

CEREC Scan



CEREC

**CEREC Scan –
low-cost entry to the
world of all-ceramic
restoration technology.**



The Dental Company

sirona.

CEREC Scan – the low-risk transition to the fascinating world of CAD/CAM restorations.

CEREC – the clinically proven CAD/CAM restoration system now supplied with sophisticated 3-D software.



> I've always been fascinated by CAD/CAM technology. Now I've found a favourably priced alternative: CEREC Scan. <

A lot to offer. CEREC Scan is a compact CAD/CAM system for dental practices which provides the ideal stepping stone to this fascinating technology. Consisting of a milling unit and a built-in laser scanner, CEREC Scan opens up convincing cost benefits. The system was specially designed for dentists who prefer the so-called "indirect" method and do not want to change their established mode of working.

CEREC Scan is controlled via a PC or laptop computer. It provides a quick and cost-effective means of creating inlays, onlays, partial crowns, crowns and veneers. You can choose from a broad array of clinically proven all-ceramic materials produced by VITA Zahnfabrik and IVOCCLAR VIVADENT.

Maintain your established working methods. With the help of CEREC Scan you acquire the preparation data from a previously created model. The system also allows you to scan a bite register and/or the occlusal surface of the tooth prior to preparation. The milled restoration is then adapted precisely to the dimensions of the original model (something you can also delegate to your assistant or dental technician). After the occlusion has been checked with the help of an articulator the restoration can be polished or else individually characterized and glazed. In short, CEREC Scan is the unit of choice for dentists who want to retain their established working routines.



20 years of practical experience. The CEREC procedure has been deployed in dental practices for more than 20 years. More than 100 clinical studies testify to its success. Over 15,000 dentists worldwide now use the CEREC system day in, day out. Every few seconds a new CEREC restoration is created somewhere in the world.

Consistent product development. CEREC 3D is the new software package for CEREC 3. You, your assistant or your dental technician can create the restoration in three dimensions on the computer screen. The software is self-explanatory and easy to learn. Working on the screen is exactly like working on a model or inside the patient's mouth. And CEREC 3D ensures that the final result corresponds exactly to your design ("what you see is what you get").



CEREC in practice – the benefits in brief:

- More than 15,000 CEREC users worldwide
- More than 10 million restorations
- Backed up by numerous clinical studies
- Inlays/onlays: 90–95 % survival rate after ten years
- Crowns: 95–97 % survival rate after five years

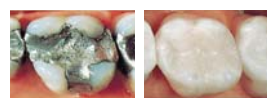
CEREC Scan – the benefits in brief:

- In-house production of all-ceramic restorations
- Restoration can be created and placed in a single treatment session
- Low initial capital outlay
- Virtually all the processing steps can be delegated to your assistant or dental technician
- CEREC Scan restorations fulfil patient demands in terms of aesthetics, compatibility, durability and retention of healthy tooth tissue
- Transfer of high value laboratory services to your dental practice
- High quality treatment outcomes
- Less intensive patient counselling required

CEREC Scan – geared to a broad range of clinical indications and patient requirements.



> The clinical results of the CEREC inlay and crown studies* caught my attention. I then sat down, did some calculations – and opted for CEREC. <



Inlays

A typical field of application for ceramic restorations (e.g. replacement of defective fillings).



Onlays/overlays/partial crowns

The ideal clinical treatment for extensive defects. Adhesively bonded ceramic onlays and partial crowns offer a convincing alternative to conventional full crowns.



Posterior crowns

Thanks to CEREC you can design, manufacture and fit crowns in a single treatment session.



Veneers/partial anterior crowns

From a simple coping fitted for aesthetic corrections to a complete anterior crown – the list of possibilities is virtually endless.



Anterior crowns

CEREC also enables you to create full anterior crowns. Individual characterization can be achieved with the help of ceramic stains and subsequent glazing.

Highly versatile. CEREC allows you to design and place all-ceramic restorations in a single treatment session. The first patients were treated by Professor Mörmann at Zurich University in September 1985. Since then the CEREC procedure – and the entire CEREC system – have undergone continuous development and thorough clinical testing. In combination with the newly developed 3-D software CEREC Scan caters for an impressive spectrum of indications.

