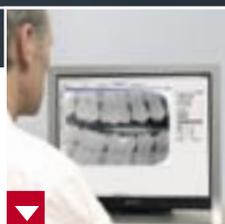


Digital X-ray imaging with image plate technology

IMAGE PLATE SCANNER DÜRR VISTASCAN PERIO



A decision with vision



Diagnostics



Application



Investment

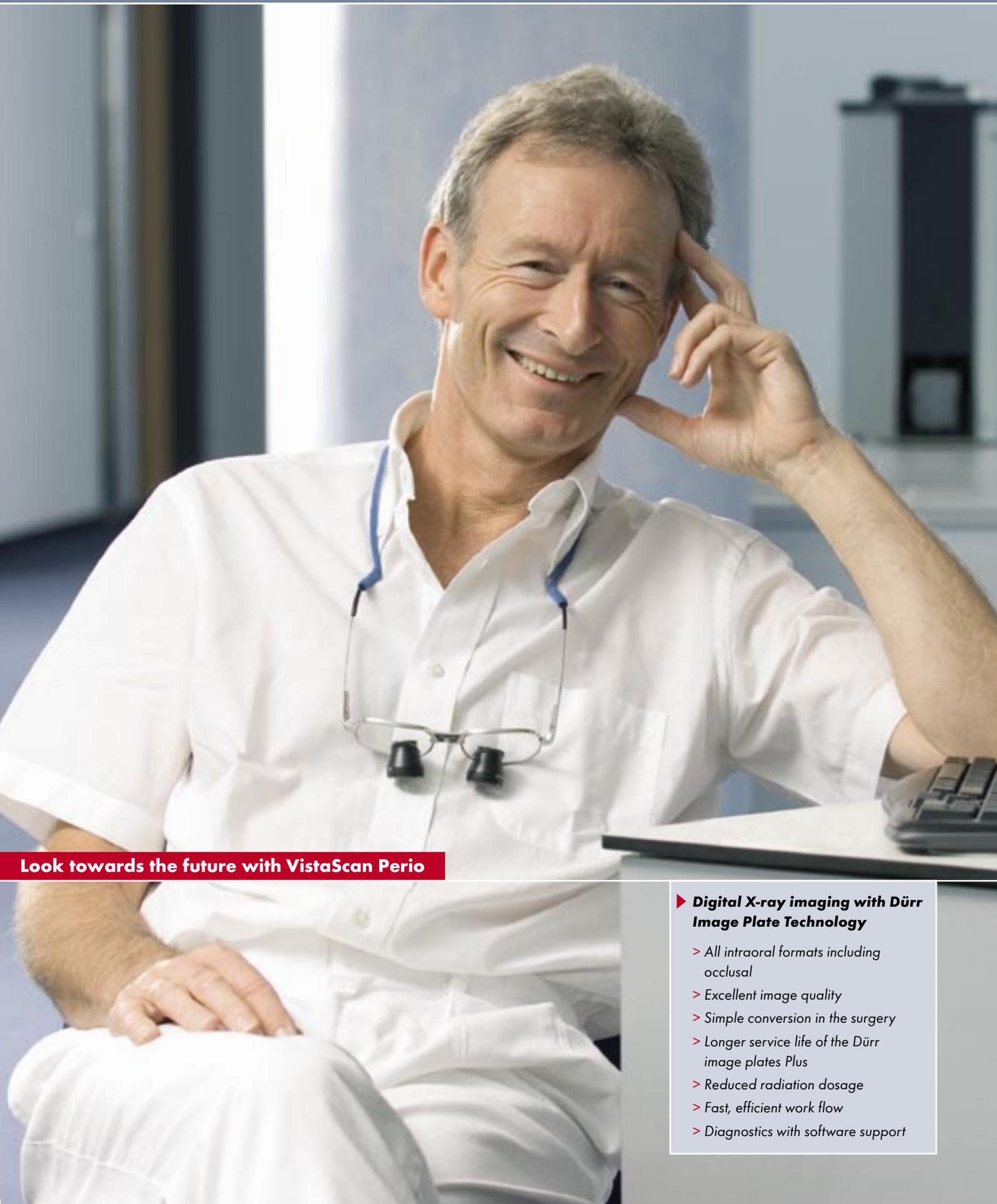
VISTASCAN



DÜRR
DENTAL

A decision with vision

FUTURE-PROOF DIGITAL RADIOGRAPHY FOR THE PRACTICE



Look towards the future with VistaScan Perio

► **Digital X-ray imaging with Dürr Image Plate Technology**

- > All intraoral formats including occlusal
- > Excellent image quality
- > Simple conversion in the surgery
- > Longer service life of the Dürr image plates Plus
- > Reduced radiation dosage
- > Fast, efficient work flow
- > Diagnostics with software support



The Dürr image plate technology ensures "peace of mind" when making major decisions:

Safe diagnostics

The conversion from X-ray film to the "digital" image plate technology is a logical choice. The excellent image quality and the large application range that film has offered for years can now be provided by Dürr image plate technology – all intraoral formats may all be used, complementing the advantages of diagnostic radiography. The software Dürr DBSWIN enhances the diagnostic quality of the images through automatic and personal image optimisation.

Safe application

Well-practised procedures in the surgery, are easily transformed from film based to image plate technology. There is no change in the X-ray procedures in the surgery, but many things are simplified. Positioning and taking of exposures is exactly the same as film except for reduced patient dose. Thankfully the large exposure range of the

plate reduces the risk of over and under exposure. The scanning and controlled deletion of the plates is done automatically with the VistaScan Perio at the press of a button: the cassette system can record up to 8 images in one single step, scans them, deletes and at the same time, the plates are ready for the next exposure. While doing so, it handles the plates very gently.

Safe investment

