Preparation guidelines and minimum requirements

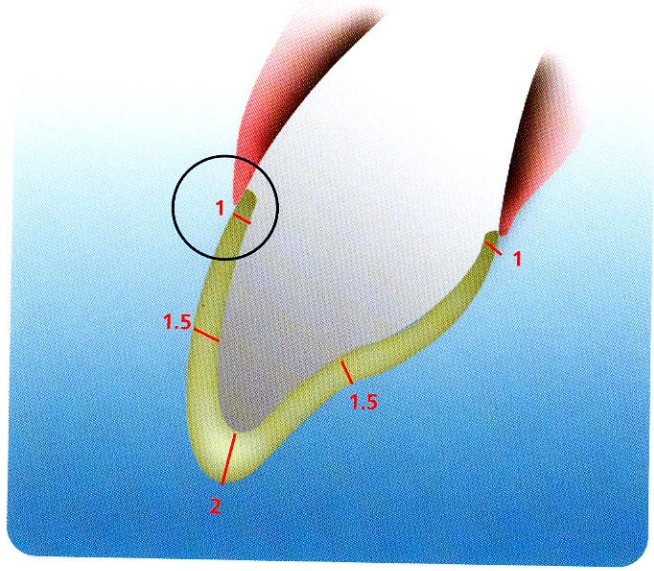
Crowns
Evenly reduce the anatomical shape and observe the required minimum thickness.

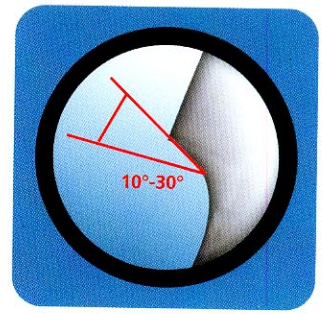
Prepare a 360° chamfer with an angle of approx. 10°–30 °. The width of the circular shoulder/ chamfer is approx. 1 mm.

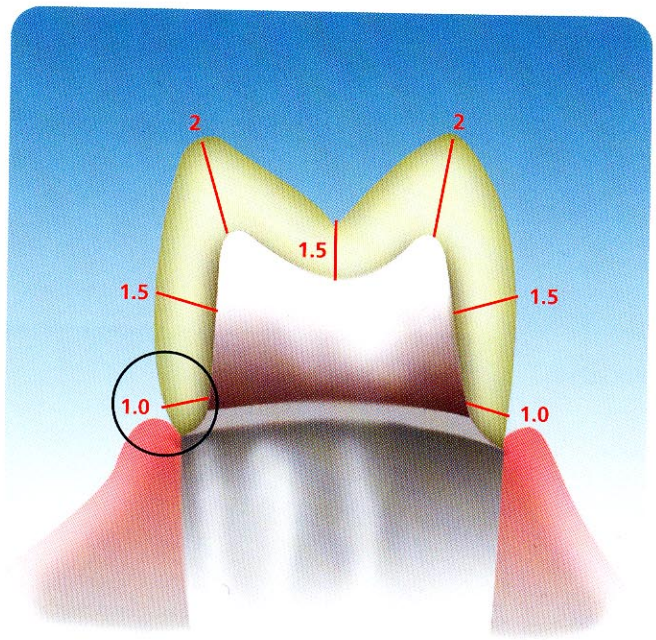
Reduce the incisal crown third by approx. 1.5 mm.

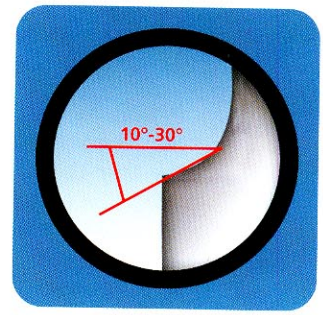
Reduce the incisal and occlusal length by approx. 1.5–2 mm.

For anterior crowns, the reduction in the labial and/or palatal/lingual area is approx. 1.0–1.5 mm.





