

Parameter overview for CAD software

February 2022

Essentially, both prosthetic and physiological principles must be considered during the design process.

Implant prosthetics anterior tooth	CoCr	Titanium		IPS e.max [®] ZirCAD MO / LT / MT / MT Multi	
	Implant bridge with 2-16 units	Implant bridge with 2-16 units	One-piece abutment/gingiva former	Meso-/Suprastructure or bridge for titanium base with up to 3 units, full contour or framework	Bridge for titanium base with 4 or more units ¹ , full contour or framework (only MO/LT)
Maximum angulation [°]	•••	•••	30	20	•••
Minimum material thickness – incisal [mm]	0.50	0.50	0.60	0.70/1.00 ²	1.00
Minimum material thickness – axial/circular [mm]	0.50	0.50	0.60	0.70/1.00 ²	0.70
Minimum connector cross section [mm ²]	6	6	•••	9/12 ³	9
Maximum space between two abutments (room for pontics) [mm]	30 ⁶	30 ⁷	•••	•••	•••
Cantilever bridge with one free unit: Minimum connector cross section for cantilever [mm ²]	6	6	•••	12 ⁵	12
Instrument radius [mm]	0.600	0.600	0.600	0.600	0.600

Implant prosthetics posterior tooth	CoCr	Titanium		IPS e.max [®] ZirCAD MO / LT / MT / MT Multi	
	Implant bridge with 2-16 units	Implant bridge with 2-16 units	One-piece abutment/gingiva former	Meso-/Suprastructure or bridge for titanium base with up to 3 units, full contour or framework	Bridge for titanium base with 4 or more units ¹ , full contour or framework (only MO/LT)
Maximum angulation [°]	•••	•••	30	20	•••
Minimum material thickness – occlusal [mm]	0.50	0.50	0.60	0.70/1.00 ²	1.00
Minimum material thickness – axial/circular [mm]	0.50	0.50	0.60	0.70/1.00 ²	0.70
Minimum connector cross section [mm ²]	9	9	•••	12/16 ⁴	12
Maximum space between two abutments (room for pontics) [mm]	30 ⁶	30 ⁷	•••	•••	•••
Cantilever bridge with one free unit: Minimum connector cross section for cantilever [mm ²]	9	9	•••	12 ⁵	12
Instrument radius [mm]	0.600	0.600	0.600	0.600	0.600

¹ Indicated with a maximum of 2 connected pontics

² Minimum material thickness for MT/MT Multi 1.00

³ Minimum connector cross section for MT/MT Multi 12 mm²

⁴ Minimum connector cross section for MT/MT Multi 16 mm²

⁵ Not indicated for MT/MT Multi

⁶ Bridges made of CoCr alloy: maximum of 3 connected pontics in the lateral region and 4 in the anterior region

⁷ Bridges made of titanium alloy: maximum of 3 connected pontics

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Implant prosthetics anterior and posterior tooth	Zirconia for CERALOG [®]	IPS e.max [®] CAD		Telio [®] CAD		PEEK
	One-piece abutment/ gingiva former	Mesostructure for titanium base	Suprastructure for titanium base	Suprastructure for titanium base	Gingiva former for titanium base	Gingiva former and impression post
Maximum angulation [°]	30	20	20	20	20	...
Minimum material thickness – circular around screw channel [mm]	0.65	0.50	1.50	0.80	0.80	0.60
Minimum material thickness – circular on titanium base shoulder [mm]	...	0.50	0.50	0.50	0.50	...
Minimum material thickness – occlusal [mm]	...	...	1.50	1.50	...	...
Maximum material thickness – circular around screw channel [mm]	...	6.00	6.00	...	...	9.90 ¹
Instrument radius [mm]	0.650	...	...	0.600	0.600	...