CEREC ceramic restorations – conservative, biocompatible, clinically tested.



Ceramic restorations – clear clinical benefits. Ceramic material is tooth-coloured, translucent and biocompatible. It is non-metallic and can thus be combined with existing metal restorations in the patient's mouth.

The adhesive bonding technique enables you to conserve more of the natural tooth tissue than is the case with conventional metal restorations. Heavily damaged teeth do not always require full crowns.

Instead, you can deploy adhesively bonded onlays, which have the added effect of stabilizing the existing tooth.

The CEREC ceramic materials fulfil stringent requirements in terms of breakage resistance, abrasion resistance, aesthetics and overall durability. The industrially produced CEREC ceramic blocks have a more homogenous distribution of particles than their laboratory-made equivalents. The CEREC ceramic materials also boast a

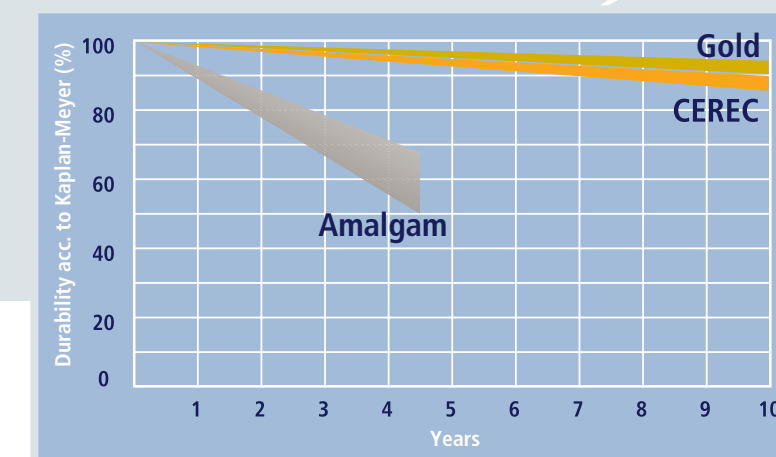
pronounced "chameleon effect". They lend themselves to high-gloss polishing or to treatment with ceramic stains and subsequent glazing. We work closely with our partner companies VITA Zahnfabrik and IVOCLAR VIVADENT in order to ensure the optimum quality and reproducibility of the ceramic blocks deployed in CEREC Scan.

CEREC ceramic materials – the benefits in brief:

- Physical properties which are very similar to natural tooth enamel (abrasion, expansion, thermal conduction, biocompatibility)
- Chameleon effect
- Wide range of different colour shades and translucencies
- Easy to polish
- Individual characterization and glazing of the restoration
- High strength and durability

All-ceramic CEREC restorations – the benefits in brief:

- No exposed metal edges
- No irritation or gingival retraction
- No corrosion problems caused by incompatibility between different metals
- No unsightly opaque metal structures
- Adhesive bonding technique paves the way for defect-oriented, "conservative" preparations



Long-term studies show that CEREC is as durable as gold. If you require further information about the long-term CEREC durability studies, go to www.sirona.com or send a fax to +49 (0) 62 51-16 33 99.

Clinically tested. Initial criticisms relating to the marginal fit and the design of the occlusal surfaces are now a

thing of the past. The system has been continuously developed to the extent that CEREC restorations are easily on a par

with their conventional gold or ceramic equivalents. This has been confirmed by numerous long-term studies.

Clinical Studies	Publication date	Duration of study	No. of restorations	Survival rate	Average loss rate per annum
Amalgam					
Westermann	1991	5 years	1,311	67 %	
BKK	1992	5 years		122,000	51 %
Langel	1994	5 years		1,408	66 %
Total Amalgam			124,719		9.7%
Gold					
Graf	1994	5 years		671	85 %
Schlösser	1993	5 years		725	97 %
Total Gold			1,396		1.8%
Ceramic					
Roulet	1997	6 years		123	76 %
Malament	1999	11 years		1,444	92 %
Fuzzi	2000	10 years		182	95 %
Lehner	1998	6 years		155	95 %
Felden	2000	7 years		42	81 %
Frankenberger	2000	6 years		96	93 %
Total Ceramic			2,042		1.0%
CEREC					
Reiss	2000	10 years		1,011	91 %
Lenzen	1994	4 years		184	91 %
Buchmüller	1995	5 years		2,374	92 %
Bienik	1996	5 years		453	88 %
Haas	1996	7 years		219	95 %
Posselt	2002	9 years		2,328	96 %
Total CEREC			6,569		1.1%