Satisfied and reassured patients are the basis for the success of a practice. The consultation as well as explanation of results and treatment is done conveniently on the screen. In addition to this cost-effective argument for digitisation, efficiency is optimised using the re-usable Dürr image plates Plus. The Dürr PCS scanner is ready for future generations of image plates with resolutions of up to 40 LP/mm.



Digital diagnostic radiography supported by DBSWIN 4.



Diagnostics and planning of treatment.



Explanation of treatment steps on the screen.

Image plate – the medium for all formats

DIGITAL DÜRR IMAGE PLATE TECHNOLOGY



Compared with sensor systems, the image plate shows excellent performance

► Positive points for image plates

- > Film-like in application
- > Conventional film holders
- > Wireless system
- > All standard formats
- > Large exposure range
- > High grey scale range
- > Image available in seconds
- > One system for the whole practice
- > Use of existing X-ray units

► Comparative info on sensors

- > Rigid and relatively thick, which strongly limits the positioning
- > Special holders required
- > Cables
- > Range of formats limited
- > Smaller exposure range and grey scale range
- > Higher costs for multi-user-systems
- > Sensor and cables easily damaged



◀ The new VistaScan Perio – for all intraoral formats including occlusal.

Dürr image plates Plus in dentistry

Through the introduction of the Dürr VistaScan range in recent years, the image plate can show its specific advantages:

- > Easy positioning
- > Film-like procedures
- > High exposure tolerance
- > Excellent image quality
- > 30% higher sensitivity, leading to higher resolution
- > Long-term system reliability

Dürr image plates Plus have a surface that is three times harder than standard image plates, and they can be exposed, scanned and deleted hundreds of times, sometimes more than 1000 if handled carefully. Processing chemicals are not required, thus eliminating the need for stocking and disposal.



Dürr image plates are suitable for almost any film holder.

Use for intraoral exposures

There is no re-education required for the application of image plates, as handling, positioning and choice of formats are the same as with analogue film. Standard holders for analogue films can still be used in most cases.

