CE 0120

Noritake

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Noritake

Super Porcelain EX-3

PRESS

TECHNICAL INSTRUCTIONS

Noritake Super Porcelain EX-3 PRESS is a Pressable Ceramic System for porcelain alloys. The nano-technology by Noritake has been applied to the development of the material that produces bright and vivid colors. This EX-3 PRESS may be used from a single crown to a long span bridge and has an excellent durability. This system enables not only ceramists but also wax-up technicians to make highly esthetic restorations very easily.

I. Features

1. EX-3 PRESS may be used for a wide range of alloys such as High noble alloys, Noble alloys and Non-Precious alloys. This system is highly crack-resistant for these alloys.
2. EX-3 PRESS Paste Opaque has a very good bonding characteristic with alloys and is very easy to use.
3. EX-3 PRESS Paste Opaque does not move during the pressing process after the ingot is melted, and there is no generation of bubbles.
4. If the margin is made by a 360 degrees deep chamfer or a round shoulder, the porcelain margin with an excellent fit will be produced by this press technique.
5. By using EX-3 PRESS LF Porcelains, you can avoid deformation of the pressed ceramic crown shape or the rounded margin.
6. EX-3 PRESS LF Luster Porcelains will produce opalescence very similar to natural teeth.
7. Use of EX-3 PRESS ingots will also produce excellent opalescence.
8. This system has a wide variety of colors.
9. The Internal Stain Technique will easily realize complicated colors of natural teeth.
10. It has natural blue-white fluorescence that is very close to natural teeth.

II. Products

EX-3 PRESS Paste Opaque 22 shades 6g each

PP nA_1	PP nA_2	PP nA_3	PP $nA_{3.5}$	PP nA_4
PP nB_1	PP nB_2	PP n B_3	—	PP nB_4
PP nC_1	PP nC_2	PP nC_3	—	PP nC_4
—	PP nD_2	PP n D_3	—	PP nD_4
—	PP $NP_{1.5}$	PP $NP_{2.5}$	—	—
PP EW_0	PP EW	PP NW_0	PP $NW_{0.5}$	—

EX-3 PRESS Paste Opaque Modifier 8 shades 3g each

PP White	PP Gray	PP Orange	PP Earth Brown
PP Reddish Brown	PP Pink	PP Blue	PP Yellow

EX-3 PRESS Press Ingot 2g Ingot, 5 Ingots per pkg. 5g Ingot, 5 Ingots per pkg.

Low Translucency Ingot 20 shades

L nA_1	L nA_2	L nA_3	L $nA_{3.5}$	L nA_4
L nB_1	L nB_2	L nB_3	—	L nB_4
L nC_1	L nC_2	L nC_3	—	L nC_4
—	L nD_2	L nD_3	—	L nD_4
—	L $NP_{1.5}$	L $NP_{2.5}$	—	—
L NW_0	L $NW_{0.5}$	—	—	—

High Translucency Ingot 20 shades

H nA_1	H nA_2	H nA_3	H $nA_{3.5}$	H nA_4
H nB_1	H nB_2	H nB_3	—	H nB_4
H nC_1	H nC_2	H nC_3	—	H nC_4
—	H nD_2	H nD_3	—	H nD_4
—	H $NP_{1.5}$	H $NP_{2.5}$	—	—
H NW_0	H $NW_{0.5}$	—	—	—

Esthetic White Ingot 4 shades

EW_{00}	EW_0	EW	EWY

Extra Translucency Ingot 1 shade

ET_0

EX-3 PRESS LF Body 24 shades 10g / 50g / 200g each

nA_1B	nA_2B	nA_3B	$nA_{3.5}B$	nA_4B
nB_1B	nB_2B	nB_3B	—	nB_4B
nC_1B	nC_2B	nC_3B	—	nC_4B
—	nD_2B	nD_3B	—	nD_4B
—	$NP_{1.5}B$	$NP_{2.5}B$	—	—
$EW_{00}B$	EW_0B	EWB	EWYB	—
NW_0B	$NW_{0.5}B$	—	—	—

