

Caries and plaque diagnostics

DÜRR VISTAPROOF FLUORESCENCE CAMERA



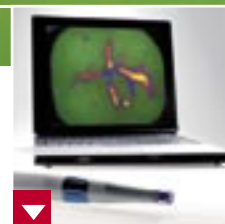
The fascination of fluorescence – cariogenic bacteria in shining red



Dür Vistaproof permits reliable recognition and visualisation of plaque and early enamel caries.



Violet light makes porphyrins shine – the red fluorescence signal helps detect what could be the early stage of caries.



Diagnostics, communication, therapeutic care and documentation are perfectly combined using Vistaproof.

VISTAPROOF

 **DÜRR
DENTAL**

The big plus in plaque and caries detection

DÜRR VISTAPROOF FLUORESCENCE CAMERA



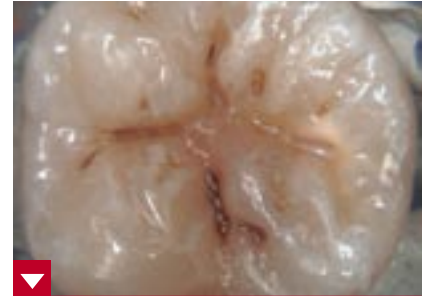
Difficult to detect until now: Significant carious result!

► VistaProof provides more safety

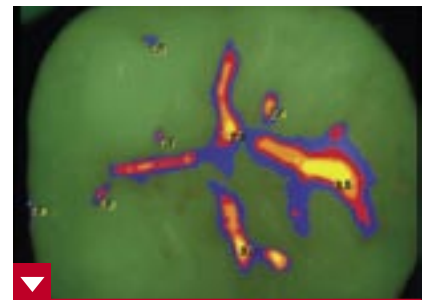
- > Fluorescent technology quickly and safely visualises carious lesions in fissures and on visible tooth surfaces.
- > Reliable detection of initial enamel caries with high reproducibility.
- > Accurate localisation and analysis through intelligent automatic image processing.
- > Secured documentation and progression control through direct connection to patient database.

The X-ray does not show everything

It is a well-known fact that the early detection of a carious infection is the key to modern caries management. Unfortunately, it is often true for fissure caries that, although the tooth may seem healthy on the outside, its real condition underneath the surface is hardly detectable, or not detectable at all, with the usual diagnostic methods. Surveys have revealed that the classic visual caries diagnostic as well as tactile sensors offer only a very limited degree of detection safety. Even X-ray images do not yield a positive finding for occlusal lesions up to 3 mm.



Fissure caries is very often undetectable even in the enlarged image of a conventional intra-oral camera.



The image processing software DBSWIN quantifies the diagnosis in colour scheme from blue to yellow.

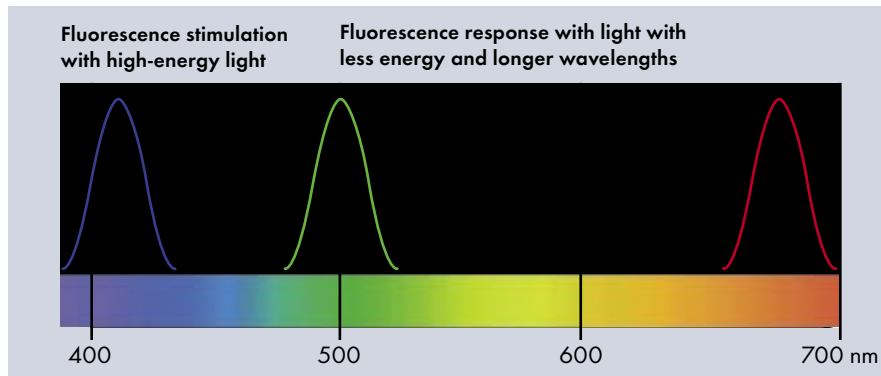
Current detection methods now use the fluorescent effect. **The fluorescence camera Dürr VistaProof however takes it a step further: It accurately localises carious lesions with a high reproducibility.** The documentation of the results in a patient database offers new opportunities for successful caries management.

Fascination of fluorescence

DETECTION OF BACTERIA WITH FLUORESCENCE

Fluorescence camera VistaProof makes hidden caries visible

„Fluorescence technology“ may sound complicated, but it is astoundingly simple and well-approved in human medicine: Special light-intensity LEDs, also known in a similar form from intraoral cameras, project high-energy violet light onto the tooth surface. Light of this wavelength stimulates porphyrins, special metabolites of cariogenic bacteria, to emit red light, which contains less energy.¹ Sound enamel, in contrast, sends out green light. These light signals are recorded by the highly developed optics and analysed by the powerful software.