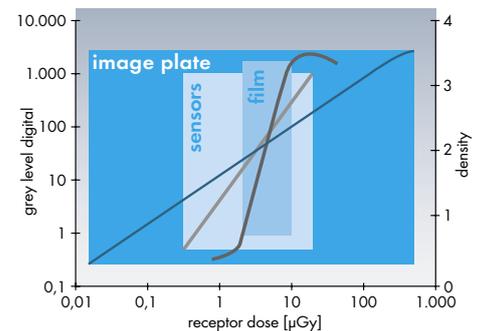
Exposure range and sensitivity

Image plates have the largest exposure range compared to CCD/CMOS sensors and X-ray films. This makes it possible to obtain utilisable exposures even with very low radiation doses. Furthermore, the image plate boasts the highest tolerance for under and over exposure. Therefore the image areas are always correct.

Image dynamics and contrast range

The grey scale range of a film is usually 30–100. Today, semiconductor sensors can obtain 1,000 to 10,000 grey scales. With up to 100 million storable grey scales, the image plate covers

the largest range available (M. Thoms (1997), Nucl. instr. Meth. a (389)). This means that the image plate can offer the image dynamics and the contrast range of analogue X-ray films.



Dürr image plates are characterised by the largest exposure range of all storage media and the highest grey scale range.

► Intraoral Formats

- > Child 2 x 3 cm
- > Bite wing 2 x 4 cm
- > Standard 3 x 4 cm
- > Bite wing 2,7 x 5,4 cm
- > Occlusal 5,7 x 7,6 cm



The re-usable Dürr image plates Plus are available for all intraoral image formats. The "plus" offers higher sensitivity and durability.

Excellent image quality and better diagnostics

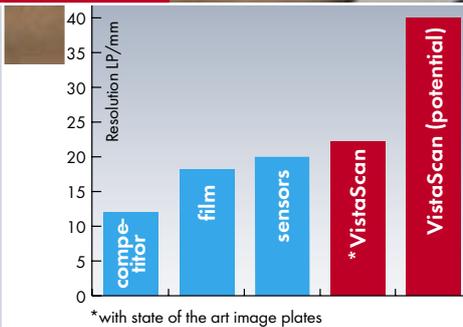
DIAGNOSTIC RADIOGRAPHY WITH DÜRR VISTASCAN PERIO AND DÜRR DBSWIN



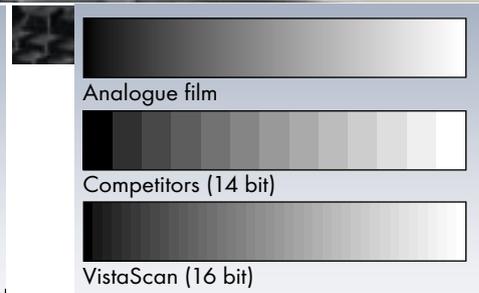
Diagnose with the finest grey scale detection

► Diagnostic advantage using the Dürr image plate technology

- > Imaging of the finest structures up to ISO 06 endo instrument (up to 22 LP/mm resolution)
- > Detection of finest grey value differences for carious D1-lesions (16 bit grey scale gradation)
- > Close to 100 percent detection efficiency, leading to minimum dose requirements
- > Analysis of the raw data with filters to support the diagnosis



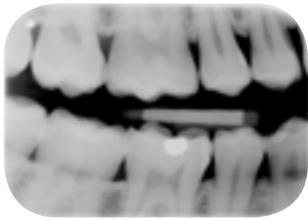
Compared with other media, Dürr VistaScan takes the clear lead with its resolution



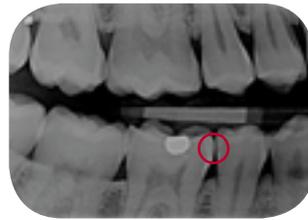
The grey scale gradation of the plate, used to its full potential by VistaScan Perio, allows imaging which is on par with film.

Image comparisons with filters supporting the diagnosis and automatic optimisation:

Original image



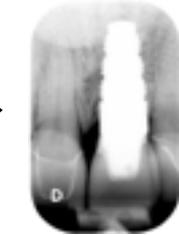
With caries filter K1



Original image



With gamma correction



Original image



With endo filter



Occlusal image



Safe diagnostics

The early diagnosis of smallest defects or of early apical infection require high-resolution imaging, for the diagnosing dentist as well as for the interested patient. Even today, VistaScan Perio can safely detect carious D1 lesions or endo instruments down to ISO 06.

