IPS e.max®

THE CLINICALLY PROVEN SOLUTION FOR ALL YOUR CAD/CAM NEEDS

IPS e.max® CAD
THE LEADING CAD/CAM LITHIUM DISILICATE CERAMIC

all ceramic all you need

ivoclar vivadent: passion vision innovation
IPS e.max® CAD is an innovative lithium disilicate glass-ceramic (LS₂) for CAD/CAM applications. This unrivalled system combines highly esthetic quality with exceptional user-friendliness. Unlike any other CAD/CAM material, IPS e.max CAD covers a comprehensive spectrum of indications. A wide range of translucency levels, shades and block sizes offers great flexibility. Tried-and-tested, coordinated cementation materials complement the system.

IPS e.max CAD is milled in a “soft” intermediate state in which the material has a characteristic bluish colour. In a swift crystallization process, IPS e.max CAD subsequently obtains its final high strength of 360 MPa and acquires the desired esthetic properties, such as tooth colour and excellent translucency and brightness.

IPS e.max CAD is synonymous with maximum esthetics, strength and flexibility. Its success is based on many years of clinical experience and millions of restorations placed.

IPS e.max CAD – The highlights

- Leading CAD/CAM material – considerably higher strength compared with competitive glass and hybrid ceramics
- Comprehensive indication spectrum
- Scientifically and clinically proven
- Wide availability due to the CAD/CAM partner network (fabrication in-house and by authorized milling centres)
- Tried-and-tested cementation materials are coordinated with lithium disilicate (LS₂)
IPS e.max® CAD supports individuality. Therefore, a choice of three solutions is available to treat different indications. This ensures maximum flexibility in the digital working process.

**IPS e.max® CAD Solutions**

**IPS e.max® CAD Veneering Solutions**
High-strength digitally fabricated veneer structures for zirconium oxide frameworks (ZrO₂) – for tooth and implant-supported crowns as well as for wide-span bridges (CAD-on).

**IPS e.max® CAD Monolithic Solutions**
Efficient fabrication of high-strength (360 MPa) full-contour all-ceramic restorations – ranging from thin veneers to three-unit bridges.

**IPS e.max® CAD Abutment Solutions**
Customized CAD/CAM hybrid restorations for implants – for single-tooth restorations in the anterior and posterior region.
IPS e.max CAD Monolithic Solutions streamlines the fabrication of full-contour restorations that demonstrate high strength, durability and proven clinical properties.

A wide variety of restorations can be produced with these materials – from thin veneers to three-unit bridges. High esthetic standards are fulfilled due to the different levels of translucency, the A–D shades, the special Bleach shades and two opalescent shades. Individual characteristics can be added using the staining or cut-back technique.

The existing range of IPS e.max CAD blocks has been extended to include new blocks of the MT range (Medium Translucency) in selected shades and in size C14. The MT blocks are intended for restorations that require a higher level of translucency than LT restorations and a higher brightness level than HT restorations.

Indications

- Thin veneers (0.4 mm)
- Veneers
- Occlusal veneers
- Inlays/Onlays
- Crowns
- Three-unit bridges (up to the second premolar as the terminal abutment)
The IPS e.max lithium disilicate glass-ceramic (LS₂) has been successfully used to produce dental bridges for more than ten years*. Its success rate is comparable to that of metal-ceramics. The material’s exceptional properties are unparalleled in glass-ceramic bridge technology.

IPS e.max CAD is also suitable for use in the fabrication of three-unit anterior and premolar bridges. These monolithic and highly esthetic CAD/CAM bridges increase the treatment options offered by digital processing. The universal, dual-curing luting composite Multilink® Automix is used to establish a strong, long-lasting bond between the tooth structure and the IPS e.max restorations.

**IPS e.max CAD Monolithic Solutions – The highlights**

- High-strength lithium disilicate glass-ceramic (LS₂) featuring a flexural strength of 360 MPa
- Excellent esthetics and optional customization
- Comprehensive indication range
- Extensive clinical evidence from long-term scientific studies
- Fast and efficient processing
- Clinically proven and versatile cementation options

* Source: M. Kern et al. “Ten-year results of three-unit bridges made of monolithic lithium disilicate ceramic”;
  Journal of the American Dental Association; March 2012; 143(3):234-240
IPS e.max CAD Abutment Solutions
Quality and esthetics redefined

IPS e.max CAD Abutment Solutions are designed for the fabrication of implant-supported hybrid structures for single teeth using CAD/CAM technology. The hybrid components are individually milled from lithium disilicate blocks (LS₂) and bonded to a titanium base.

