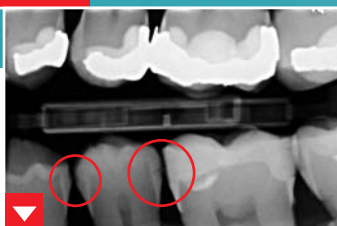


# A quantum leap in image quality with minimized dose

VISTARAY 5 X-RAYS SENSORS IQ AND IQPLUS



Sensors IQ and IQplus in two sizes



Caries diagnosis



Endodontics



Surgery



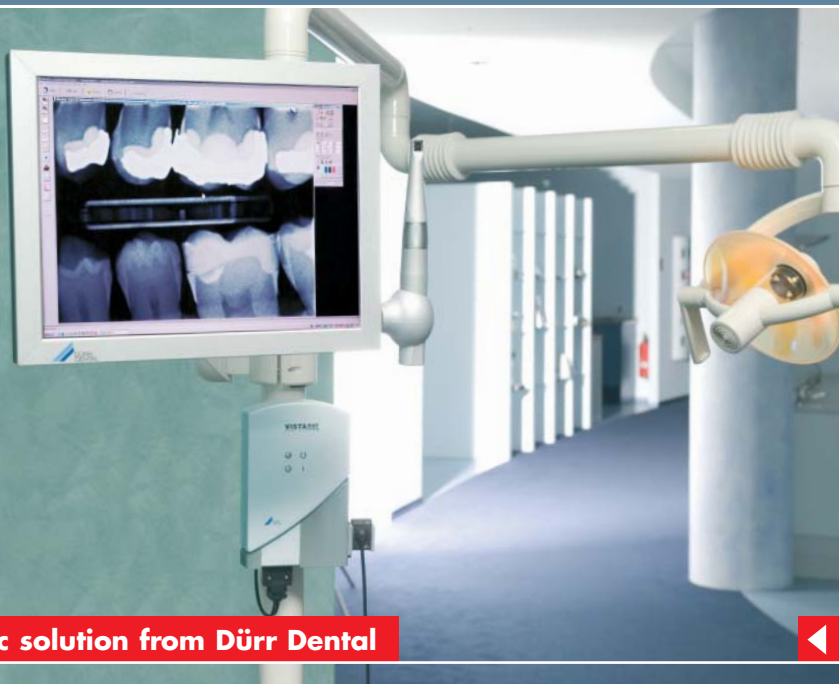
Pain diagnosis

**VISTARAY**

**DÜRR  
DENTAL**

# Image quality and speed for the digit@l practice

## DIGITAL SMALL X-RAY VISTARAY 5



You'll find VistaRay in operation wherever accurate high quality X-rays are required quickly and with a minimal dose. Endodontic treatment is considerably shortened as you no longer have to wait several minutes for the radiographic measurement.

VistaRay can thus improve the efficiency and quality of diagnosis and treatment and as a result improve patient satisfaction.

**Diagnostic solution from Dürr Dental**

### Digital Diagnostics with VistaRay 5

The development of digital X-ray diagnostics represents a major advance in dentistry. VistaRay 5's advantages lie in its efficiency and quality of diagnosis with a minimal X-ray dose.

- ▶ X-rays can be taken directly at the treatment chair with immediate image availability
- ▶ New CCD technology with sensors IQ and IQplus. Their sensitivity and

resolution enable details to be identified both of D1 lesions and of ISO 06 endo instruments right to the instrument tip.

- ▶ Additional X-rays can be taken thanks to further dose reduction of approx. 50 % in comparison with conventional sensors.

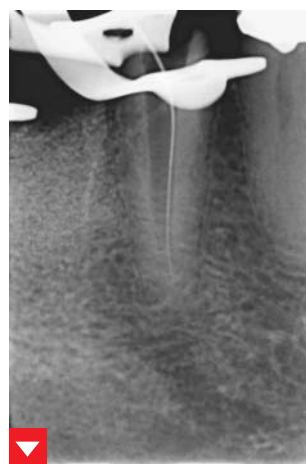
### Specific indications for VistaRay

Immediate image availability enables intraoperative diagnoses to be made in cases of:

- ▶ Emergency treatment
- ▶ Patients in pain
- ▶ Endodontics
- ▶ Surgery/implantology
- ▶ Prosthetics
  - Pin insertions
  - Checking for accuracy of fit