*N. Martin, N.M. Jedykiewicz; Clinical performance of CEREC ceramic inlays; Dent.Mat., Jan 1999, Vol. 15, 1: 54-61
 B. Reiss, W. Walther; Klinische Langzeitergebnisse ...; IJCD 2000; 3: 9-23
 T. Otto, S. De-Nisco; Computer-aided Direct Ceramic Restorations...; Int-J-Prosth.; 2002 Mar-Apr; 15(2): 122-128.
 R. Hickel, J. Manhart; Longevity of Restorations in Posterior Teeth and Reasons for Failure; J-Adh.-Dent. 2001 Spring; 3(1): 45-64
 A. Posselt, T. Kerschbaum; Langzeitverweildauer von 2328 Chairside hergestellten CEREC-Inlays und -Onlays; IJCD, 2003; 6: 231-248.
 A. Bindl, W. Mörmann; Überlebensraten von mit CEREC chairside gefertigten Kronen; im Druck
 T. Kerschbaum, K. Wiedhahn; Langzeitverhalten von Veneers; im Druck

CEREC Scan – delegation cuts costs.

CEREC Scan – high-tech leads to impressive results.

Restoration types	Software	Material	Aesthetics	Indication	Contraindications
All types of inlay	CEREC 3D	Mark II ¹ , ProCAD ²	Monochromatic ceramic blocks; high-gloss polish	Substitute for conventional filling; caries	Bruxism; restoration cross-section or wall thickness < 1.5 mm, adhesive bonding must be possible
Onlay, partial crowns	CEREC 3D	Mark II, Triluxe ³ , ProCAD	Monochromatic or multicoloured ceramic blocks; high-gloss polish	Defect-oriented restoration instead of a posterior crown	Bruxism; restoration cross-section or wall thickness < 1.5 mm, adhesive bonding must be possible
Veneers	CEREC 3D	Mark II, ESTHETIC LINE ⁴ , ProCAD	Ceramic blocks with pronounced translucency; individual characterization with composite stains (posterior surface) or ceramic stains (labial) and subsequent glazing	Aesthetic corrections; morphological corrections instead of orthodontic treatment; substitute for conventional filling, caries, intraoral repairs to crowns and bridges	
Partial anterior crowns	CEREC 3D	Mark II, ESTHETIC LINE, ProCAD	Ceramic blocks with pronounced translucency; high-gloss polish or individual characterization and subsequent glazing	Substitute for conventional filling, caries; defect-oriented restoration instead of an anterior crown	Bruxism; restoration cross-section or wall thickness < 1.5 mm
Posterior crowns	CEREC 3D	Mark II, Triluxe, ProCAD	Monochromatic or multicoloured ceramic blocks; high-gloss polish or individual characterization and subsequent glazing	Substitute for conventional crown	Bruxism; restoration cross-section or wall thickness < 1.5 mm
Anterior crowns	CEREC 3D	Mark II, ESTHETIC LINE, ProCAD	Ceramic blocks with pronounced translucency; high-gloss polish or individual characterization and subsequent glazing	Substitute for conventional crown	Bruxism; restoration cross-section or wall thickness < 1.5 mm