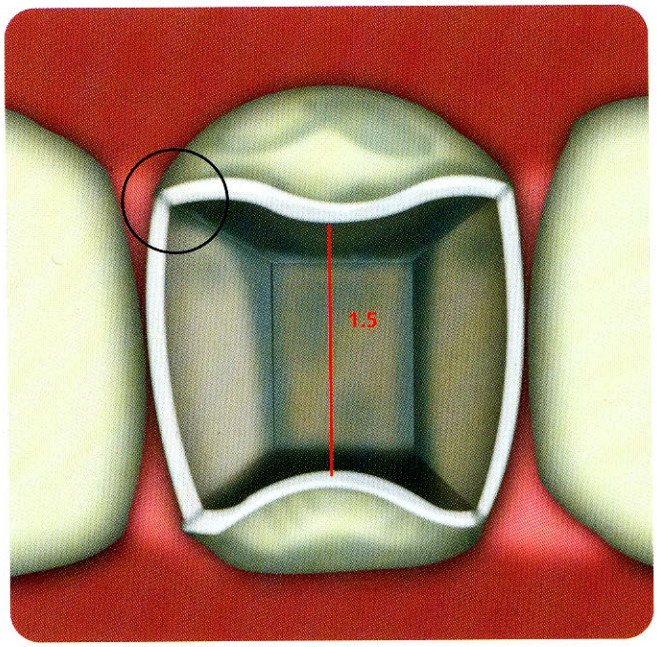


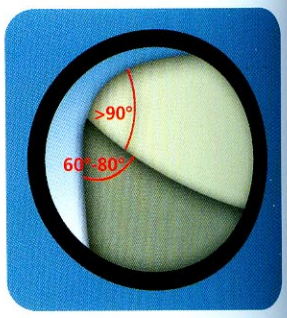


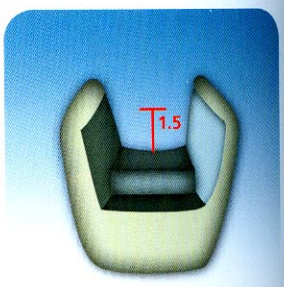
Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.

Inlay
Take antagonist contacts into account.

Observe at least 1.5 mm preparation depth and an isthmus width of 1.5 mm in the fissure area.
Prepare the proximal box with a slightly diverging flare. Observe a >60° angle between the proximal cavity walls and the prospective proximal surfaces of the inlays. Break the internal edges in order to prevent stress concentration in the ceramic material. Remove proximal contacts on all sides. Do not prepare a slice-cut or feather edges.

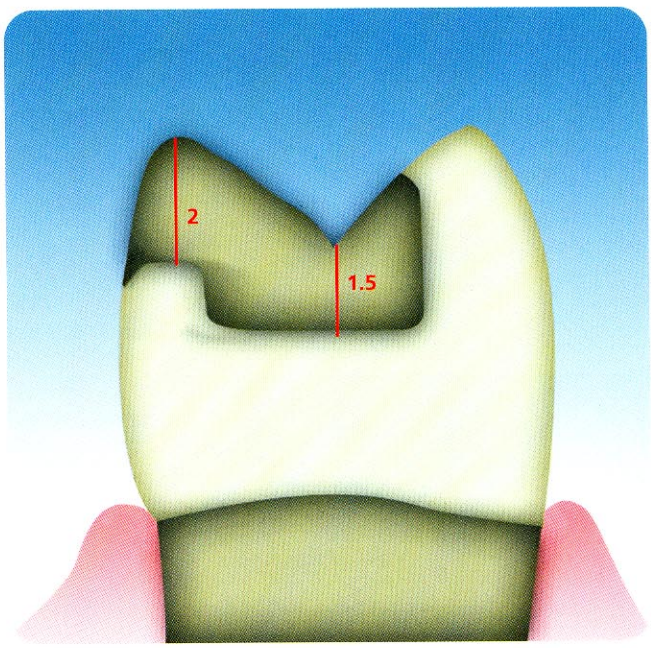


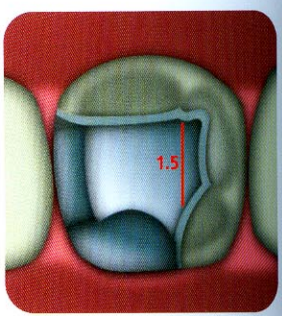




Onlays
Observe the same procedure as for inlays.

Provide for 2 mm space requirement in the area of the cusp tips. The shoulder should be prepared with a chamfer (10°-30°) to improve the esthetic appearance of the transitions between the ceramic material and the tooth. Onlays are indicated if the preparation margin is less than 0.5 mm away from the cusp tip or if the enamel is strongly undermined.





Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.

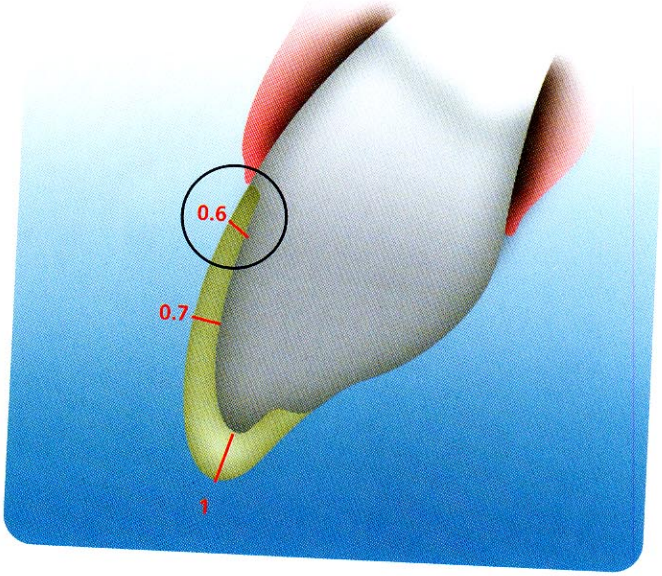
Veneers

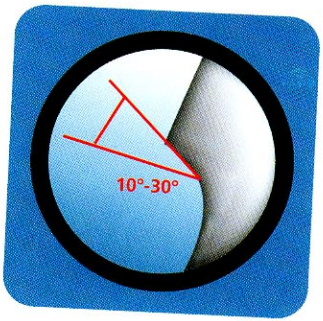
If possible, the preparation should be exclusively located in the enamel. Either design a classical preparation with lingual-incisal, chamfer-type embrasure of the incisal edge, or a simple incisal reduction without embrasure of the incisal edge. Make sure that the incisal preparation margin is not located in the area of the abrasion surfaces.