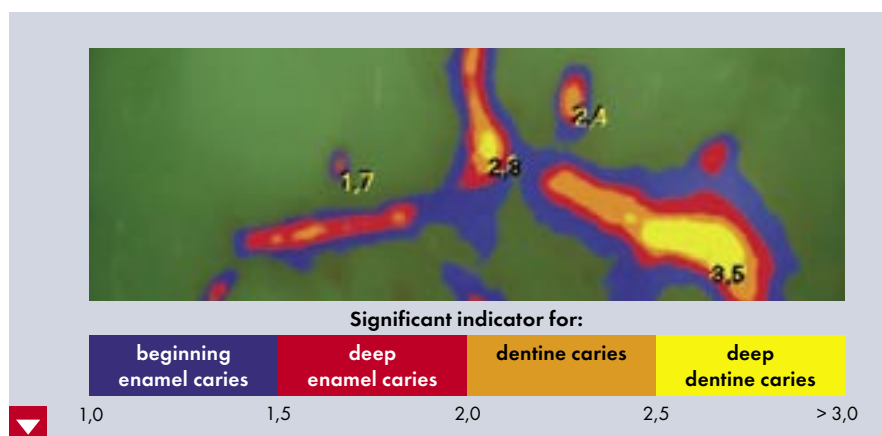


The VistaProof principle: Light-intense blue LEDs with a wavelength of 405 nanometres stimulate the porphyrins of cariogenic bacteria to emit red light. Sound enamel emits green light.

On the monitor the fluorescent image of the porphyrins – the cariogenic bacteria – appear in a bright red tone colour, and are thereby easily detected. The denser the colonisation, the more intensive the red fluorescent signal, and the more significant the caries finding. In contrast to screening, caries that could not be detected visually and tactilely is also recognised. The software highlights the caries lesions in different colours and defines their caries activity on a scale from 0 to 5 – providing orientation for the first therapeutic evaluation: observe, remineralise or treat invasively.



Red fluorescent signal: Caries.
Green: sound enamel.



Optical and numerical analysis of the caries activity in DBSWIN.

¹M. Thoms, Lasers in Dentistry XII, SPIE VOL. 6137, 613705, 2006

Plaque and caries diagnostics with VistaProof

VistaProof is a fluorescence-based camera and software system which is ideal for the integrated diagnosis, prophylaxis and therapy concept of modern surgeries. It enables reliable detection of fissure caries and caries on smooth surfaces tooth by tooth after a professional cleaning, as fast as inspection with the mirror. No detail can escape the rays of the light-intensify LEDs. And the patients can watch it live on the monitor.

First of all the visualisation of plaque provides very demonstrative proof of the status of the oral hygiene and motivates the patient to carry out a professional tooth cleaning. Following the cleaning of the tooth surfaces, even invisible carious lesions are detected fast and safely. If treatment is required, VistaProof supports the removal of caries by offering intraoperative detection of remaining bacteria in the fluorescent image. This breadth of applications makes the system an ideal complement to the X-ray image.

Furthermore, VistaProof facilitates the control of the progression over months and years, as the fluorescent images can be integrated comfortably in every patient database in combination with Dürr DBSWIN. This makes it easy to explain the clinical situation and the necessary treatment to the patient.



Thanks to imaging technology, a tactile examination of individual carious lesions is no longer necessary - which allows determination of the complete status of the tooth very fast.



Diagnostics and documentation in DBSWIN store the caries finding and keep it available for all future queries.

► VistaProof surgery concept

Plaque diagnostics



Communication



Professional tooth cleaning



Caries diagnostics



Therapy



Progression control



Documentation

VistaProof offers a new concept for caries management with high safety for every surgery.

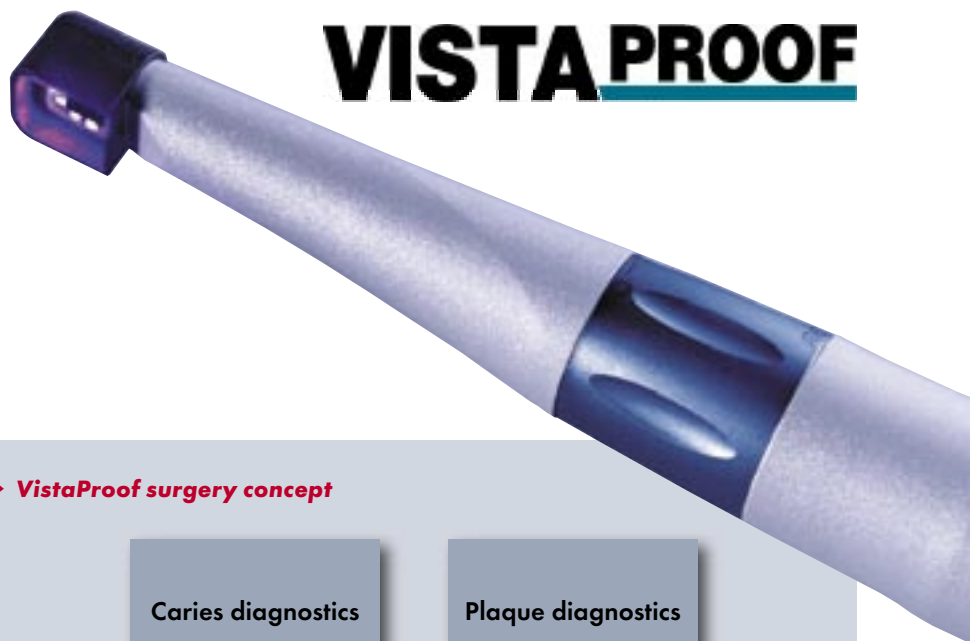
Innovative instrument for modern tooth conservation