Additional indications when CEREC Scan is deployed in an in-house laboratory

Crown copings	CEREC inLab FrameWork 3D	VITA In-Ceram SPINELL ALUMINA ZIRCONIA	Fully sintered ceramic blocks reinforced by means of glass infiltration and veneered with Vita VM7	Heavily damaged anterior and posterior teeth (due to fillings, caries); conventionally attached crown	Wall thickness: circular 0.5 mm, occlusal 0.7 mm
Bridge frameworks, telescope crowns	CEREC inLab FrameWork 3D	VITA In-Ceram ALUMINA ZIRCONIA YZ	In-Ceram ALUMINA, ZIRCONIA: see above. In-Ceram YZ: partially sintered ceramic blocks; frameworks are milled to larger dimensions to allow for shrinkage during the sintering process; veneering with Vita D	Tooth loss; alternative to implants especially when several adjacent teeth have been crowned	Wall thickness for bridges: circular 0.7 mm, occlusal 1.0 mm
Complex restorations and specialist applications	CEREC inLab WaxUp 3D	VITA In-Ceram ALUMINA ZIRCONIA YZ	See above	Tooth loss; multiple-unit bridges; stabilizing structures; combinations with removable prostheses	Wall thickness: see above. Specialist applications are determined by the dimensions of the milling tools

¹ VITABLOCS Mark II for CEREC
³ VITABLOCS Triluxe for CEREC

² IVOCCLAR VIVADENT ProCAD Blocks for CEREC
⁴ VITABLOCS ESTHETIC LINE for CEREC



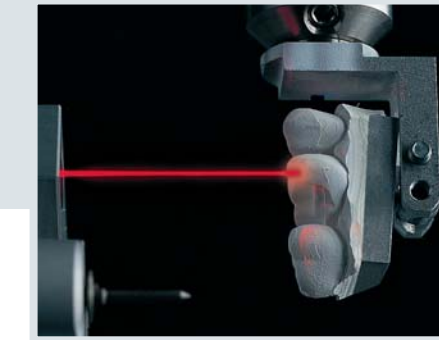
> I've taken the first decisive step – at an acceptable price. CEREC Scan is a system I can build on in the years to come. <

The CEREC Scan treatment procedure

1. Conventional in-situ impression following preparation of the tooth	Assistant
2. Production of a partial model made of quick-setting silicone or plaster. Model is attached to a scan holder and then clamped into the CEREC Scan unit	Assistant
3. Scanning of model from various directions – automatically and with high precision	CEREC Scan
4. Design of the restoration on a PC with the help of the CEREC 3D software	Dentist or specially trained assistant or dental technician
5. Selection of ceramic block of the required shape and colour. Insertion of block into the CEREC Scan unit	Dentist and assistant
6. Automatic milling process (10–15 minutes)	CEREC Scan
7. Final adjustment. Evaluation of occlusion. Polishing or individual characterization. Placement.	

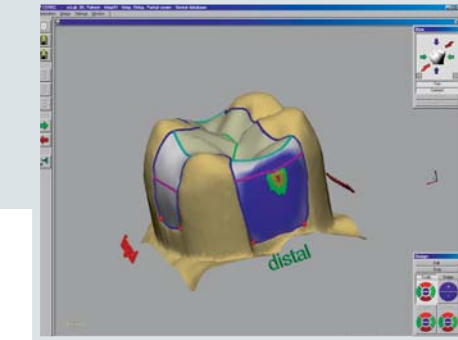
The duration of the design phase depends on the type of restoration, the preparation and the experience of the user. A three-surface inlay normally takes only a few minutes to design. A posterior crown takes less than a quarter of an hour. The patient can watch the fascinating scanning, design and milling process (=> multiplier effect among friends and family).

You can retain your accustomed working methods. The indirect CEREC Scan procedure means that you can delegate virtually all of the CAD/CAM processes to your assistant. While the restoration is being milled you can begin treating the next patient. In other words, you can operate your practice with maximum efficiency. CEREC Scan can be integrated easily into your established practice workflows.



Scanning process

- The laser scanner is mounted on the left-hand milling motor.
- With the help of the motor control system the model is measured with clinical precision in three dimensions.
- Maximum length of model: 40 mm.
- Scanning speed: 2 mm/minute.