The extent of the incisal reduction depends on the desired translucency of the incisal area to be reconstructed. The more transparent the incisal edge of the veneer is planned to appear, the larger the reduction should be (incisal reductions: approx. 1.0–1.5 mm). By providing orientation grooves with a groove bur, a controlled enamel reduction can be achieved.

The minimum preparation thickness is approx. 0.6–1.0 mm depending on the preparation technique selected.

Removing the proximal contacts is not required. Discoloured teeth may have to be further reduced. Prepare a cervical chamfer or shoulder with an angle of approx. 10°–30° (same as for crowns).



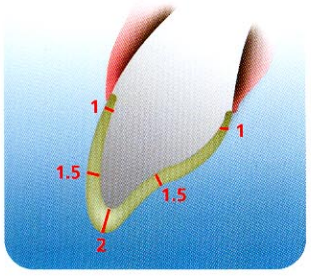


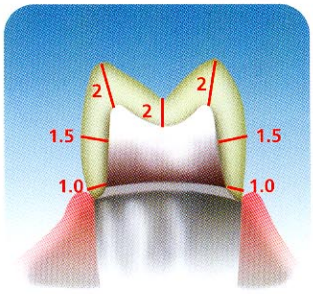
Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.

Contouring

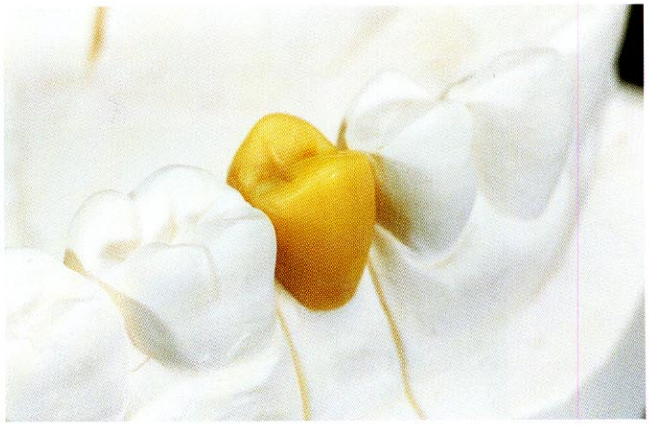
Fabricate a fully anatomical, functional wax-up for the staining technique. You can use any dental wax that burns out without leaving residue.

Wall thickness

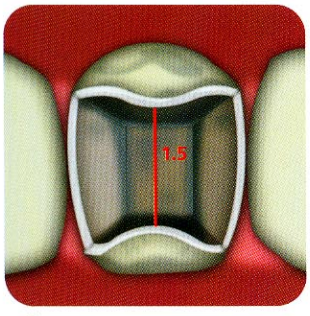


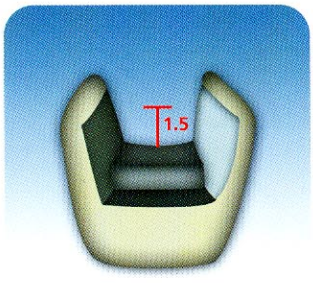


For anterior and posterior crowns.....



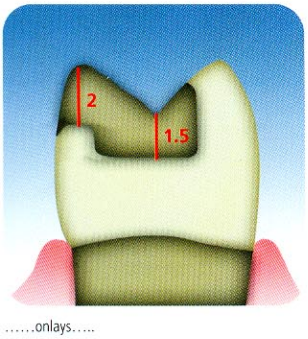
Waxed-up posterior crown

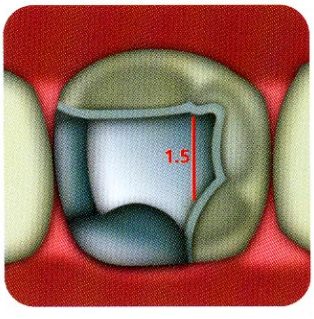




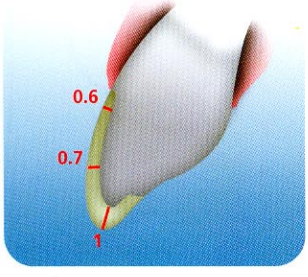
.....inlays.....

Waxed-up inlay





.....onlays.....



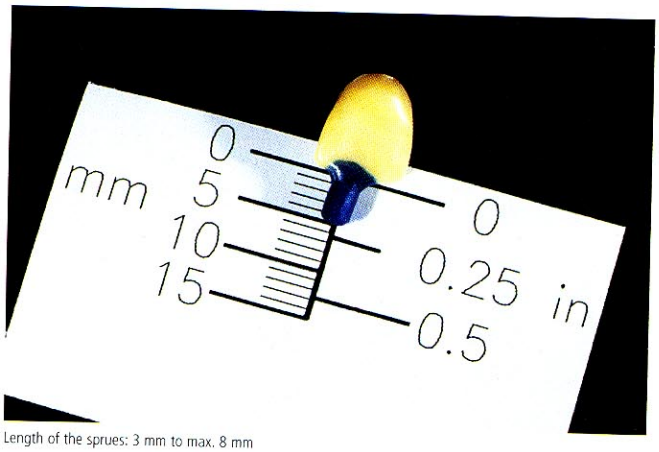
.....and veneers.

Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.
Do not over-contour, since this would require time-consuming and risky fitting procedures. Possible sub-articulation must be taken into consideration as early as during the wax-up, since the final firing (Shade/Stains/Glaze) also results in a surface enlargement.

Sprueing the wax pattern

Depending on the size of the waxed-up pattern, directly attach a wax sprue (diameter 2.5–3 mm / 8 gauge) to the object.
The length of the sprues depends on the size of the objects. The sprues should measure 3 mm to max 8 mm in length (see diagram on page 25-26).
- large (long) wax pattern = shorter sprue
- small (short) wax pattern = longer sprue

Observe the indicated material thickness. Exactly contour the restoration, particularly in the area of the preparation margins.

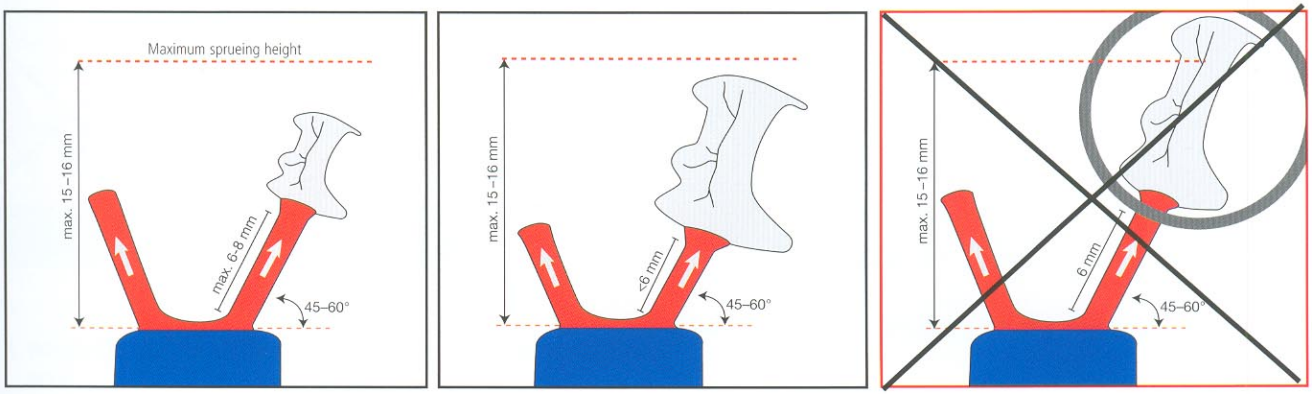


Length of the sprues: 3 mm to max. 8 mm

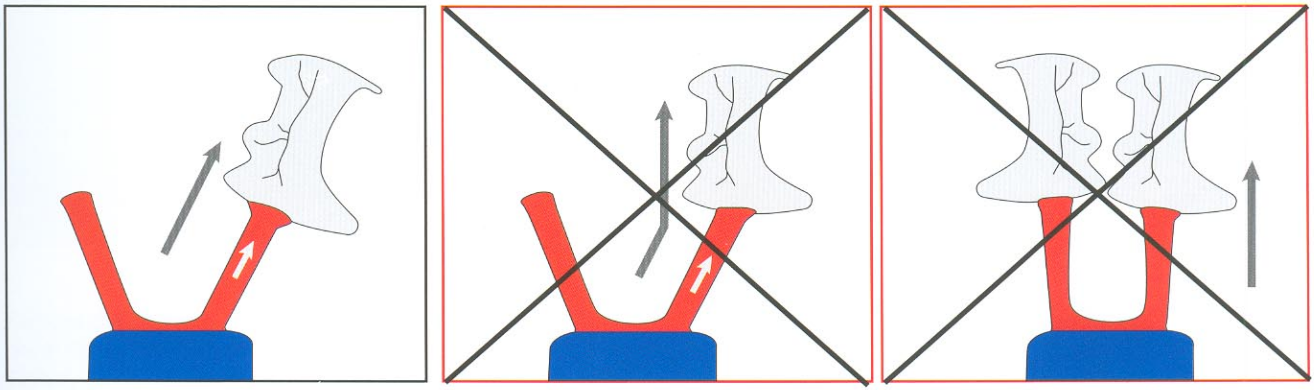

The attachment points of the sprue to the object and sprue former must be rounded and smooth. Avoid sharp edges.


If several veneers are sprued at the same time, they should be arranged in a turbine shape.

