.

- Clean the surface with a damp cloth.
- Use a disinfectant spray (e.g. Dürr Dental FD 366 sensitive) on a soft, lint-free cloth for disinfecting.

#### Image plate storage tray

Clean and disinfect surfaces with contamination or visible dirt.

- The surface can be cleaned using a damp cloth, and then disinfected using a disinfection wipe (e.g. Dürr Dental FD 350).

The image plate storage tray can also be disinfected/sterilised in the

- Thermal disinfector
- Autolav



**Do not exceed a temperature of 134 °C.**



## 21.5 VistaScan Perio Plus

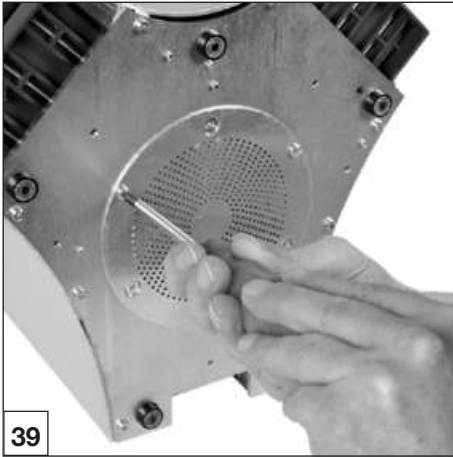


**Damage to the VistaScan Perio Plus Fluids must not be allowed to enter the inner parts of the appliance, therefore do not use spray disinfection or cleaning solutions on the VistaScan Perio Plus!**

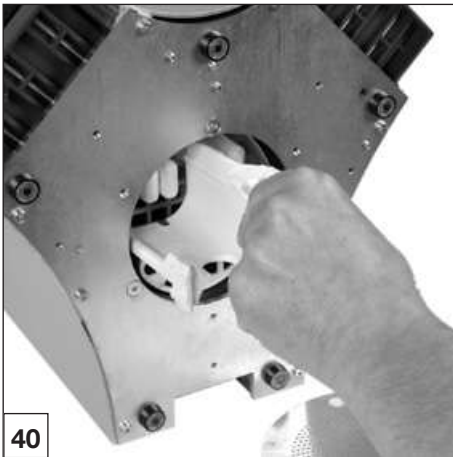
### Appliance surfaces

Where the outer surfaces of the appliance show signs of contamination or visible dirt, clean and disinfect the unit.

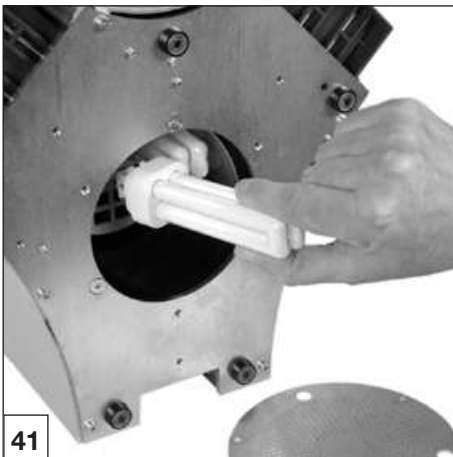
- Clean the upper surfaces of the VistaScan Perio Plus using a damp cloth, and then use a disinfection wipe (e.g. Dürr Dental FD 350).
- Any dirt present at the entry and exit areas must be cleaned before scanning.



39



40



41

## 22. Maintenance

### 22.1 Changing fluorescent lamps

The fluorescent lamp that has to be changed is shown when DBSWIN is started. This occurs after 40000 erasure cycles.

#### Change the fluorescent lamp



Unplug at the mains before beginning

- Lay the VistaScan Perio Plus on its back
- Remove screws from the cover plate of the lamp well on the underside of the VistaScan Perio Plus.
- Remove the cover plate.
- Pull out the plastic insert around the fluorescent lamps.
- Remove the fluorescent lamp out of the sockets.
- Insert the fluorescent lamp into the socket.
- Put the plastic insert around the fluorescent lamps again.
- Install the cover plate with the screws again.

#### Resetting the counter

- Insert the DBSWIN DVD-ROM (as of version 5.0) into the DVD drive.
- Close the Autostart window.
- Right-click on to the "Workstation" on the CD ROM drive that contains the DBSWIN CD and select "Open".
- Open the "ServiceScanner.exe" programm from path "\\Tools\VistaScan".
- Select "VistaScan Perio Plus" and confirm with "OK".
- Click on "Reset LampCounters". The counter is reset.
- Switch off the scanner upon request.
- Close the "ServiceScanner.exe" program.

### 22.2 Maintenance intervals

- A maintenance inspection should be carried out by the service technicians after 3 years.
- The transport unit is to be serviced by a service technician after 40 000 cycles.