*Pain diagnosis: apical radiolucency*



*Endodontics: Imaging of ISO 06 end instrument right to its tip*



*Surgery: correct dental Implant position*

# Dürr's innovative CCD technology

## VISTARAY 5 SENSORS IQ AND IQPLUS

Sensors	Image quality	Dose reduction	INDICATIONS					
			Emergency diagnosis	Caries diagnosis	Endodontics	Surgery	Implantology	Prosthetics
<b>IQ</b>	very good	50 %	immediate image availability	D2 lesion can be imaged	ISO 06 can be imaged	Imaging of all surgically relevant structures	immediate image availability	Therapy control Intraoral preparations
<b>IQplus</b>	excellent – optimized structural imaging matches analog images	50 %	immediate image availability	D1 lesion can be imaged	ISO 06 can be imaged	optimum, sophisticated imaging	immediate image availability	Therapy control Intraoral preparations, optimum, structural imaging

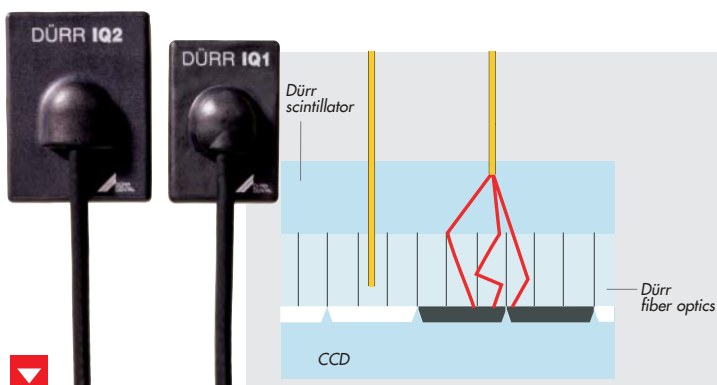
### A quantum leap in image information made possible by Dürr CCD sensor technology

Modern dentistry means "prevention" and this requires sophisticated diagnostics. The VistaRay 5 sensors IQ and IQplus set a new standard in image quality for intraoral X-ray sensors. Drawing on decades of experience in general X-ray technology Dürr Dental has now been able to increase the

performance of the CCD sensors by means of a new coating technique. Compared with CMOS sensors the CCD chips used in Dürr Dental's systems offer a **higher degree of sensitivity** and thus require a **significantly lower X-ray dose**. Thanks to the improved "**detective quantum efficiency**" (DQE) the CCD sensors attain an optimized signal/noise ratio and thus a **superior identification of detail**.

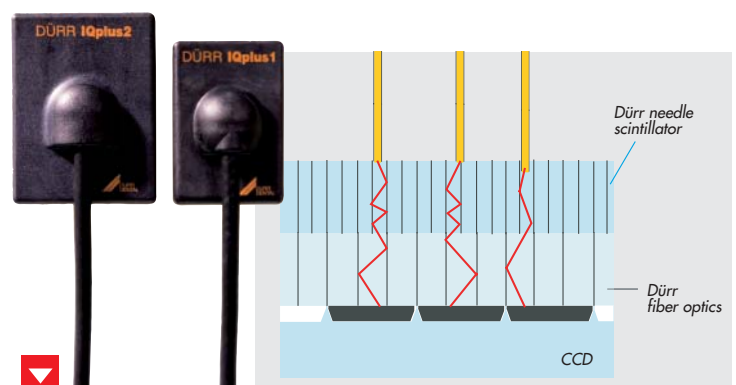
The so-called "dark current" in these sensors is smaller by a factor of 20 to 100 in comparison with that in CMOS sensors. This **improves the image resolution** and thus the overall quality of diagnosis.

The new high-performance sensors IQ and IQplus are available in two sizes: for standard X-rays (size 1) and for bitewing X-rays (size 2).