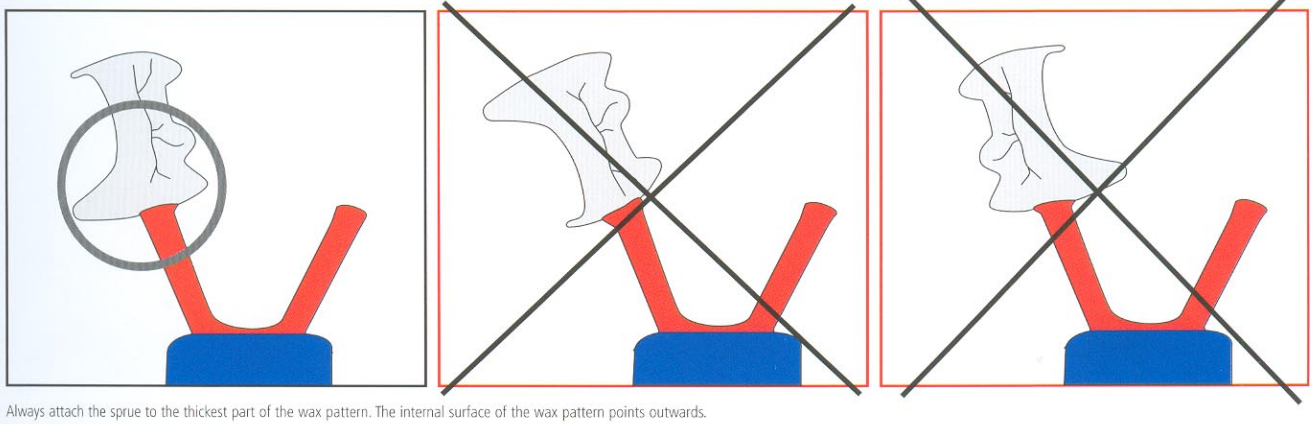
Correct sprueing



The sprue and wax pattern should not be longer than 15–16 mm. Observe a 45-60° angle.



Provide sprues in the direction of flow of the ceramic material.



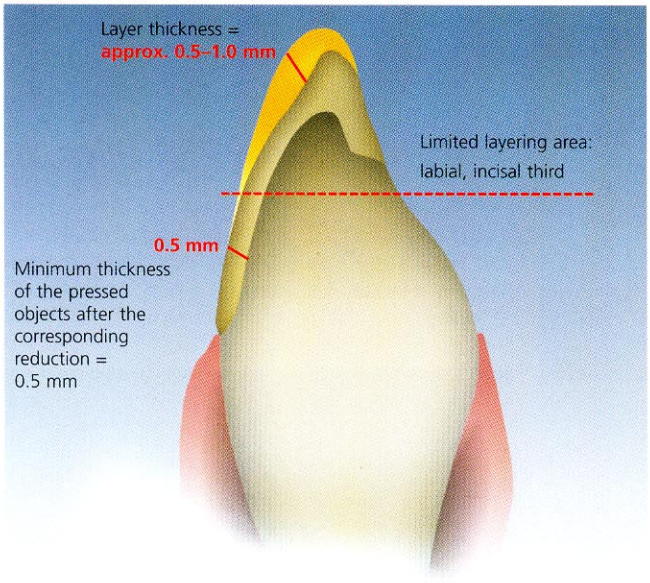
Always attach the sprue to the thickest part of the wax pattern. The internal surface of the wax pattern points outwards.

Processing procedure

IPS Empress Esthetic Veneer Technique

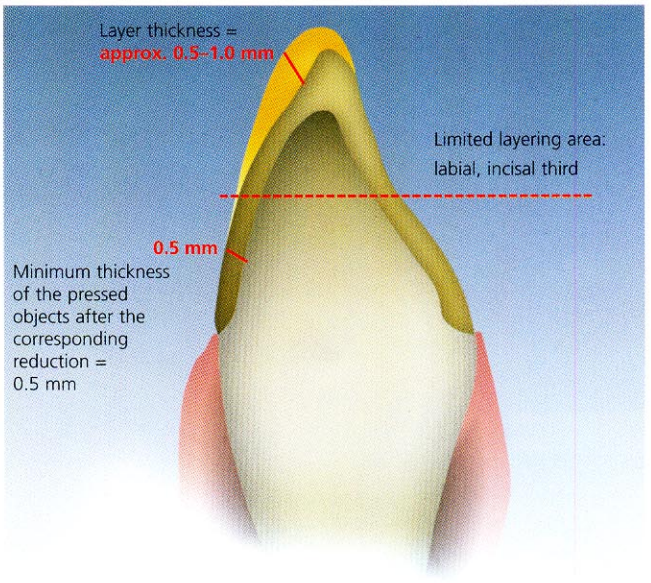
With IPS Empress Esthetic Veneer, you may choose between several ready-mixed IPS Estheic Veneer ceramic materials. These new materials are suitable for quick and efficient layerings on IPS Empress Esthetic ingots.

Anterior veneer



Fully anatomical, pressed anterior veneer, which is reduced in the incisal area.

Anterior crown



Fully anatomical, pressed anterior crown, which is reduced in the incisal area.

