

For more information or for ordering, please visit:

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DeguDent

A Dentsply International Company

The Power and Esthetics Team

BiOclus® Kiss and BiOclus® Gold
The high-gold Pd-Cu-free alloys



The BiOcclus[®] Story
Power and esthetics merge ...



BiOcclus[®] Kiss is considered a milestone in the development of dental alloys. For the first time, it has been possible to specifically influence the microstructure in order to benefit from the full power of gold.

BiOcclus[®] Gold continues this extraordinary success story. The power of gold is now available in its most beautiful incarnation – for absolute esthetics.

... on the 10 most important alloy properties ...

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1 Thermal stability

- Wide-span bridges
- High distortion resistance
- ... thanks to an effective microstructure



2 Ease of milling

- Smooth surfaces without polishing
- Stable edges
- ... thanks to an effective microstructure



3 Ease of polishing

- Highly esthetic, high-lustre surfaces
- Minimum plaque adhesion thanks to low profile height
- ... thanks to an effective microstructure



4 Ease of finishing

- Ideal for partial-tooth restorations
- Intraoral burnishing to the natural tooth is possible
- ... thanks to an effective microstructure

5	Pd	2.2	Ag	1.9
	Palladium		Silber	
192.22	78	195.078	79	198.97
2410		1772		1064
4130		3827		2807
2.3	Pt	2.2	Au	2.4
	Platin		Gold	

5 Bioalloy

- Free of copper and palladium
- Suitable for sensitive patients
- ... thanks to an effective microstructure



6 Vickers hardness

- High mechanical stability
- Excellent machining behavior
- ... thanks to an effective microstructure



7 Color

- Rich yellow hue
- Meets patient expectations



8 Oxide color

- Light-coloured greyish oxide
- Ideal base for esthetic veneers



9 Span

- Up to 14 units
- Delicate anatomical modelling

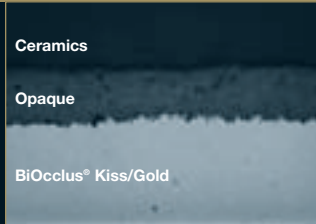


10 Rapid firing

- Short firing times
- Low-cost veneers

... with excellent veneering characteristics.

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Duceram® Kiss – is a highly esthetic and save veneering ceramic material for bioalloys.

As a classical dental system manufacturer, DeguDent insures an optimum match between the BiOclus® Kiss and BiOclus® alloys and the Duceram® Kiss veneering ceramics. The neutral paste, which is a part of the ceramic system, plays the crucial role. It lets you lower the firing temperature of the opaque from 930°C to 900°C. This gives you an additional 30°C margin between the alloy's melting interval and the firing temperature of the ceramic material, maximizing distortion resistance. In addition, the neutral paste provides ideal vitrification of the framework surface, further improving the bond between the alloy and the ceramics (see cross-section, top left).

A dualbenefit paste – and it is simple and safe!

Pre-heating temperature	BiOclus® Kiss	Stage 1: 300 °C / Stage 2: 850 °C
	BiOclus® Gold	Stage 1: 300 °C / Stage 2: 800 °C
Casting temperature	BiOclus® Kiss	1310 °C
	BiOclus® Gold	1270 °C
Veneering preparations for BiOclus® Kiss and BiOclus® Gold	Finishing	Only with cross-cut tungsten carbide cutters
	Sandblasting	With alumina (Al ₂ O ₃), 110 µm grain, pressure 2 bar
	Oxidizing	Oxide firing, 900°C, atmospherically
	Pickling	Neacide bath
Veneering	BiOclus® Kiss	Use the neutral paste instead of the first opaque. Rapid cooling is possible after dentine firing.
	BiOclus® Gold	Use the neutral paste instead of the first opaque. Long-term cooling is required after dentine firing.



Technical specifications



BiOclus® Kiss

Type:	Type Extra hard pursuant to ISO 1562		
Color:	Yellow		
Composition in:		Mass-%	Atom-%
	Au+Pt metal groups	97,7	94,3
	Gold (Au)	81,6	78,6
	Platinum (Pt)	16,0	15,6
	Zinc (Zn)	1,4	4,1
	Indium (In)	0,5	0,8
	Niobium (Nb)	0,4	0,8
	Iridium (Ir)	0,1	0,1
Melting range (°C)	1050 – 1160		
Mean linear CTE* (µm/m·K)	14,2 (25 – 500 °C) 14,4 (25 – 600 °C)		
Vickers hardness (HV5)	b 220 a 220		
0.2% yield strength** (N/mm²)	b 530 a 530		
Tensile strength** (N/mm²)	b 630 a 640		
Elongation at fracture** (%)	b 9 a 8		
Density (g/cm³)	19		
Solders	Before firing: Degudent® solder G1 After firing: Solder DG 750		
Laser welding	BiOclus® Kiss laser welding wire 0.35 mm		

* Coefficient of thermal expansion (CTE)