¹ Gingiva former and impression posts have a maximum diameter of 9.9 mm. The height limitation measured from the implant shoulder is 7 mm

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Prosthetics anterior tooth	IPS e.max [®] ZirCAD MO / LT			IPS e.max [®] ZirCAD MT / MT Multi	
	Single crown or framework	Splinted crowns/ Bridge with up to 3 units, full contour or framework	Bridge with 4 or more units ² , full contour or framework	Single crown	Splinted crowns/Bridge with up to 3 units, full contour
Cement thickness – incisal [mm] ¹	0.06	0.06	0.06	0.06	0.06
Cement thickness – axial [mm] ¹	0.06	0.06	0.06 ³	0.06	0.06
Cement thickness – cervical [mm] ¹	0.01	0.01	0.01	0.01	0.01
Cement distance from preparation margin [mm]	1.00	1.00	1.00	1.00	1.00
Minimum material thickness – incisal [mm]	0.40	0.60 ⁴	0.70	0.80	1.00
Minimum material thickness – axial/circular [mm]	0.40	0.60 ⁴	0.70	0.80	1.00
Minimum material thickness – cervical [mm]	0.40	0.60 ⁴	0.70	0.80	1.00
Minimum thickness of preparation margin [mm]	0.20	0.20	0.20	0.20	0.20
Minimum connection cross section for 1 pontic / splinted crowns [mm ²]	...	7	7	...	12
Minimum connection cross section for 2 pontics [mm ²]	...	...	9	...	...
Cantilever bridge with one free unit: Minimum connection cross section for cantilever [mm ²]	...	12	12	...	...
Maximum pontic width [mm]	...	...	...	...	...
Preparation angle [°]	65	65	65	65	65
Instrument radius [mm]	0.600	0.600	0.600	0.600	0.600

¹ Approximate value, must be adapted to the clinical situation and preparation

² Indicated with a maximum of 2 connected pontics

³ For 7 to 16 unit bridges: 0.08

⁴ Minimum material thickness for bridges with free end pontic: 0.70

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Prosthetics anterior tooth	CoCr	Titanium	IPS e.max [®] CAD					IPS Empress [®] CAD		Telio [®] CAD
	Crown or bridge, full contour or framework	Crown or bridge framework	Single crown framework	Single crown/splinted crowns ²	Veneer	Thin Veneer (no cut-back-technique)	Bridge with 3 units	Single crown	Veneer	Crown or bridge
Cement thickness – incisal [mm] ¹	0.08	0.08	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cement thickness – axial [mm] ¹	0.06 ³	0.06 ³	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cement thickness – cervical [mm] ¹	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
Cement distance from preparation margin [mm]	1.00	1.00	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.00
Minimum material thickness – incisal [mm]	0.40	0.40	0.80	1.50/1.00 ²	0.70	0.50	1.20 ⁴	2.00 ⁵	0.70 ⁶	1.50
Minimum material thickness – axial/circular [mm]	0.40	0.40	0.80	1.20/1.00 ²	0.60	0.50	1.20	1.50	0.70	0.80
Minimum material thickness – cervical [mm]	0.40	0.40	0.80	1.00	0.60	0.50	1.00	1.00	...	...
Minimum thickness of preparation margin [mm]	0.10	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Minimum connection cross section for 1 pontic / splinted crowns [mm ²]	6	6	...	16	...	...	16	...	...	12
Minimum connection cross section for 2 pontics [mm ²]	6	6	...	...	...	...	...	...	...	12
Cantilever bridge with one free unit: Minimum connection cross section cantilever [mm ²]	6	6	...	...	...	...	...	...	...	12
Maximum pontic width [mm]	30 ⁷	30 ⁸	...	...	...	...	11	...	...	...
Preparation angle [°]	65	65	65	65	...	...	65	65	65	65
Instrument radius [mm]	0.600	0.600	0.655	0.655	0.655	0.655	0.655	0.655	0.655	0.600

¹ Approximate value, must be adapted to the clinical situation and preparation

² Min. material thickness of 1.00 only valid for IPS e.max CAD crown with adhesive cementation

³ For 7 to 16 unit bridges: 0.08

⁴ With cut-back technique: 0.80

⁵ With cut-back technique: 1.50

⁶ With cut-back technique: 0.50

⁷ Bridges made of CoCr alloy: maximum of 4 connected pontics

⁸ Bridges made of titanium alloy: maximum of 3 connected pontics

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Essentially, both prosthetic and physiological principles must be considered during the design process.