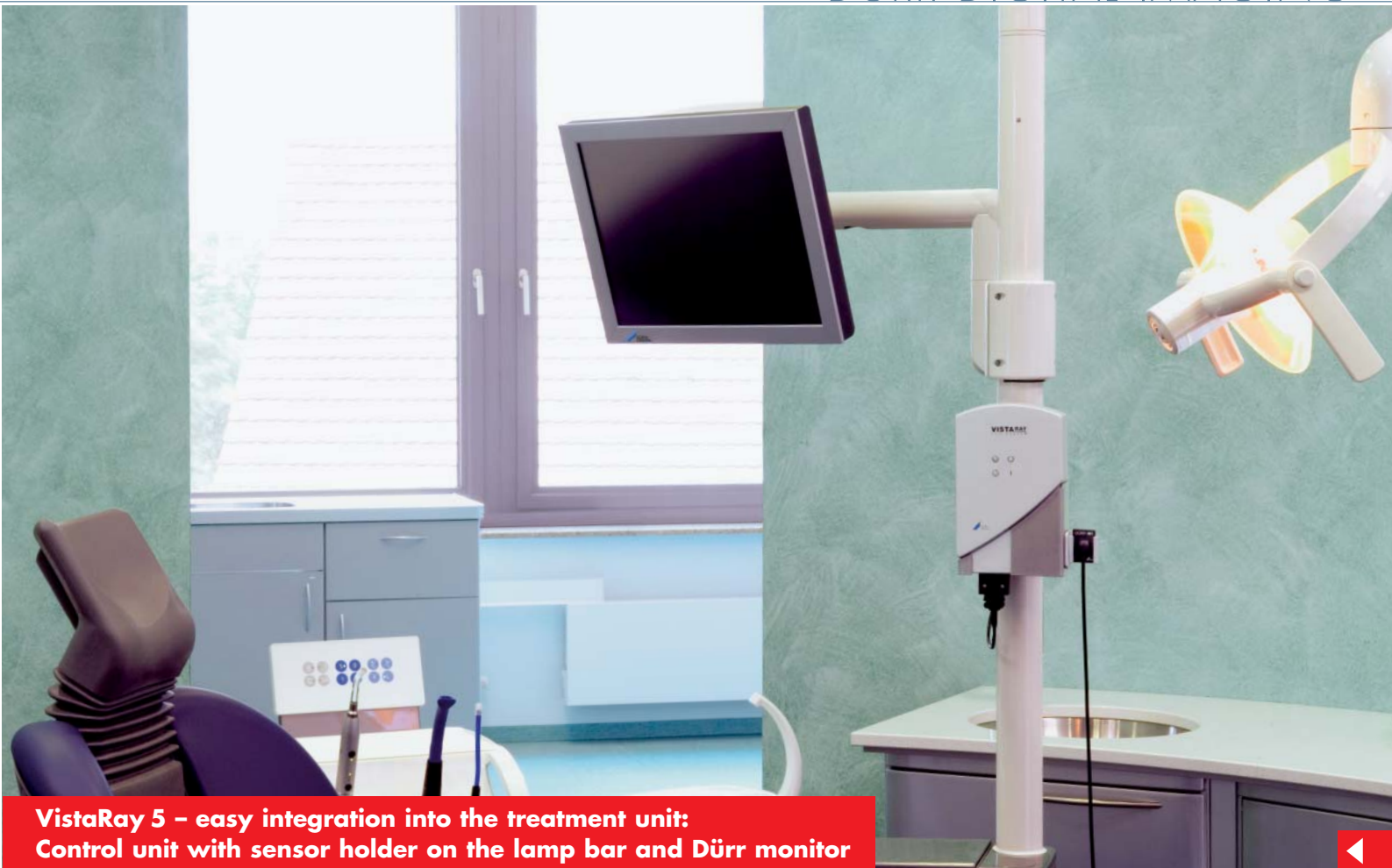
#### VistaRay 5 Sensor IQ

Advantages gained by using Dürr scintillator and fiber optics: • X-ray absorption in excess of 99 % > no image noise • transmission through fine fibers > high effective resolution • strong useful signal > high DQE



#### VistaRay 5 Sensor IQplus

Additional advantages gained by using needle scintillator: • Almost no scattering effect > effective resolution  $\approx$  theoretical resolution • Light-focusing gives a stronger useful signal > optimum DQE – matches analog images



**VistaRay 5 – easy integration into the treatment unit:  
Control unit with sensor holder on the lamp bar and Dürre monitor**

**Dürre Digital Diagnostics**

The digital small X-ray VistaRay 5 fits ideally into the concept of Dürre Digital Diagnostics. The system can be integrated flexibly and quickly at the practice. Dürre DBSWIN enables X-ray exposures and intraoral camera images to be processed and archived using the same user interface.



*VistaRay 5 – direct connection of the control unit via USB to your laptop. Wall installation of the control unit including sensor holder*