EX-3 PRESS LF Enamel 5 shades 10g / 50g / 200g each

E_1	E_2	E_3	SilkyE_1	SilkyE_2

EX-3 PRESS LF Translucent 4 shades 10g / 50g / 200g each

Tx	T_0	T_1	T_2

EX-3 PRESS LF Luster Porcelain 11 shades 10g / 50g / 200g each

LT_0	LT_1	ELT_1	ELT_2	ELT_3	T Blue
LT Natural	Creamy Enamel	Sun Bright	Incisal Aureola	Creamy White	—

EX-3 PRESS LF Clear Cervical 4 shades 10g / 50g / 200g each

CCV-1	CCV-2	CCV-3	CCV-4

EX-3 PRESS LF Modifier 6 shades 10g / 50g / 200g each

Mamelon1	Mamelon2	Tissue1	Tissue2	Tissue3	Tissue4

EX-3 PRESS LF Add-on 2 shades 10g / 50g each

AD-T	AD-B

EX-3 PRESS LF MRP 1 shade 10g

MRP

EX-3 PRESS LF INTERNAL STAIN

White	Incisal Blue 1	Incisal Blue 2	Mamelon Orange1	Mamelon Orange2	Cervical 1	Cervical 2	Cervical 3	Earth Brown
Reddish Brown	Salmon Pink	Red	Gray	A^+	B^+	C^+	D^+	—

Shades 3g each Bright (Dilution Stain), 3g IS Liquid, 10ml IS Color Guide

EX-3 PRESS LF EXTERNAL STAIN

Pure White	Gray	Black	Blue	Green 1	Green 2	Yellow	Orange 1
Orange 2	Cervical 1	Cervical 2	Cervical 3	Earth Brown	Reddish Brown	Salmon Pink	Pink
Red	A^+	B^+	C^+	D^+	—	—	—

Shades 3g each Glazing Powder, 10g / 30g ES Liquid, 10ml ES Color Guide

EX-3 PRESS Other Products

- ○ EX-3 PRESS Color Guide Kit
- ○ EX-3 PRESS Dispo Plunger 2G For 2 g ingots (ø12.0mm H37mm) 50 pcs in one box
- ○ EX-3 PRESS Dispo Plunger 5G For 5 g ingots (ø16.5mm H42mm) 50 pcs in one box
- ○ EX-3 PRESS Paste Opaque Liquid 10ml
- ○ EX-3 PRESS ACT Liquid 20ml

III. Color Combination Table

Layering Method

Shade	A_1	A_2	A_3	$A_{3.5}$	A_4	B_1	B_2	B_3	B_4
EX-3 PRESS PP	$PPnA_1$	$PPnA_2$	$PPnA_3$	$PPnA_{3.5}$	$PPnA_4$	$PPnB_1$	$PPnB_2$	$PPnB_3$	$PPnB_4$
Press Ingot	LnA_1	LnA_2	LnA_3	$LnA_{3.5}$	LnA_4	LnB_1	LnB_2	LnB_3	LnB_4
LF Body *	nA_1B	nA_2B	nA_3B	$nA_{3.5}B$	nA_4B	nB_1B	nB_2B	nB_3B	nB_4B
LF Enamel	E_2	E_2	E_3	E_3	E_3	E_1	E_2	E_3	E_3
LF Translucent	Luster LT_1 / Translucent T_1								

Shade	C_1	C_2	C_3	C_4	D_2	D_3	D_4	NW_0	$NW_{0.5}$	$NP_{1.5}$	$NP_{2.5}$
EX-3 PRESS PP	$PPnC_1$	$PPnC_2$	$PPnC_3$	$PPnC_4$	$PPnD_2$	$PPnD_3$	$PPnD_4$	$PPNW_0$	$PPNW_{0.5}$	$PPNP_{1.5}$	$PPNP_{2.5}$
Press Ingot	LnC_1	LnC_2	LnC_3	LnC_4	LnD_2	LnD_3	LnD_4	LNW_0	$LNW_{0.5}$	$LNP_{1.5}$	$LNP_{2.5}$
LF Body *	nC_1B	nC_2B	nC_3B	nC_4B	nD_2B	nD_3B	nD_4B	NW_0B	$NW_{0.5}B$	$NP_{1.5}B$	$NP_{2.5}B$
LF Enamel	E_2	E_3	E_3	E_3	E_2	E_3	E_3	$SilkyE_2$	$SilkyE_2$	E_2	E_2
LF Translucent	Luster LT_1 / Translucent T_1										