IPS e.max CAD blocks A 14 and A 16 feature a special interface, e.g. for the Sirona Ti base. The blocks are used for the fabrication of hybrid abutments and hybrid abutment crowns. They are available in the MO and LT levels of translucency and in several shades. MO blocks are supplied in size A14, LT blocks in size A16 and now also in size A14.

A strong bond between the lithium disilicate glass-ceramic (LS₂) and the Ti base is established with the specially formulated luting composite Multilink® Hybrid Abutment.

Indications
- Hybrid abutments
- Hybrid abutment crowns
  For anterior and posterior teeth in both cases

Optimally matched – Multilink® Hybrid Abutment
The self-curing luting composite Multilink Hybrid Abutment is provided for permanently cementing ceramic structures made of lithium disilicate glass-ceramic LS₂ or zirconium oxide (ZrO₂) on titanium/titanium alloy bases (e.g. abutment or adhesive basis). The benefits are as follows:
- Long-lasting bond due to high bond strength
- Optimum esthetics due to two different levels of opacity
- Easy handling due to the convenient automix syringe
IPS e.max CAD Abutment Solutions

Highly esthetic and productive solutions

Hybrid abutment

The individually machined tooth-coloured lithium disilicate abutment is luted to the Ti base. The natural-looking colour of the abutment and the individual characteristics in the root and transition area to the crown produce an esthetic overall appearance. The crown is cemented using either an adhesive, self-adhesive or conventional method. Since the abutment margin of the crown is at gingiva level, excess cement can be removed with ease.

Hybrid abutment crown

A hybrid abutment crown is an abutment and a monolithic crown in one. This solution offers an efficient route to fabricating strong and esthetic restorations. The restoration is screwed in, therefore avoiding the cumbersome task of having to remove excess cement. Access to the screw is possible at any time.

IPS e.max CAD Abutment Solutions – The highlights

- Precision fit due to CAD/CAM fabrication
- Excellent and long-lasting esthetics due to tooth-coloured hybrid abutments
- Hybrid abutment crown (2-in-1) for function, efficiency and easy access to the screw at any time
- Very good compatibility with the oral soft tissue
- Strong bond between lithium disilicate (LS₂) and Ti base due to Multilink Hybrid Abutment
IPS e.max CAD Veneering Solutions are CAD/CAM manufactured veneer structures for zirconium oxide frameworks (ZrO₂). The unrivalled combination of lithium disilicate (LS₂) and zirconium oxide (ZrO₂) enables the creation of tooth and implant-supported bridge restorations (CAD-on) of exceptional strength and esthetics.

Zirconium oxide (ZrO₂) attains a final strength of more than 900 MPa. Therefore, it is the material of choice for producing dental bridges. Lithium disilicate veneers fulfil the highest esthetic requirements and demonstrate a bending strength of 360 MPa.

The manual workload in the fabrication of long-span bridges can be considerably reduced, if the veneer and the framework are both manufactured in a digital CAD/CAM-based process. Due to the possibility of producing multiple veneers in this way, multi-unit bridges can now be fabricated in a greatly streamlined working process.

Size B40 L of the IPS e.max CAD HT block is suitable for producing veneer structures for bridges in the anterior and posterior region.

Indications
- Crowns
- Bridges (three-unit and multi-unit, also on implants)
IPS e.max CAD Veneering Solutions
Efficient and high-strength

The veneer structures and the matching frameworks are produced in one step with the user-friendly multilayer software. Short process times in the fabrication of dental restorations heighten efficiency and increase productivity. The innovative IPS e.max CAD Crystall./Connect fusion glass-ceramic establishes a homogenous ceramic bond between the zirconium oxide framework (ZrO₂) and the lithium disilicate veneer structure (LS₂).

IPS e.max CAD Veneering Solution – The highlights

• Highly esthetic and very strong due to the unrivalled combination of materials: lithium disilicate (LS₂) and zirconium oxide (ZrO₂)
• Innovative and homogenous ceramic bond
• Individually matched tooth colours
• Subsequent characterization is possible
• Zirconium oxide-supported bridges are fabricated in just a few hours due to an efficient digital manufacturing process (CAD-on)
Scientific studies have been conducted on the IPS e.max System since its inception. Numerous long-term international in-vivo and in-vitro studies have demonstrated the successful performance of this material.