Design process

- The surfaces of the preparation and restoration are computed with the help of dynamic triangular nets. This provides the basis for subsequent modifications.
- The curved marginal lines of the triangles result in very smooth surfaces – a major advantage during the milling process.
- The automatic margin detector far surpasses the human eye in terms of precision.
- Inlays and onlays: the contours of the adjacent teeth are extrapolated and transferred to the surface of the restoration.
- Full crowns: the CEREC 3D software accesses the stored anatomical data of various prosthetic teeth. The CEREC 3D Crown software automatically adapts the crown to the adjacent teeth and the antagonists using a sophisticated biomimetic technique (i.e. one based on natural dentition processes).



Milling process

- Automatic recalibration of the milling tools prior to each milling process to compensate for wear.
- Automatic correction during the milling process.
- Automatic tool-change message in the event of excessive wear.
- Automatic monitoring of the milling process to ensure the gentlest possible machining of the ceramic material.
- Automatic reduction in tool feed and speed if milling forces exceed a predetermined limit. Milling speed: 0.5 mm/minute.

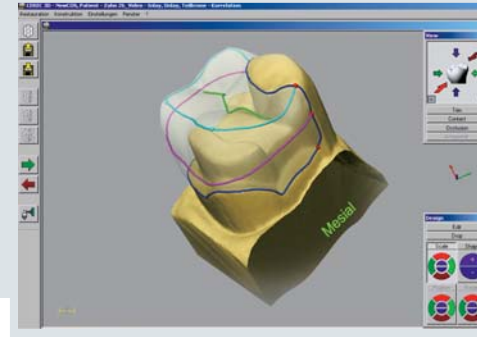
There are many good reasons for choosing CEREC 3D.

The CEREC 3D software is easy to learn and use. This means that you can delegate processing steps to a suitably trained assistant. In some cases CEREC users have even involved patients in the design process

(under supervision) – a special way of reinforcing customer loyalty! The outstanding quality of the screen-based design manifests itself directly in the finished restoration. This saves valuable time during the

placement phase. To sum up, the CEREC 3D software enables you to deploy CEREC *Scan* to maximum effect. You enjoy increased job satisfaction – and boost your practice earnings into the bargain.

Perfect marginal fit

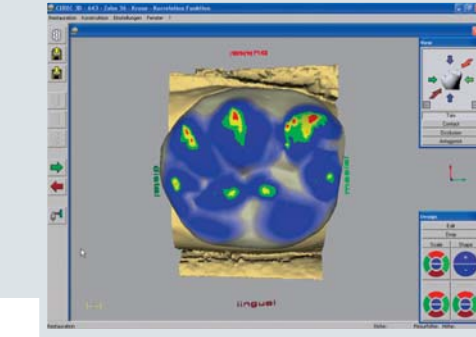


Superior marginal fit. CEREC 3D allows you to view, verify and modify every detail of your design until you are absolutely satisfied with the final result. CEREC now appeals to dentists for whom precision is an important quality criterion, especially with regard to adhesively bonded inlays. The new software boasts enhanced image processing functions (e.g. superimposed images). The design

steps and the milling control parameters have also been optimized. This not only boosts your confidence in the clinical performance of CEREC, but also leads to significant time savings when the finished restoration is placed in the patient's mouth.

- CEREC 3D allows you to verify the proximal margin – just like a dental technician working on a cross-sectional model.
- You can verify the shape and fit of the restoration from four sides in 20 x magnification.
- You can rely on the built-in intelligence of the world's most advanced margin detection system.