Prosthetics posterior tooth	IPS e.max [®] ZirCAD MO / LT			IPS e.max [®] ZirCAD MT / MT Multi
	Single crown or framework	Splinted crowns/ Bridge with up to 3 units, full contour or framework	Splinted crowns/ Bridge with 4 or more units ² , full contour or framework	Single crown/splinted crowns/ Bridge with up to 3 units, full contour
Cement thickness – incisal [mm] ¹	0.06	0.06	0.06	0.06
Cement thickness – axial [mm] ¹	0.06	0.06	0.06 ³	0.06
Cement thickness – cervical [mm] ¹	0.01	0.01	0.01	0.01
Cement distance from preparation margin [mm]	1.00	1.00	1.00	1.00
Minimum material thickness – incisal [mm]	0.60	0.60 ⁴	0.70	1.00
Minimum material thickness – axial/circular [mm]	0.60	0.60 ⁴	0.70	1.00
Minimum material thickness – cervical [mm]	0.60	0.60 ⁴	0.70	1.00
Minimum thickness of preparation margin [mm]	0.20	0.20	0.20	0.20
Minimum connection cross section for 1 pontic / splinted crowns [mm ²]	•••	9	9	16
Minimum connection cross section for 2 pontics [mm ²]	•••	•••	12	•••
Cantilever bridge with one free unit: Minimum connection cross section for cantilever [mm ²]	•••	12	12	•••
Maximum pontic width [mm]	•••	•••	•••	•••
Preparation angle [°]	65	65	65	65
Instrument radius [mm]	0.600	0.600	0.600	0.600

¹ Approximate value, must be adapted to the clinical situation and preparation

² Indicated with a maximum of 2 connected pontics

³ For 7 to 16 unit bridges: 0.08

⁴ Minimum material thickness for bridges with free end pontic: 0.7

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Prosthetics posterior tooth	CoCr	Titanium	IPS e.max [®] CAD				IPS Empress [®] CAD			Telio [®] CAD
	Crown or bridge, full contour or framework	Crown or bridge, framework	Single crown framework	Single crown/ splinted crowns ²	Inlay/Onlay/ occlusal veneer	Bridge with 3 units (up to 2 nd premolar)	Single crown	Inlay	Onlay	Crown/ splinted crowns or bridge
Cement thickness – occlusal [mm] ¹	0.08	0.08	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cement thickness – occlusal [mm] ¹	0.06 ³	0.06 ³	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cement thickness – cervical [mm] ¹	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
Cement distance from preparation margin [mm]	1.00	1.00	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.00
Minimum material thickness – occlusal [mm]	0.40	0.40	1.00	1.50/1.00 ²	1.00	1.50 ⁴	2.00	1.50 Fissure depth	2.00 Cusp area	1.50
Minimum material thickness – axial/circular [mm]	0.40	0.40	0.80	1.50/1.00 ²	1.00	1.50	1.50	1.50 Isthmus width	1.50 Fissure depth	0.80
Minimum material thickness – cervical [mm]	0.40	0.40	0.80	1.00	...	1.00	1.00	...	...	...
Minimum thickness of preparation margin [mm]	0.10	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Minimum connection cross section for 1 pontic / splinted crowns [mm ²]	9	9	...	16	...	16	...	...	...	12
Minimum connection cross section for 2 pontics [mm ²]	9	9	...	...	...	...	...	...	...	16
Cantilever bridge with one free unit: Minimum connection cross section for cantilever [mm ²]	9	9	...	...	...	...	...	...	...	12
Maximum pontic width [mm]	30 ⁵	30 ⁶	...	...	...	9	...	...	...	...
Preparation angle [°]	65	65	65	65	65	65	65	65	65	65
Instrument radius [mm]	0.600	0.600	0.655	0.655	0.605	0.655	0.655	0.605	0.605	0.600

¹ Approximate value, must be adapted to the clinical situation and preparation

² Min. material thickness of 1.00 only valid for IPS e.max CAD crown with adhesive cementation

³ For 7 to 16 unit bridges: 0.08

⁴ With cut-back technique: 1.00

⁵ Bridges made of CoCr alloy: maximum of 3 connected pontics

⁶ Bridges made of titanium alloy: maximum of 3 connected pontics