## Trouble-shooting

### 23. Tips for Operators and Technicians

Repairs may only be carried out by suitably qualified personnel or our own service technicians.

#### 23.1 VistaScan Perio Plus

Problem	Probable cause	Solution
<b>1. The VistaScan Perio Plus does not switch on</b>	<ul style="list-style-type: none"> <li>No supply voltage</li> <li>On/Off switch defective</li> </ul>	<ul style="list-style-type: none"> <li>Check the mains cable and all connections</li> <li>Check the main fuse box to building</li> <li>Check the power unit, whether green LED lights</li> <li>Inform your Service Technician</li> </ul>
<b>2. VistaScan Perio Plus switches off again after a brief period</b>	<ul style="list-style-type: none"> <li>Mains cable or one of the plugs has not been inserted correctly</li> <li>Hardware defective</li> <li>Mains supply voltage too low</li> </ul>	<ul style="list-style-type: none"> <li>Check the mains cable and all connections</li> <li>Inform your Service Technician</li> <li>Check the supply voltage</li> </ul>
<b>3. Status or operation LED does not light up</b>	<ul style="list-style-type: none"> <li>LED defective</li> </ul>	<ul style="list-style-type: none"> <li>Inform your Service Technician</li> </ul>
<b>4. Loud noises during operation after switching on</b>	<ul style="list-style-type: none"> <li>If the noises persist longer than 30 seconds, then the beam baffle is defective</li> </ul>	<ul style="list-style-type: none"> <li>Inform your Service Technician</li> </ul>
<b>5. The image editing software does not recognise the VistaScan Perio Plus</b>	<ul style="list-style-type: none"> <li>Do not switch on the VistaScan Perio Plus</li> <li>The connecting cable between VistaScan Perio Plus and PC is loose</li> <li>PC does not register connection to VistaScan Perio Plus</li> <li>Hardware fault</li> </ul>	<ul style="list-style-type: none"> <li>Switch on the VistaScan Perio Plus</li> <li>Check USB cable/network cable</li> <li>USB-driver not installed or inactive</li> <li>Check USB cable/network cable</li> <li>Check the IP addresses and subnet masks</li> <li>Inform your Service Technician</li> </ul>
<b>6. Appliance does not react</b>	<ul style="list-style-type: none"> <li>VistaScan Perio Plus has not completed start procedure</li> <li>Firewall is blocking VistaScan Perio Plus</li> </ul>	<ul style="list-style-type: none"> <li>Appliance needs 20-30 seconds to completely switch on. Repeat after sufficient time.</li> <li>Set up ports for the appliance in Firewall.</li> </ul>

<b>Problem</b>	<b>Probable cause</b>	<b>Solution</b>
<b>7. X-ray exposure does not appear on the monitor after scanning</b>	<ul style="list-style-type: none"> <li>• Image plate has been put in cassette upside down and the inactive side scanned</li> <li>• Image data on the image plate has been erased, e.g. by ambient light</li> <li>• Problem with the hardware</li> <li>• X-ray device is faulty</li> <li>• No image information on the image plate</li> </ul>	<ul style="list-style-type: none"> <li>• Rescan the image plate as quickly as possible</li> <li>• Image data on the plate must be scanned as quickly as possible after extraction</li> <li>• Inform your Service Technician</li> <li>• Inform your Service Technician</li> <li>• Expose the image plate</li> </ul>
<b>8. X-ray too dark / light</b>	<ul style="list-style-type: none"> <li>• Incorrect brightness/ contrast setting in the software</li> <li>• Exposed image plate was subjected to ambient light</li> <li>• X-ray dosis too low</li> </ul>	<ul style="list-style-type: none"> <li>• Set the brightness of the X-ray image using the software</li> <li>• Put the image plate in the light protection cover on the cassette.</li> <li>• Check X-ray parameters</li> </ul>
<b>9. Image presented as mirror image</b>	<ul style="list-style-type: none"> <li>• Image plate incorrectly placed in light protection cover</li> <li>• The image plate was placed in cassette or in the mouth of the patient the wrong way round</li> </ul>	<ul style="list-style-type: none"> <li>• Place image plate correctly. The black side (printed) of the image plate must be visible through the transparent side of the light protection cover.</li> <li>• Place and align the image plate correctly</li> </ul>
<b>10. Ghost images and shadows on the X-ray exposure</b>	<ul style="list-style-type: none"> <li>• Image data on the image plate has not been sufficiently erased</li> </ul>	<ul style="list-style-type: none"> <li>• Check erasure parameters</li> <li>• Inform your Service Technician</li> <li>• Replace the erasure unit</li> </ul>
<b>11. Image is very faint on the scanning window software cannot piece the data together to form a complete picture</b>	<ul style="list-style-type: none"> <li>• The X-ray dose used for the image plate was too low</li> <li>• Amplification level too low (HV-value)</li> <li>• Unsuitable scanning mode used</li> <li>• Threshold setting too high</li> </ul>	<ul style="list-style-type: none"> <li>• Inform your Service Technician</li> <li>• Replace the erasure unit</li> <li>• Increase the amplification (HV-value)</li> <li>• Choose a suitable scanning mode</li> <li>• Reduce the settings</li> </ul>
<b>12. VistaScan Perio Plus does not appear in the options list in VistaScan-Config</b>	<ul style="list-style-type: none"> <li>• Appliance is set up behind a router.</li> </ul>	<ul style="list-style-type: none"> <li>• The IP address, without intermediate router, needs to be configured for VistaScan Perio Plus Net.</li> <li>• Connect the router again.</li> <li>• Enter IP address into VistaScan-Config manually and register appliance.</li> </ul>