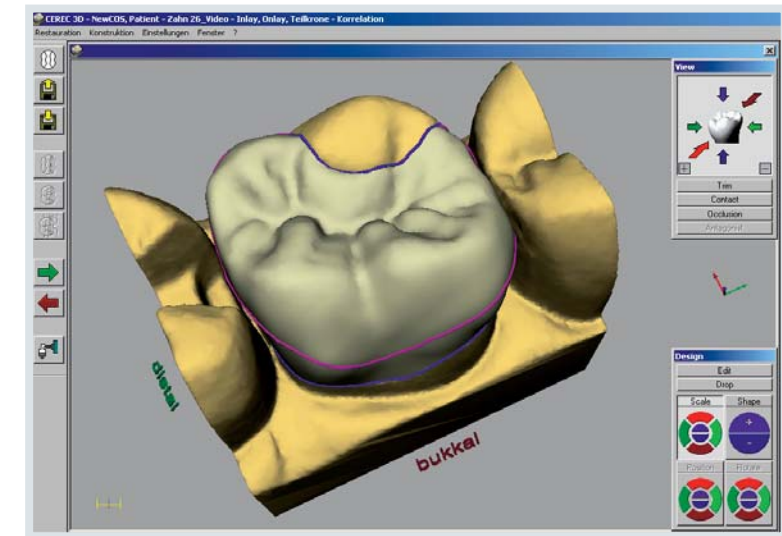
Anatomically designed occlusal surfaces



Anatomically designed occlusal surfaces. With the help of an optical impression of a bite registration or an FGP you're in a position to adapt the restoration to the individual situation in the patient's mouth. As in the case of the proximal contacts, the colour-coded occlusal contacts are visible at a single glance and can be modified in line with your specific requirements. Here as well, CEREC 3D

shows the effects of each modification – in three dimensions – thus allowing you to fine-tune the restoration.

- When you create inlays for single teeth CEREC 3D extrapolates the occlusal surface design from the existing tooth substance with such accuracy that you can normally do without a bite registration.
- If extensive fillings require renewal, you can make an optical impression of the intact occlusal surface prior to the preparation and incorporate the data directly in your design. You are still free to make detailed modifications. For nearly all CEREC 3D users this has become the standard method for creating onlays and partial crowns.



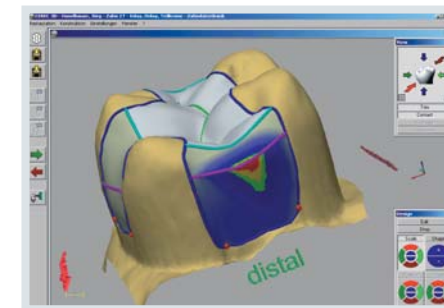
Simple design process. CEREC 3D brings your inlays, onlays, crowns and veneers to life. The three-dimensional screen image is highly realistic and immediately comprehensible. The design proposal can be rotated and viewed from all directions. Moreover, CEREC 3D allows you to evaluate the outcome of your design modifications instantaneously – also with regard to the adjacent teeth and antagonists.

- CEREC 3D automatically detects the preparation margin.
- The realistic image of the preparation and the restoration provides an ideal basis for assessing shape and fit.
- CEREC 3D is faster and more precise. You save valuable time – also during the placement phase.

The design proposals generated by CEREC 3D can be adapted to your individual requirements:

- You can edit the design lines and immediately assess the impact of these modifications on the restoration surface.
- You can select and move whole areas of the restoration.
- You can "wax-up" the restoration on the screen (mark or encircle a chosen area, remove/add material, apply minute drops of ceramic).

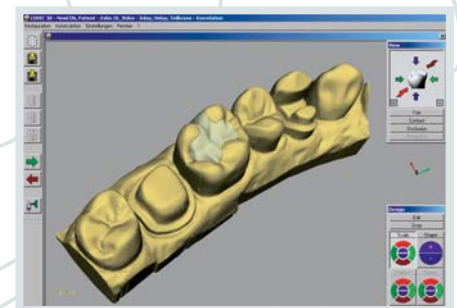
Precise proximal contacts. CEREC 3D also offers decisive benefits with regard to the proximal contacts. With the help of the new colour-coding function the dentist can assess at a single glance the tightness and extent of the contacts and then carry out any necessary adjustments at the click of a mouse. Compared with the previous CEREC software, the number of manual steps has been significantly reduced. The outcome: clinically correct and precise proximal contacts every time.



- CEREC 3D ensures precise proximal contacts.
- Various design tools allow you to adapt the CEREC 3D design proposal to your specific requirements.
- You can redefine the contour of the equator in all three dimensions. What's more, you can move the entire proximal surface, add and remove ceramic (whole areas, line by line or drop by drop), and smooth the contours of the restoration.

Quadrant restorations. CEREC 3D fulfils all the conditions for efficient quadrant restorations. By juxtaposing several optical impressions and taking account of the antagonists you can produce multiple restorations in the same quadrant in one continuous process.