DIAGNOSIS - COMMUNICATION - THERAPY - DOCUMENTATION

For a healthy relationship between dentist and patient – VistaProof

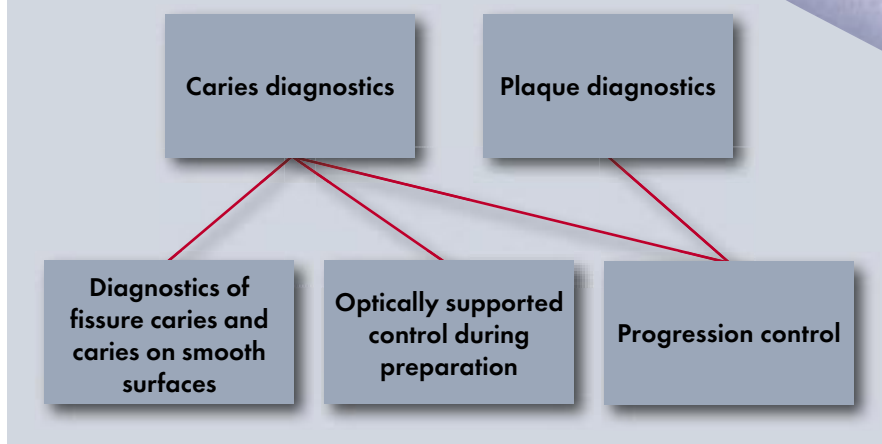
Modern tooth conservation concepts today use an approved combination of prophylaxis, diagnosis, therapy and documentation. The integrated surgery concept, where the whole team cares for the patients, relies on instruments that offer a wide range of corresponding comprehensive applications. What makes the new Dürr VistaProof fluorescence camera so fascinating is not just its innovative technology for plaque and caries detection. It also adapts perfectly to different uses in typical surgery processes. Demonstrative in prophylaxis, safe in diagnosis and therapy and convincing in documentation and communication.

- > Demonstrative plaque diagnostics without colouring agents
- > Visibly convincing communication
- > Safe and fast caries diagnostics
- > Caries control during excavation and filling therapy
- > Easy connection to the surgery software
- > Continuous observation of the progression within a healthy dentist-patient relationship



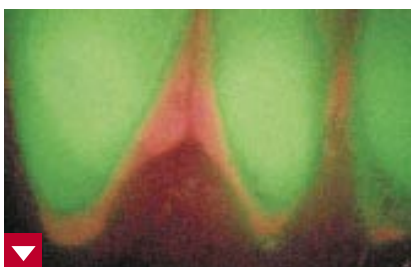
VISTA PROOF

► VistaProof surgery concept



Dürr VistaProof has a structure similar to a conventional intraoral camera and can be operated just as easily and ergonomically. Ergonomic spacers ensure a steady camera position and block out external light, leading to

reproducible measurement results. After a short instruction, the whole surgery team is able to use the Dürr VistaProof, as it is operated like a normal intraoral camera.



Plaque diagnostics and visualisation in modern prophylaxis with VistaProof – without the use of colouring agents.



Optically supported control of the caries excavation during preparation.

Digital technology for excellent diagnostic quality

DÜRR VISTAPROOF FLUORESCENCE CAMERA

Technical data	VistaProof
Resolution	470.000 pixels
Weight	200 g
Length of handpiece	207 mm
Diameter	max. 27 mm
Power supply	via additional cable to USB connector, power supply conforms to MPG
Transmission	3 m (+ optional 1 m) digital via USB 2.0 cable
Connections	USB 2.0
Multiple-user operation	Plug & Play, can be plugged in and unplugged
Optical system	6 LEDs with light-collecting lens (405 nm), patented optical system, light-sensitive 1/4" colour CCD sensor, non-fogging
Software	Dürr DBSWIN
Image storage	via keyboard/mouse or optional foot pedal
Image display	Image can be displayed correctly or mirrored via PC/laptop
System solution	optimum PC/laptop solution; simple integration into existing treatment units



Image processing and archiving software
Dürr DBSWIN 4.



The voltage supply of the VistaProof is provided by separate power supply directly at the USB connector - conforms to MPG.



The use of the spacer reduces effects of external light to a minimum and ensures reproducible measurement results.