Indication

- Esthetic layering of pressed anterior veneers and crowns in the incisal area
- Minimum thickness of the pressed objects = 0.5 mm
- Layering area: Incisal third
- Maximum layer thickness = 0.5–1 mm

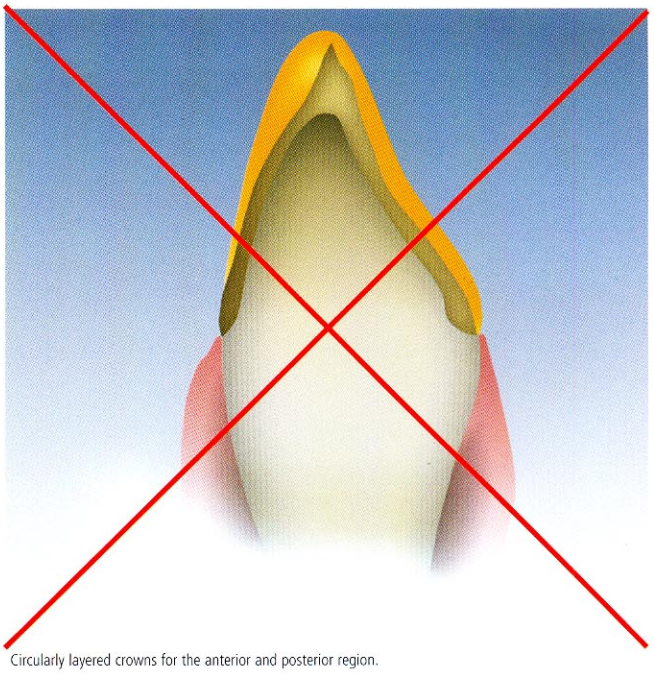
Contraindication

- Circularly layered crowns for the anterior and posterior region
- Combination with other pressed ceramic materials (e.g. IPS Empress and IPS Empress 2 / IPS Eris for E2 layering materials) or materials of other manufacturers
- Combination with metal-ceramic systems (e.g. IPS d.SIGN)
- Patients with severely reduced residual dentition
- Bruxism
- The technique with self-mixed materials in combination with IPS Empress Esthetic ingots

Important processing restrictions

If the following restrictions are not observed, successful working with IPS Empress Esthetic Veneer cannot be ensured:

- The necessary wall thicknesses must be observed.
- Powder materials must not be mixed with materials in paste form



Circularly layered crowns for the anterior and posterior region.

IPS Empress Esthetic –
Pre-heating, press and firing parameters (220 V)

Press parameters
EP500 / EP600 / EP600 Combi

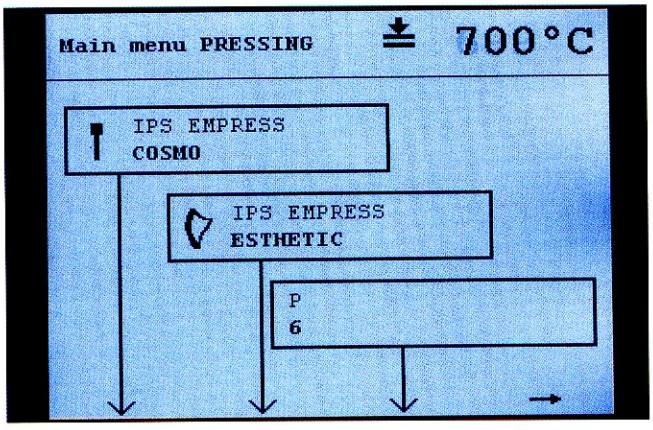
Pressing in the EP500

P	B	t↑	T	H	V_1	V_2	Pressure	N
01	700°C	60°C	1075°C	20	500°C	1075°C	5 bar	–
01	1292°F	108°F	1967°F	20	932°F	1967°C	5 bar	–

Pressing in the EP600/EP600 Combi

P	B	t↑	T	H	V_1	V_2	E
05	700°C	60°C	1075°C	20	500°C	1075°C	250 µm
05	1292°F	108°F	1967°F	20	932°F	1967°C	250 µm

P = Program number
B = Stand-by temperature
t↗ = Temperature increase
T = Firing temperature
H = Holding time
V_1 = Vacuum on
V_2= Vacuum off
E = Abort speed µm/min.



In the EP600 and EP600 Combi, program space 5 will be used for the IPS Empress Esthetic press program from software version 3.1.

These press parameters are mandatory for the EP500 / EP600 / EP600 Combi press furnaces.