<b>Problem</b>	<b>Probable cause</b>	<b>Solution</b>
<b>13. VistaScan Perio Plus does not appear in the options list in VistaScan-Config. Connection is not possible however!</b>	<ul style="list-style-type: none"> <li>The subnet mask of the PC and VistaScan Perio Plus do not match</li> </ul>	<ul style="list-style-type: none"> <li>Check the subnet masks and adapt as required</li> </ul>
<b>14. Error message appears on starting X-ray module in DBSWIN</b>	<ul style="list-style-type: none"> <li>VistaScan Perio Plus has a conflict with another appliance</li> </ul>	<ul style="list-style-type: none"> <li>Set VistaScan/VistaScan Perio Plus to "Demo without Scanner" in "VistaScanConfig".</li> </ul>
<b>15. X-ray exposure has stripes on image</b>	<ul style="list-style-type: none"> <li>Image plate has been exposed</li> <li>Part of the image plate was exposed to light during handling</li> <li>Image plate was dirty or scratched</li> </ul>	<ul style="list-style-type: none"> <li>Only use the image plate within 24 hours of data erasure.</li> <li>Do not expose used image plates to light. Exposure and the scanning of the image data should be carried out within half an hour.</li> <li>Clean the image plate by wiping carefully using a soft cloth and special cleaning agent taken from the cleaning set. All image plates with scratches must be replaced immediately</li> </ul>
<b>16. Warning message: "Too much ambient light"</b>	<ul style="list-style-type: none"> <li>Too much ambient light around VistaScan Perio Plus</li> </ul>	<ul style="list-style-type: none"> <li>Darken the room</li> <li>Rotate the VistaScan Perio Plus so that no direct light falls on the film entry slot</li> </ul>
<b>17. Pale stripes in scanning window</b>	<ul style="list-style-type: none"> <li>Too much stray light entered during scanning</li> </ul>	<ul style="list-style-type: none"> <li>Darken the room</li> <li>Rotate the VistaScan Perio Plus so that no direct light falls on the film entry slot</li> </ul>
<b>18. Blue LED illuminated</b>	<ul style="list-style-type: none"> <li>No connection between VistaScan Perio Plus and PC</li> <li>Data memory full in VistaScan Perio Plus</li> </ul>	<ul style="list-style-type: none"> <li>Activate VistaScan Perio Plus using software</li> <li>USB-driver not installed or inactive</li> <li>Check data cable</li> <li>Use software to set up state of readiness. The image data will automatically be transmitted from VistaScan Perio Plus to the software</li> </ul>

<b>Problem</b>	<b>Probable cause</b>	<b>Solution</b>
<b>19. Error message "E2490"</b>	<ul style="list-style-type: none"> <li>• A connection was broken off while the software was addressing the VistaScan Perio Plus.</li> </ul>	
<b>20. Cassette is not drawn into the transport arc</b>	<ul style="list-style-type: none"> <li>• film cassette not correctly inserted</li> <li>• Other cassettes are in the input buffer, status LED illuminated in orange</li> <li>• When the transport mechanism is not activated, VistaScan Perio Plus may not be ready for operation</li> <li>• Cassette cover is not on the cassette</li> </ul>	<ul style="list-style-type: none"> <li>• Place the film cassette correctly</li> <li>• Wait until input buffer is empty. Status LED is illuminated in green:</li> <li>• See section 20.4 Reading image data</li> <li>• Put the cassette cover on and position again</li> </ul>
<b>21. Cassette is not transported into the output unit</b>	<ul style="list-style-type: none"> <li>• Cassette remains stuck in the transport slot</li> <li>• Output slot blocked</li> </ul>	<ul style="list-style-type: none"> <li>• Inform your Service Technician</li> <li>• Remove the foreign object.</li> </ul>
<b>22. As well as the correct image, narrow images with light and dark streaks are visible</b>	<ul style="list-style-type: none"> <li>• Too much stray light entered during scanning</li> </ul>	<ul style="list-style-type: none"> <li>• Darken the room</li> <li>• Rotate the VistaScan Perio Plus so that no direct light falls on the film entry slot</li> </ul>