*VistaRay 5 Sensor IQ in the practice*

# Diagnosis with 50% dose reduction

VISTARAY 5 COMPARED WITH DETECTOR SYSTEMS ON THE MARKET

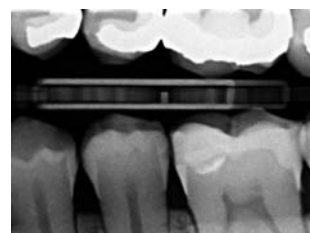
20 ms

40 ms

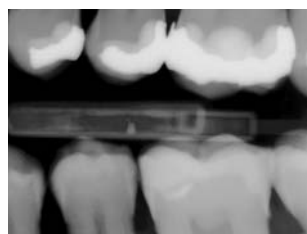
80 ms

160 ms

**Analog film (Insight): D<sub>2</sub> lesion visible at 35**



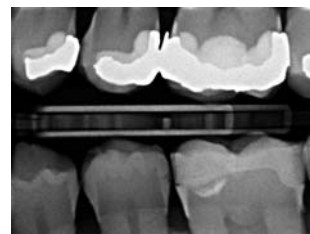
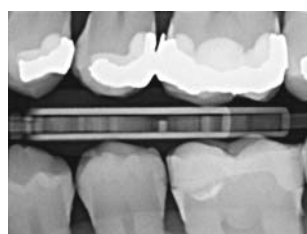
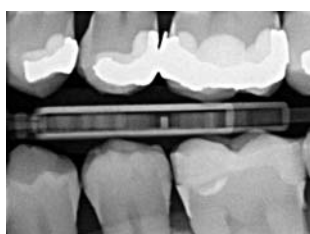
**High-quality competitor's sensor, 2005: D<sub>1</sub> and D<sub>2</sub> lesion visible at 35 from 80 ms**



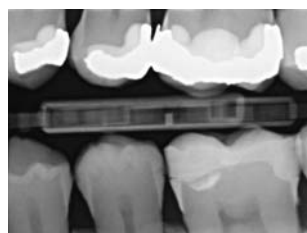
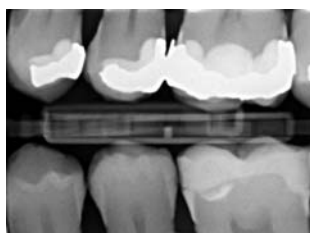
**VistaRay 4 HR-Sensor, 2002: D<sub>2</sub> lesion visible at 35**



**VistaRay 5 Sensor IQ, 2005: D<sub>1</sub> and D<sub>2</sub> lesion visible at 35 from 40 ms**



**VistaRay 5 Sensor IQplus, 2005: D<sub>1</sub> and D<sub>2</sub> lesion visible at 35 from 20 ms**



unnecessarily high dose,  
no quality gain

Exposure times 70 kV, 8 mA (Trophy Irix Intraoral-Röntgengerät [intraoral X-ray machine]. In the case of VistaRay 5 all exposures for visualizing the enamel caries were taken with diagnosis supporting caries filter 1 using Dürr DBSWIN image processing software.

Test carried out and image material provided by EID – Excellence in Dentistry, Privates Dentales Forschungsinstitut [private dental research institute] Drs. med. dent. Viktoria & Robert Kalla, Basel (CH), 2005, Universität Erlangen, PD Dr. Dr. M. Thoms

# Overview of technical and service details

## VISTARAY 5 X-RAY SENSORS IQ AND IQPLUS

### VistaRay 5 – the permanently convincing solution in the practice

- ▶ Systems manufactured in-house by Dürr Dental in Germany to the usual excellent standards of quality associated with Dürr
- ▶ Repairs by Dürr Dental in the case of cable breaks
- ▶ Service/exchange on favorable terms at the end of the 2 year guarantee period
- ▶ With DBSWIN compatible with all current accounting and diagnostic programs with no extra cost for additional work stations

VistaRay 5	CCD-Sensor IQ1/IQplus1	CCD-Sensor IQ2/IQplus2
Dimensions of sensor (W x H x D mm)	25 x 36.5 x 7.3	32 x 42 x 7.3
Active sensor surface (W x H mm)	20 x 30	27.5 x 36.8
Pixel size (µm)	22 x 22	22 x 22
Number of pixels	912 x 1368 = 1247616	1250 x 1640 = 2050000
Theoretical resolution (lp/mm)	22.7	22.7
Length of cable (m)	2.5	2.5
Stability	> 400,000 images	> 400,000 images

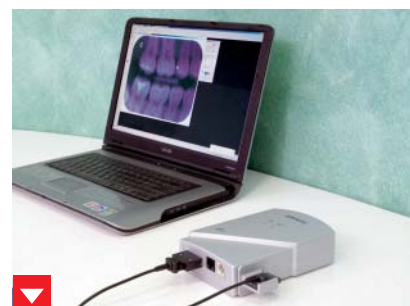
General technical data	
Medical equipment class	Ila in accordance with directive 93/42/EEC
Installation	Tabletop unit, wall or tube holder
Image storage	A backup is made in the control unit of the last image
Gray scales	16 bit (65536)
PC connection	PC USB 1.1, USB 2.0
Length of cable to PC	5 m (standard), 30 m (optional)



VistaRay 5 control unit in the treatment unit fitted to the lamp bar



VistaRay 5 control unit with flexible wall installation and laptop, operating under DBSWIN



VistaRay 5 control unit in mobile use with laptop

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