Firing parameters Programat (220 V)

Firing parameters for the IPS Empress Esthetic Veneer wash firing

P	B	t↑	T	S	H	V_1	V_2	L
	403°C	60°C	840°C	4	2	450°C	839°C	–
	757°F	108°F	1544°F	4	2	842°F	1542°F	–

Firing parameters for the IPS Empress Esthetic Veneer 1st and 2nd incisal firing

P	B	t↑	T	S	H	V_1	V_2	L
	403°C	60°C	830°C	4	2	450°C	829°C	–
	757°F	108°F	1526°F	4	2	842°F	1524°F	–

Firing parameters for IPS Empress Universal Shade/Stains

P	B	t ↑	T	S	H	V_1	V_2	L
	403°C	60°C	770°C	4	1	450°C	769°C	–
	757°F	108°F	1418°F	4	1	842°F	1416.2°F	–

Firing parameters for IPS Empress Universal Glaze

P	B	t ↑	T	S	H	V_1	V_2	L
	403°C	60°C	770°C	6	1–2	450°C	769°C	–
	757°F	108°F	1418°F	6	1–2	842°F	1416.2°F	–

Firing parameters for IPS Empress Add-On 770 °C/1418 °F

P	B	t ↑	T	S	H	V_1	V_2	L
	400°C	60°C	770°C	4	2	450°C	769°C	–
	752°F	108°F	1418°F	4	2	842°F	1416°F	–

These firing parameters represent standard values applicable to the P80, P100, P200, and PX1 furnaces from Ivoclar Vivadent. The temperatures indicated also apply to furnaces of older generations, such as the P20, P90, and P95. If one of these furnaces is used, however, the temperatures may deviate by ± 10 °C/50 °F, depending on the age and type of the heating muffle.

If a non-Ivoclar Vivadent furnace is used, temperature corrections may be necessary.

Regional differences in the power supply or the operation of several electronic devices by means of the same circuit may render adjustments of the firing and press temperatures necessary.

IPS Empress Esthetic –
Pre-heating, press and firing parameters (110 V)

Press parameters
EP500 / EP600 / EP600 Combi

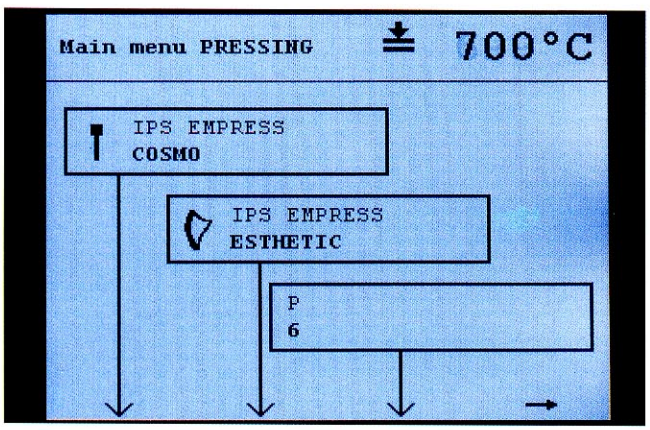
Pressing in the EP500

P	B	t↑	T	H	V_1	V_2	Pressure	N
01	700°C	60°C	1075°C	20	500°C	1075°C	5 bar	–
01	1292°F	108°F	1967°F	20	932°F	1967°C	5 bar	–

Pressing in the EP600/EP600 Combi

P	B	t↑	T	H	V_1	V_2	E
05	700°C	60°C	1075°C	20	500°C	1075°C	250 µm
05	1292°F	108°F	1967°F	20	932°F	1967°C	250 µm

P = Program number
B = Stand-by temperature
t↗ = Temperature increase
T = Firing temperature
H = Holding time
V_1 = Vacuum on
V_2= Vacuum off
E = Abort speed µm/min.



In the EP600 and EP600 Combi, program space 5 will be used for the IPS Empress Esthetic press program from software version 3.1.

These press parameters are mandatory for the EP500 / EP600 / EP600 Combi press furnaces.

Firing parameters Programat (110 V)