** Measurements performed on samples pursuant to EN ISO 9693

a = hardened (15 min at 950°C + 15 min at 500°C)

b = achievable hardness after ceramic veneering



Technical specifications

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BiOclus® Gold

Type:	Extra hard pursuant to ISO 1562		
Color:	Yellow		
Composition in:		Mass-%	Atom-%
	Au+Pt metal groups	98,0	94,6
	Gold (Au)	88,3	85,2
	Platinum (Pt)	9,6	9,4
	Zinc (Zn)	1,6	4,7
	Indium (In)	0,3	0,5
	Niobium (Nb) Iridium (Ir)	0,1 0,1	0,2 0,1
Melting range (°C)	1050 – 1130		
Mean linear CTE* (µm/m·K)	14,7 (25 – 500 °C)		
	14,9 (25 – 600 °C)		
Vickers hardness (HV5)	b 200		
	a 210		
0.2% yield strength** (N/mm²)	b 510		
	a 510		
Tensile strength** (N/mm²)	b 570		
	a 590		
Elongation at fracture** (%)	b 5		
	a 5		
Density (g/cm³)	19,1		
Solders	Before firing: Degudent® solder G1		
	After firing: Solder DG 750/BiOclus® Solder G 710		
Laser welding	BiOclus® Gold laser welding wire 0,35 mm		

* Coefficient of thermal expansion (CTE)

** Measurements performed on samples pursuant to EN ISO 9693

a = hardened (15 min at 950°C + 15 min at 450°C)

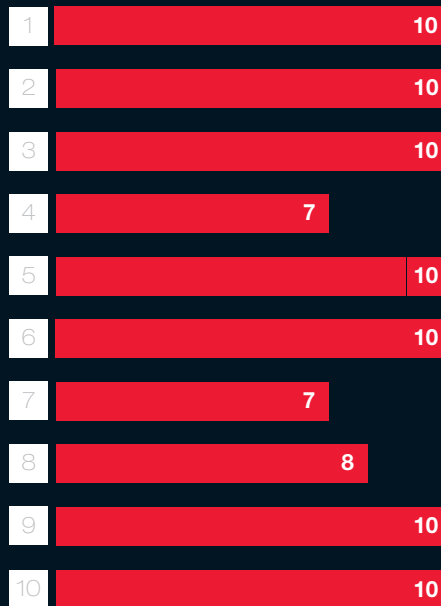
b = achievable hardness after ceramic veneering



... and compare to our Power and Esthetics Team ...

Indications BiOclus® Kiss

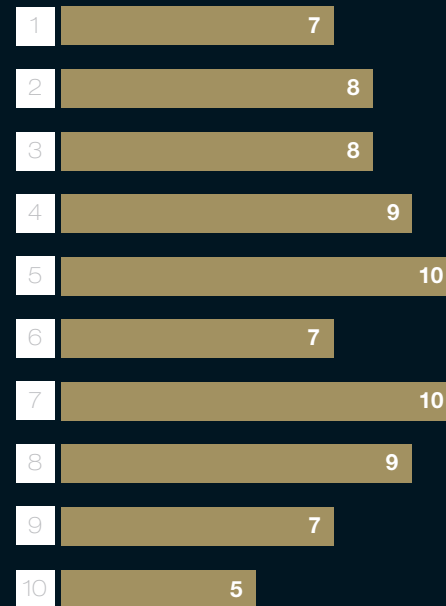
- Inlays
- Crowns
- Bridges
- Combination restorations



Agreements

Indications BiOclus® Gold

- Inlays
- Crowns
- Bridges*
- Combination restorations**



Agreements

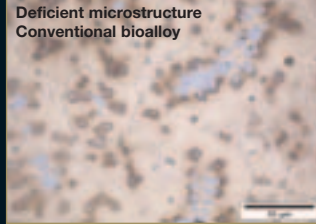
* For bridges with eight or more units, an individual firing carrier should be used, and the cross section of the joins should be increased.
 ** Contraindicated for long bars and wide-span superstructures.

... with its effective microstructure.

Perfect microstructure
BiOclus® Kiss/Gold



Deficient microstructure
Conventional bioalloy



The keys to a truly excellent alloy with outstanding material properties are its chemical composition, how well-controlled and effective microstructure and a meticulously controlled and well-defined production environment.

Palladium-free and copper-free alloys have often been deficient in terms of distortion resistance, especially when used for wide-span restorations. In addition, the microstructure of many alloys was uncontrolled, resulting in time-consuming milling and polishing problems (“orange-peel skin”).

Gold and platinum are the principal components of the so-called bioalloys. Palladium and copper are not used for this alloy type in the interest of biocompatibility. But since just these very elements have an important influence on the physical properties of the alloy, such as hardness

and strength, smart methods of stabilization had to be invented for the bioalloys.

BiOclus® Kiss and BiOclus® Gold were therefore optimized for an ideal microstructure. One very important factor of this bioalloy optimization process are the platinum-rich deposits directly on the borders of the metal grains achieved by a special chemical composition and a special production process. The platinum-rich phases must be well-defined and homogeneously distributed. The finer the deposits on the granular borders, the higher the distortion resistance – and the better the workability of the resulting alloy. BiOclus® Kiss and BiOclus® Gold let you fabricate distortion-resistant and highly esthetic restorations.