## 23.2 Error message on display

<b>Problem</b>	<b>Probable cause</b>	<b>Solution</b>
<b>1. Error code -1010 on display.</b>	<ul style="list-style-type: none"><li>• Appliance temperature too high</li></ul>	<ul style="list-style-type: none"><li>• Allow the appliance to cool</li><li>• Inform your Service Technician</li></ul>
<b>2. Error code -1022 on display.</b>	<ul style="list-style-type: none"><li>• Assembly has not been initialised</li></ul>	<ul style="list-style-type: none"><li>• Problem in software, update software if necessary</li><li>• Inform your Service Technician</li></ul>
<b>3. Error code -1100 on display.</b>	<ul style="list-style-type: none"><li>• Scan process has exceeded allotted time</li></ul>	<ul style="list-style-type: none"><li>• Inform your Service Technician</li><li>• Check the belt drive, blockage during scanning (image plate stuck in unit)</li></ul>
<b>4. Error code -1104 on display.</b>	<ul style="list-style-type: none"><li>• Problem with erasure unit</li></ul>	<ul style="list-style-type: none"><li>• Inform your Service Technician</li><li>• Replace the erasure unit</li></ul>
<b>5. Error code -1153 on display.</b>	<ul style="list-style-type: none"><li>• Problem in sub-assembly</li></ul>	<ul style="list-style-type: none"><li>• Switch the appliance off and on again</li></ul>
<b>6. Error code -1154 on display.</b>	<ul style="list-style-type: none"><li>• Problem with internal data communication</li></ul>	<ul style="list-style-type: none"><li>• Switch the appliance off and on again</li></ul>
<b>7. Error code -1160 on display.</b>	<ul style="list-style-type: none"><li>• Final RPM for radiation deflector not achieved</li></ul>	<ul style="list-style-type: none"><li>• Inform your Service Technician</li><li>• Replace the radiation deflector sub-assembly if problem arises frequently</li></ul>
<b>8. Error code -1170 on display.</b>	<ul style="list-style-type: none"><li>• SOL-Sensor Timeout</li></ul>	<ul style="list-style-type: none"><li>• Switch appliance off and on, possible fault with laser or SOL-sensor</li><li>• Inform your Service Technician</li></ul>



---

## Appendix

---

### Image process times

Time taken between insertion of the image plate to complete scanning of the image data taking image plate format and pixel size into account.

The times listed here are approximate times which have been rounded up.

Theor. resolution LP/mm	42	21	10
Pixel size $\mu\text{m}$	12	24	51
DBSWIN Scan mode	INTRA Perio max. 40LP/mm (12.5 $\mu\text{m}$ )	INTRA Perio hoch 20LP/mm (25 $\mu\text{m}$ )	INTRA Perio Standard 10LP/mm (50 $\mu\text{m}$ )
Intra 2x3	26s (56s)	13s (28s)	6s (13s)
Intra 2x4	28s (60s)	14s (30s)	7s (14s)
Intra 3x4	31s (63s)	15s (31s)	7s (15s)
Intra 2.7x5.4	29s (61s)	15s (31s)	7s (14s)
Intra 5.7x7.6	64s	32s	15s

### File size (uncompressed)

File sizes in MB - will depend largely on the actual image plate format and the pixel size.

The file sizes here are approximate sizes which have been rounded up. The file sizes can be considerably reduced by using a suitable compression program.

Theor. resolution LP/mm	40	25	20	10
Pixel size $\mu\text{m}$	12.5	20	25	50
DBSWIN Scan mode	INTRA super max. 40LP/mm (2000dpi)	INTRA optimal max. 25LP/mm (1270dpi)	INTRA high 20LP/mm (1000dpi)	INTRA rapid 10LP/mm (500dpi)
Intra 2x3	10.4	4.6	2.6	0.65
Intra 2x4	13	5.7	3.2	0.8
Intra 3x4	17	6.4	4.3	1.1
Intra 2.7x5.4	20	7.1	4.9	1.2
Intra 5.7x7.6	58	21.4	14.5	3.6







**Hersteller/Manufacturer:**

DÜRR DENTAL SE  
Höpfigheimer Str. 17  
74321 Bietigheim-Bissingen  
Germany  
Fon: +49 7142 705-0  
[www.duerrdental.com](http://www.duerrdental.com)  
[info@duerrdental.com](mailto:info@duerrdental.com)