Firing parameters for the IPS Empress Esthetic Veneer wash firing

P	B	t↑	T	S	H	V_1	V_2	L
	403°C	55°C	850°C	4	2	450°C	849°C	–
	757°F	99°F	1562°F	4	2	842°F	1560°F	–

Firing parameters for the IPS Empress Esthetic Veneer 1st and 2nd incisal firing

P	B	t↑	T	S	H	V_1	V_2	L
	403°C	55°C	840°C	4	2	450°C	839°C	–
	757°F	99°F	1544°F	4	2	842°F	1542°F	–

Firing parameters for IPS Empress Universal Shade/Stains

P	B	t ↑	T	S	H	V_1	V_2	L
	403°C	55°C	780°C	4	1	450°C	779°C	–
	757°F	99°F	1436°F	4	1	842°F	1434.2°F	–

Firing parameters for IPS Empress Universal Glaze

P	B	t ↑	T	S	H	V_1	V_2	L
	403°C	55°C	780°C	6	1–2	450°C	779°C	–
	757°F	99°F	1436°F	6	1–2	842°F	1434.2°F	–

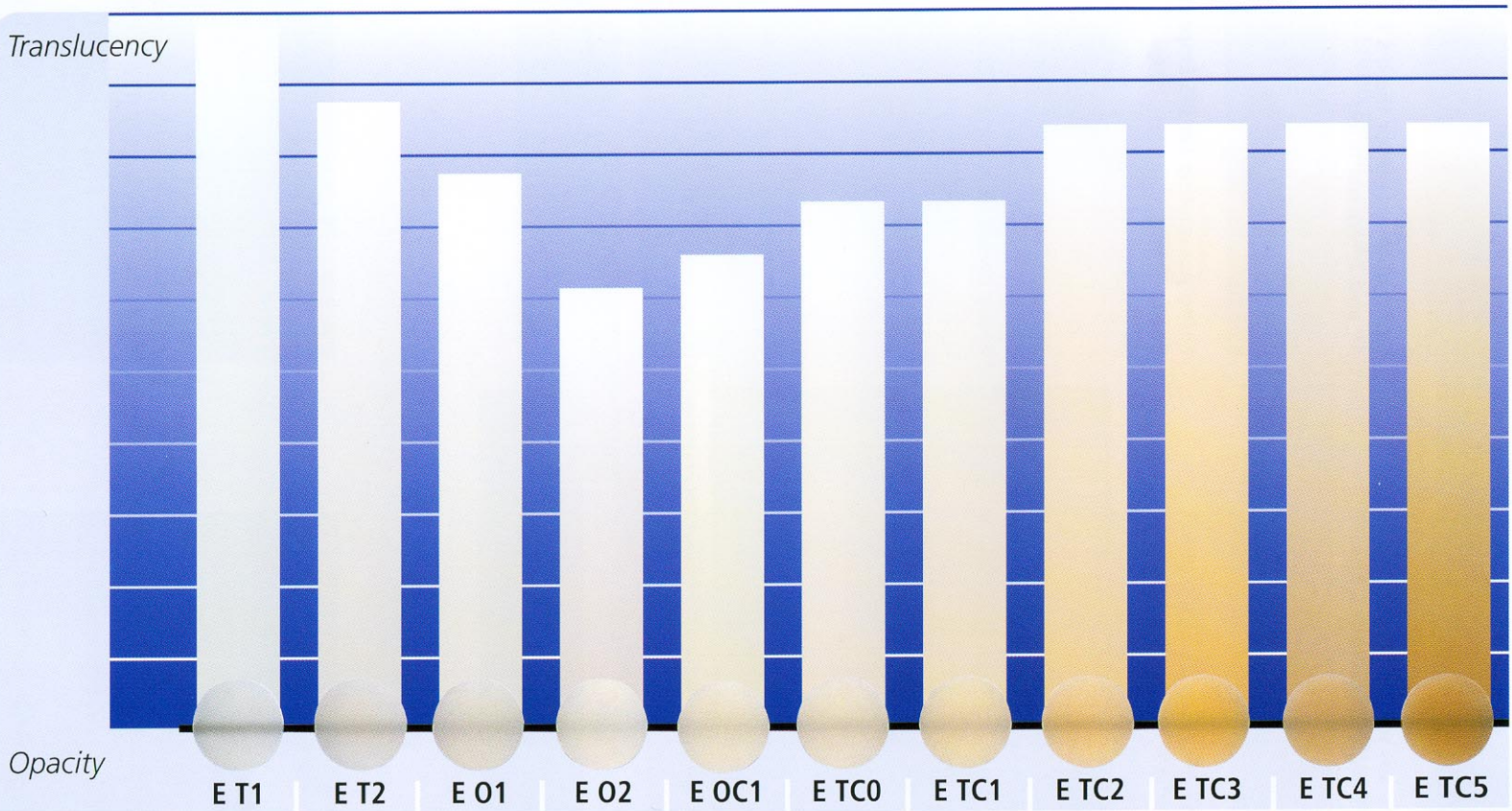
Firing parameters for IPS Empress Add-On 770 °C/1418 °F

P	B	t ↑	T	S	H	V_1	V_2	L
	400°C	55°C	780°C	4	2	450°C	779°C	–
	752°F	99°F	1436°F	4	2	842°F	1435°F	–

These firing parameters represent standard values applicable to the P80, P100, P200, and PX1 furnaces from Ivoclar Vivadent. The temperatures indicated also apply to furnaces of older generations, such as the P20, P90, and P95. If one of these furnaces is used, however, the temperatures may deviate by ± 10 °C/50 °F, depending on the age and type of the heating muffle.

If a non-Ivoclar Vivadent furnace is used, temperature corrections may be necessary.

Regional differences in the power supply or the operation of several electronic devices by means of the same circuit may render adjustments of the firing and press temperatures necessary.



	E T1	E T2	E O1	E O2	E OC1	E TC0	E TC1	E TC2	E TC3	E TC4	E TC5
Chromascop			Bleach		NEW		110-140	210-240	310-340	410-440	510-540
A–D Shades							A1, A2, B1, B2, C1	A3, A3.5, A4, D3	B3, B4, D4	C2, C3, C4	–

IPS Empress Esthetic

These are suggested die material shades if the dentist does not supply die material (preparation) shade.

Chromascop

110	120	130	140	210	220	230	240	310	320	330	340	410	420	430	440	510	520	530	540
ST 9	ST 9	ST 9	ST 9	ST 1	ST 1	ST 2	ST 2	ST 3	ST 3	ST 3	ST 3	ST 8	ST 8	ST 8	ST 8	ST 5	ST 5	ST 5	ST 5

A–D

A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
ST 9	ST 9	ST 1	ST 2	ST 5	ST 9	ST 9	ST 3	ST 3	ST 9	ST 8	ST 8	ST 8	ST 8	ST 9	ST 1