Staining Method

Shade	A_1	A_2	A_3	$A_{3.5}$	A_4	B_1	B_2	B_3	B_4
EX-3 PRESS PP	$PPnA_1$	$PPnA_2$	$PPnA_3$	$PPnA_{3.5}$	$PPnA_4$	$PPnB_1$	$PPnB_2$	$PPnB_3$	$PPnB_4$
Press Ingot	HnA_1	HnA_2	HnA_3	$HnA_{3.5}$	HnA_4	HnB_1	HnB_2	HnB_3	HnB_4
LF External Stain	A^+	A^+	A^+	A^+	A^+	B^+	B^+	B^+	B^+
LF Glaze Powder	EX-3 Press LF Glaze Powder								

Shade	C_1	C_2	C_3	C_4	D_2	D_3	D_4	NW_0	$NW_{0.5}$	$NP_{1.5}$	$NP_{2.5}$
EX-3 PRESS PP	$PPnC_1$	$PPnC_2$	$PPnC_3$	$PPnC_4$	$PPnD_2$	$PPnD_3$	$PPnD_4$	$PPNW_0$	$PPNW_{0.5}$	$PPNP_{1.5}$	$PPNP_{2.5}$
Press Ingot	HnC_1	HnC_2	HnC_3	HnC_4	HnD_2	HnD_3	HnD_4	HNW_0	$HNW_{0.5}$	$HNP_{1.5}$	$HNP_{2.5}$
LF External Stain	C^+	C^+	C^+	C^+	D^+	D^+	D^+	B^+	A^+	A^+	A^+
LF Glaze Powder	EX-3 Press LF Glaze Powder										

Esthetic White Restoration

Shade	EW_{00}	EW_0	EW	EWY
EX-3 PRESS PP	$PPEW_0$	$PPEW_0$	PPEW	PPEW
Press Ingot	EW_{00}	EW_0	EW	EWY
LF Body *	$EW_{00}B$	EW_0B	EWB	EWYB
LF Enamel	$SilkyE_1$	$SilkyE_1$	$SilkyE_2$	$SilkyE_2$
LF Translucent	ELT_2	ELT_2	ELT_1	ELT_1

Inlay and Onlay Restorations

Shade	ET_0
EX-3 PRESS PP	—
Press Ingot	ET_0
LF Body	—
LF Enamel	—
LF Translucent	—

* EX-3 PRESS LF Body is to be used only when there is some shortage of EX-3 pressed ceramic

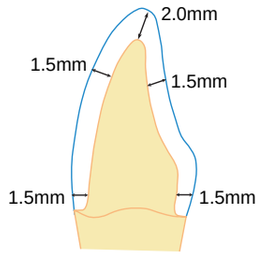
IV. Working Procedures

Preparation Guidelines and Metal Frame Design:

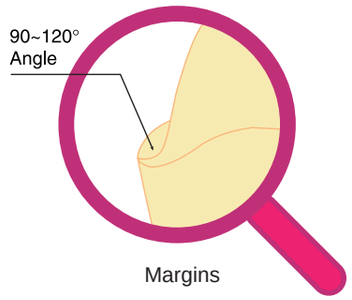
To ensure a strong and esthetic restoration, the following preparation guidelines should be observed:

A. Preparation Guidelines

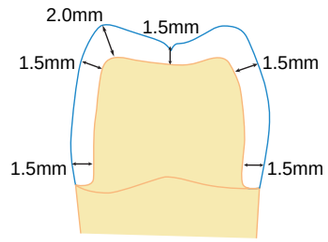
In this technique, the basic preparation is to allow the pressed ceramic to cover a **360 degrees shoulder with rounded edge or chamfer.**



Anterior Tooth



Margins



Posterior Tooth

B. Frame Designs

Single crowns with porcelain margin

Maintain a minimum at least 0.8mm thickness of pressed margin area and other areas.