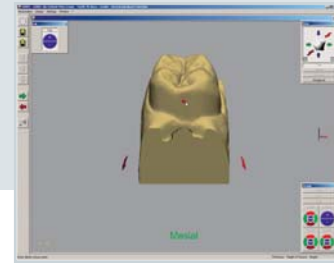
- During the design phase you can determine the insertion path for each preparation in turn.
- You can place the finished restoration virtually, and use it immediately to design the proximal contacts of the adjacent restoration.



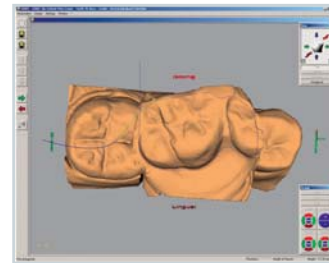
Precise proximal contacts

Quadrant restorations

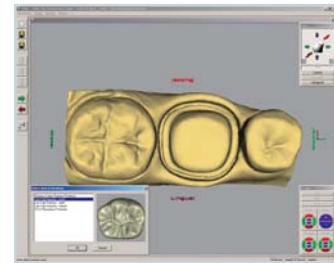
CEREC 3D – superb all-ceramic crowns.



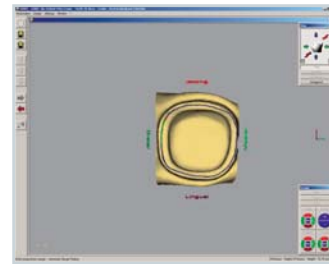
Step 3: Positioning the proximal contacts!
You have a clear idea of where the proximal contacts should be located? Then simply mark the spot with a double click and CEREC will automatically adapt the crown to your requirements.



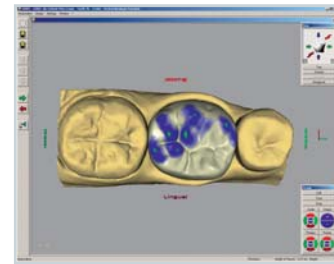
Step 1: Trim the antagonists!
CEREC software allows you to trim the bite registration on the monitor. This is fast, easy and precise.



Step 4: Selection of the database crown!
You browse through the available tooth databases and choose the crown that is best suited to your requirements.



Step 2: Mark the preparation margin!
You show the CEREC where the preparation margin is located and the system detects the margin automatically and precisely.



Step 5: Automatic computation of the occlusion!
Using a biomimetic technique (i.e. one based on natural dentition processes) the new CEREC 3D Crown software moves the occlusal surface of the database crown in all directions until the best possible fit has been achieved – with regard to the adjacent teeth as well as the antagonists. The CEREC software then adjusts each cusp individually in order to generate further contact points. Any premature contacts are removed using the virtual grinding function. You can either accept the restoration proposal “as given” or else carry out individual modifications using the CEREC 3D editing tools. The high-precision milling process takes only a few minutes.

The world's fastest crowns!
With the help of this CEREC 3D Crown upgrade you can create crowns as easily and cost-effectively as you can inlays. The crowns are adapted automatically to the adjacent teeth and the antagonists using a biomimetic technique modelled on natural dentition process. You can count on receiving high-quality results.

- Easy and fast**
- Precise positioning of the proximal contacts
 - Superior results due to extensive tooth database resources
 - Reducing milling time (by up to 40%)

- Time-saving features**
- Manual correlation
 - Replication design
 - Improved ergonomic camera positioning when crossing the middle line

Clinical studies carried out at Zurich University confirm the outstanding longevity of CEREC crowns. More than 200 adhesively bonded CEREC crowns were re-examined after 7 years. The survival rate* was 95% for molar crowns, and 97% for pre-molar crowns. This performance is easily on a par with conventional metal crowns.

*according to Kaplan Meier

CEREC – fast, convincing, cost-effective.