**Successful clinical use**

**IPS e.max CAD crowns**

Clinical studies spanning periods of up to four years are available for IPS e.max CAD. Six clinical studies involving a total of 237 restorations (crowns) show a survival rate of 97.9% after a mean observation period of three years. The clinical performance of IPS e.max CAD with a survival rate of almost 98% is clearly better than that of metal-ceramics and other ceramics.

Source: IPS e.max Scientific Report Vol. 02/2001-2013

**IPS e.max CAD bridges**

Three-unit IPS e.max CAD bridges (n = 38) were examined in a multicentre trial for 46 months. The bridges were produced in monolithic form (staining technique = 23) or with the cut-back technique (n=15). All the restorations were placed on natural tooth structure and cemented with Multilink Automix. The IPS e.max CAD bridges (up to the premolars) have proved themselves over a period of four years and show a survival rate of 93%.

IPS e.max CAD

Used countless times around the world

Dr. A. Kurbad
Germany

The biggest game changer in the world of CAD/CAM has been on the materials end. IPS e.max allows me to treat patients with the confidence that the restorations will last and will be esthetically excellent. A must in the armamentarium of any clinician – e.max is a great tool in the restorative tool belt of the CAD/CAM dentist.

Dr. Y. Kusama
Japan

IPS e.max CAD-on elegantly combines zirconium oxide with lithium disilicate. Due to this clever fusion, neither strength nor esthetics is neglected in both crowns and bridges. IPS e.max takes all-ceramics to the next level.

A. Bruguera
Spain

The addition of various levels of opacity to the product range opens up new possibilities for achieving outstanding shade results. The new HT ingots can be used to fabricate highly translucent veneers in which the natural tooth colour dominates the final shade.

Dr. G. Koike
Japan

I have been using IPS e.max CAD to produce customized hybrid abutments and hybrid abutment crowns with the CAD/CAM technique since 2007. Six years and hundreds of implant cases later this material has firmly established itself in our clinic.

Dr. G. Werling
Germany

IPS e.max CAD is a fabulous material, which shows excellent clinical performance. With IPS e.max, I can cover all the different indications with the CAD/CAM block of my choice.
The latest generation of Programat furnaces is coordinated with the materials of Ivoclar Vivadent. The furnaces produce excellent crystallization and firing results in ceramic restorations, for example, IPS e.max.

The Programat furnaces Programat® CS2, Programat P310, Programat P510 and Programat® P710 are synonymous with innovation, quality and long-standing expertise. QTK muffle technology is at the core of this furnace generation. It is responsible for precision firing results and homogenous heat distribution within the firing chamber.

The light and compact sintering furnace Programat S1 1600 is characterized by its short process time. This has a positive effect on the fabrication of zirconium oxide frameworks (ZrO₂). The furnaces feature integrated power-saving technology, which conserves energy and protects the environment.
Depending on the indication at hand, IPS e.max CAD restorations are cemented with proven adhesives or self-adhesive materials from Ivoclar Vivadent.

**Monobond Etch & Prime®**
IPS e.max CAD restorations are generally etched before they are seated. Monobond Etch & Prime® is a new single-component ceramic primer that allows you to etch and silanate glass-ceramic surfaces in one easy step. The need for using hydrofluoric acid is eliminated.

**Variolink® Esthetic**
The light- and dual-curing esthetic luting composite combines exceptional esthetics with ease of use. The Effect shade concept enables a gradual brightening or darkening of the restoration.

**Multilink® Automix**
The adhesive luting system is suitable for the placement of indirect restorations made of silicate and oxide ceramics (e.g. IPS e.max), metal and metal-ceramics as well as composites. Multilink Automix is both dual and self-curing. The 99% survival rate is testimony to the clinical success of this cementation system.

**SpeedCEM®**
The self-adhesive, dual-curing luting composite SpeedCEM® is easier to use than conventional cements. In addition, it offers the benefits of a composite in that it generates higher bonding values and exhibits higher translucency and lower water solubility.
IPS e.max® CAD forms a part of the “Fixed Prosthetics” product category. The products of this category cover the procedure involved in the fabrication of fixed prosthetic restorations – from temporization to restoration care. The products are optimally coordinated with each other and enable successful processing and application.

Would you like to know more about the products of the “Fixed Prosthetics” category? Simply get in touch with your contact person at Ivoclar Vivadent or visit www.ivoclarvivadent.com for more information.