Bridge Restoration

Maintain a minimum 0.8mm thickness of pressed ceramic on abutments, embrasures, pontic tissue area.

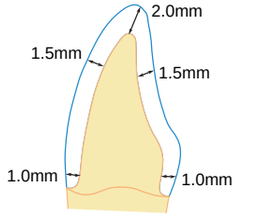

Single frame design

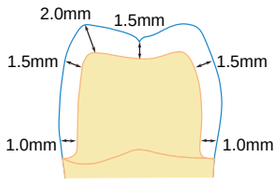

Bridge frame design

Preparation Guidelines for All-Ceramics and Press ceramic thickness

The following are the preparation guidelines for making strong and esthetic restorations with Press Ceramic only and without a metal framework.

Ceramic thickness for Crowns





Fabrication of abutments for crowns:

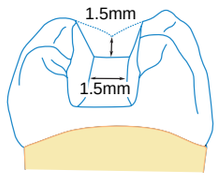
1. Margins should be prepared with rounded shoulder or deep chamfer (angle 90-120°).
2. Sharp angles and edges should be avoided.
3. The following minimum thickness is required.
   - At the incisal edge of the anterior tooth 2mm
   - At the occlusal edge of the posterior tooth 2mm
   - At the occlusal surface of the posterior tooth ... 1.5mm
   - At the middle body area 1.5mm
   - At the cervical area 1.0mm

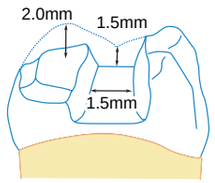
Ceramic thickness for Veneers

Fabrication of abutments for veneers:

1. Margins should be prepared with slightly rounded shoulder.
2. Margin finishing lines should not be positioned at occlusal contacts or at proximal contacts.
3. Sharp angles and edges should be avoided.
4. The following minimum thickness is required.
   - At the incisal edge of the anterior tooth 1.0-1.5mm
   - At the middle body area 0.7mm
   - At the cervical area 0.6mm

Ceramic thickness for Inlays / Onlays





Fabrication of abutments for Inlays / Onlays:

1. Internal walls of cavity should not be parallel (angle 15°).
2. Margin finishing lines should be prepared with sharp edge without beveling.
3. Margin finishing lines should not be positioned at occlusal contacts or at proximal contacts.
4. Slice-cuts and feather edges should be avoided at the proximal area.
5. The shoulder of onlays should be prepared with rounded shoulder or deep chamfer (angle 90-120°).
6. All the angles in the cavity should not be prepared with sharp edge.
7. All the surfaces (in the cavity) that are in contact with the pressed ceramic should be smooth and even.
8. For the depth from the fossa to the bottom, and the width, at least 1.5mm is needed.

1. Alloy Selection for EX-3 Press

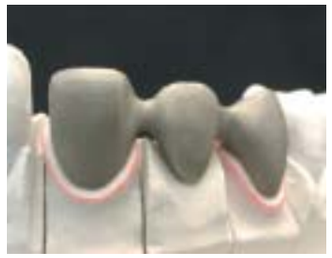
High noble, Noble and Non-precious alloys can be used for EX-3 Press technique, but the following points are to be noted.

Notes

1. The CTE matching with alloy in Press technique is much more important than the matching in the case of PFM build-up. Please note that the ideal CTE for EX-3 Press is 13.8-14.2 x 10^{-6} K^{-1} (25-500°C)
2. Noble alloys should be with less than 10% Silver (Ag) and without Copper (Cu). Otherwise, EX-3 Press may be contaminated due to greening.
3. The alloys with smaller flexural strength or the alloys with lower melting point should not be used as they may be deformed by the pressure during the pressing process. For example, High noble alloys with gold colors are not recommended.
4. The alloys that will form a thick oxidation film due to the heating during pressing process should also not be used as they may cause peeling off of the porcelain.