> You know as well as I do: insourcing is the key to success. CEREC transfers additional earnings power to my dental practice. <

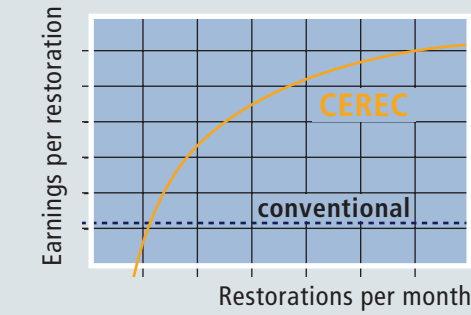
CEREC – exactly what patients want. There are many reasons why more and more patients are opting for ceramic restorations. A patient study carried out by the German Society of Computerized Dentistry (DGCZ) revealed the following key motives for choosing CEREC: the deployment of non-metallic materials; conservation of natural tooth tissue; naturally coloured restorations; and treatment in a single session.

CEREC – a sound investment. CEREC meets with outstanding acceptance – something which has been borne out in various scientific studies. 98 percent of patients rate the treatment outcome as “very good” or “good”. This ensures that CEREC is a sound investment. More and more patients are demanding high-quality restorations and are willing to pay for the privilege. By choosing CEREC you are investing in a tried-and-tested solution that fulfils your patients’ needs and grows in line with your changing requirements.

CEREC Scan – the practical benefits:

- CEREC Scan reduces time pressures in your day-to-day work
- The 3-D design functions of CEREC Scan are fun to use and boost your job satisfaction
- The high earnings potential of CEREC Scan allows you to adopt a more relaxed treatment approach
- Recommendations from satisfied patients help to secure the long-term prosperity of your dental practice

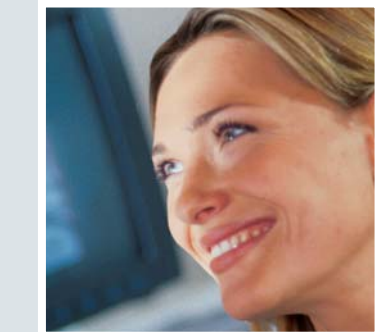
CEREC vs. conventional ceramic restorations.



CEREC – reap the benefits of insourcing. Transfer a new source of earnings potential to your dental practice. The in-house design and manufacture of ceramic restorations does not necessitate any significant additional input of time and effort on your part – and can be delegated to a large extent to your assistants. The modular CEREC system pays for itself even if you perform only a few ceramic restorations per month. Satisfied patients and the additional revenues generated by CEREC will make a major contribution to bolstering the long-term success of your dental practice.

The most important reasons why patients choose CEREC:

Ceramic material as opposed to metal	2.5
Conserves natural tooth tissue	2.0
Natural-looking	1.8
Recommended by dentist	1.5
Complete treatment in a single session	1.5
No impressions required	1.5
No temporary fillings/crowns required	1.5
Cheaper than lab-produced ceramic restorations	1.5
Fascinating computer technology	1.5
No need to replace adjacent fillings	1.5
Recommended by dental assistant	1.5



Sirona – creating and maintaining value.

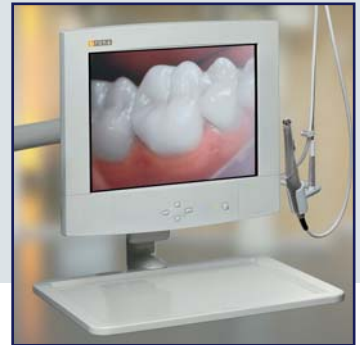
Treatment centres
Instruments
Hygiene systems
X-ray systems
CEREC

Logical. You are right to expect a great deal from the world's only full-range supplier of dental equipment – in particular, an extensive product portfolio, first class service, outstanding quality and tremendous value for money. Sirona covers the entire dental equipment spectrum: treatment centres, handpieces, X-ray systems, hygiene systems and – last but not least – CEREC ceramic restoration systems. Building products that stand the test of time, Sirona is the professional partner for the dental profession.

Treatment centres



Patient communication



X-ray systems



CEREC



Handpieces



Hygiene systems



Dealer's stamp

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Subject to technical changes and errors in the text. Order No. A91100-M41-A794-01-7600. Printed in Germany, Dispo No. 04605, 2013C9193 WS 0505X.