Perfect imaging in DBSWIN

With its X-ray module, the image processing and archiving software Dürr DBSWIN 4 controls the digitisation of the images in the scanning process, presents the images for diagnostic evaluation and offers tools and filters to support the diagnosis.

Filter, magnifying and measuring functions to support the diagnosis

New filters supporting the diagnosis on the basis of the 16 bit raw data with resulting 65536 grey scales can optimise images in contrast and definition in such a way that detailed diagnoses become possible. The magnifier function zooms so far into individual areas that, for instance, early detection of an apical infection can be communicated easily to the patient.

Representation of the 3rd dimension with occlusal images

The step to the 3rd dimension for diagnoses in the occlusal area as well as for the planning of implants can be achieved with occlusal images in many cases.

Archiving and communication with DBSWIN 4 – DICOM-compatible

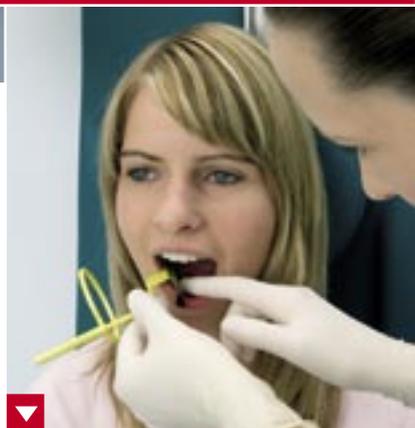
After every exposure, DBSWIN takes care of the data security, as the original image is automatically optimised and stored. The automated exchange of patient data, images and other information is done via a connection to the practice software (e.g. VDDS media interface). The compliance with the DICOM 3.0 standard also makes DBSWIN 4 compatible for clinical and hospital use and the simple import and export of images can be achieved.

Update surgery procedures easily

HIGH PRACTICAL EFFICIENCY WITH VISTASCAN PERIO



Two images within in 8 seconds



The images are created chairside or in a dedicated X-ray room.



Simple handling transfers the image plate to the cassette, which can store up to 2 plates.



The scanning and deletion process of the multi-slot scanner can process up to 8 images in one single step.

From film to plate

Image plate diagnostics with Dürr Dental is the logical upgrade for the surgical team. The radiographic processes for the surgical team remain virtually unchanged. The need for buying the films, dark room and X-ray chemicals are eliminated. Maintenance and film storage costs will also be considerably lower, and the waiting time for film processing will be drastically reduced.

Image plates are flexible, thin and wireless

Image plates are much more user-friendly for the patient. The thin flexible plate, which is positioned in the same way as a film, is much more comfortable. In particular, for images in the molar region, with flat palates, children or even patients with TMJ dysfunction.

Careful and fast scanning of the re-usable plates

VistaScan Perio gives what is most valuable: time and security. It is a multi-slot scanner with input and output buffer that triggers up to 8 images, deletes them and makes the plates available again in one single step with its cassette transport – fully automatic at the touch of a button in approx. 30 seconds. The 4 cassettes with two plates each are loaded and processed one after the other in one single process step. The treating doctor or the assistant are spared waiting, gaining more time for their patients. The first image appears on the screen after only 8 seconds. The scanning process of the VistaScan Perio treats the plates very gently as these are transported without any contact. Thus the cassette system prolongs the service life of the image plates.

Anywhere in the practice

Whether in the X-ray room, centrally in the practice or in the surgery, it's easy to decide the optimum location of the VistaScan Perio. It has a footprint smaller than an A4 sheet of paper. A dark-room is not required.

► Working fast and efficiently with Dürr VistaScan Perio

- > X-ray imaging as with film but significantly faster
- > Integration of VistaScan Perio at any desired location in the surgery
- > Scan- delete - ready to restart in one step
- > One image in as little as 8 seconds, full arch in approx. 30 seconds on the screen

► Scanning times incl. deletion of the image plates with Dürr VistaScan Perio

- > Short times in seconds (s) thanks to multi-slot use

Number	10 LP/mm	20 LP/mm
> 1	8 s	16 s
> 2	8 s	16 s
> 4	16 s	32 s
> 8	32 s	64 s
> 12	48 s	96 s



▼ The fully automatic transport system presents the scanned and deleted image plates in the cassette.



▼ Installed centrally, it looks good either standing on its own or on the wall to save space.

Choose leading-edge technology

FUTURE-PROOF DIGITAL DIAGNOSTIC RADIOGRAPHY - BY DÜRR DENTAL



A decision with vision

► Advantages in the surgery with VistaScan Perio

- > Excellent image quality
- > Simple and with integrated deletion
- > Gentle on image plates
- > Flexible installation
- > Convincing efficiency



With the Dürr PCS technology, it is the laser that turns, instead of the image plates on a drum. This delivers an outstanding image quality in no time at all.

With the PCS technology of the Dürr VistaScan, Dürr Dental has re-established the image plate as a digital medium for dental imaging:

Guaranteed future with the 2nd generation of PCS scanners

Dürr PCS – Photon Collecting System (Patent DE 19942211C2) – since its introduction in the 2002, it has revolutionised the power of modern dental scanners worldwide. The fast turning and super fine laser, the double reflective parabolic mirrors and the powerful photomultiplier are key features. They were all developed by Dürr Dental in Germany. The results of these features are: best resolution, largest grey scale range, maximum data efficiency and, therefore, highest exposure sensitivity. Even in markets such as the US or Japan, Dürr PCS is the leading technology for dental scanners. PCS is constantly developed and refined and can now be seen with the new Dürr VistaScan Perio.

Guaranteed future of the overall system of Dürr Dental

PCS technology is currently even ahead of the development of image plates, as the VistaScan Perio can obtain a theoretical resolution of 40 LP/mm, while the latest image plate generation offers only about 22 LP/mm, which is on par with film. In any case, a decision for the Dürr VistaScan Perio today ensures that future advances in plate technology are already catered for.

Dürr Dental is a leader in dental diagnostic radiography

Since the mechanical X-ray film developer was introduced in dentistry, Dürr Dental has been an invaluable part of diagnostics in surgeries worldwide. The generation of perfect image quality has and will always be our goal as we

continue to develop both digital and conventional techniques. Dürr Dental's development engineers and production staff take pride in continuous improvement and careful manufacturing of all essential components in their factories in Germany. Dürr Dental - one of the major partners for diagnostics in dentistry, now and in the future.



Digital X-ray processes with image plates

IMAGE PLATE SCANNER DÜRR VISTASCAN PERIO

	Dürr VistaScan Perio
Dimensions (HxWxD)	52.3 x 31 x 29.3 cm
Weight	12.5 kg
Set-up	Wall mounting or on work surface
Reading noise	approx. 45 dB(A)
PC connection	USB 1.1, USB 2.0
Power connection	100-240 V/50-60 Hz
Connection power	< 60 W
Medical device class	I according to directive 93/42/ECC
Pixel size	selectable from 12.5 - 50 µm
Theoretical resolution	dep. on image plate max. 40 LP/mm
Grey scales	16 bit (65536)
Deletion	automatic
Plate transport	without contact in cassette system
Software	DBSWIN 4, Third-party software may be supported
Formats	2x3 / 2x4 / 3x4 / 2.7x5.4 / 5.7x7.6 cm



Dürr VistaScan Perio



The cassette system protects the image plates



Through the integrated deletion, the image plates are ready again immediately.



Image plates in all common dental formats



Image processing and archiving software
Dürr DBSWIN 4

Dürr Dental GmbH & Co. KG
Höfigheimer Strasse 17
D-74321 Bietigheim-Bissingen

www.duerr.de
info@duerr.de