Our Recommendations:	Not recommended:
CTE=13.8-14.2 x 10^{-6} K^{-1} (25-500°C)	High noble alloys with gold colors
Less than 10% Silver (Ag)	The alloys that will form a thick oxidation film
Copper (Cu) Free.	

2. Metal framework adjustment



The appropriate thickness is 0.3mm for precious alloys and 0.2mm for Ni-Cr alloys. Use an alumina point or a carbide bur for precious and semi-precious alloys; use an alumina point for Ni-Cr alloys. To ensure a good bonding between the porcelain and the alloy, sandblasting is necessary with 50μm alumina.

3. Degassing

Follow the instructions of the metal manufacturers for degassing after the cleaning in the Ultrasonic Cleaner. Do proceed to the degassing in order to increase the bonding between the porcelain and the alloy.

4. How to use EX-3 PRESS Paste Opaque

Scoop out the desired amount and the desired shade of Paste Opaque and put it on the palette. Please incline the jar and clip up from the no-liquid part.

Note EX3 Press Paste Opaque and EX-3 Paste Opaque for porcelain build-up are entirely different in their compositions and operations. EX-3 Paste Opaque for porcelain build-up can not be used for Press ceramic technique. Be sure to use EX-3 Press Paste Opaque for Press ceramic technique.

5. Application of EX-3 PRESS Paste Opaque

Be sure the surface of the metal framework is completely free of moisture. Using the tip of the brush, rub the surface with a small amount of Paste Opaque to form a very thin layer.

Note Only dry brush should be used. Do not mix with even a small amount of water.

6. First Application of EX-3 PRESS Paste Opaque

After a thin layer is rubbed, keep coating the metal framework with Paste Opaque until 70% of the metal color is hidden. Do make sure that proximal area and the lingual finishing line are not covered too thick.

Note Dilute the desired amount of Paste Opaque with Paste Opaque Liquid. Be careful that over-dilute will lead to fractures after baking.

7. Clean Up the Internal Surface / First Baking of EX-3 PRESS Paste Opaque

Make sure that no residue remains inside of the metal framework. If Paste Opaque residue is found, use a dry brush to remove it. After the first baking, the opaque surface should have an almost egg shell look.

Note The baked opaque should exhibit an almost egg shell surface. Set the idle temperature of the furnace to under 400°C (752°F) in order to avoid bubble problem.

8. Second Application and Baking of EX-3 PRESS Paste Opaque

Apply the second layer of Paste Opaque until the color of the metal framework is completely covered. Be sure that no Paste Opaque residue remains inside of the metal framework. After the second baking, the surface should have an almost egg shell look as same as the first baking.

Note The baked opaque should exhibit an almost egg shell surface.

9. Paste Opaque Modifier Application (If necessary)

The EX-3 PRESS Paste Opaque Modifier can be mixed with EX-3 PRESS Paste Opaque to customize the shade or can be applied alone for minor modifications. When Modifier is used as a stain, dilute it with EX-3 PRESS Paste Opaque Liquid to desired viscosity and apply during the second application.

10. Wax-up

(1) Layering Method

Wax-up of the abutment should be done so that there is no space between the framework and wax in all margin-shoulder areas of the abutment. Then wax-up to the dentin shape with 90% size of the completed restoration. Mamelon structure is not needed at this wax-up since it is formed later by cutting after ingot pressing. Be sure to secure the sufficient thickness for the pressed ceramic. Please refer to the thickness on page 4.

(2) Staining Method

Wax-up so that there is no space between the framework and wax in all margin-shoulder areas of the abutment. Then wax-up to the shape of the final restoration.

Note Do not make sharp angles or deep under cuts. After wax-up, check if there is any wax left inside the framework and if there is, carefully wipe off the wax. Also, confirm that there is no space between the framework and wax. If there is, place the waxed-up framework in the correct position on the model and fill the space with wax.

Wax-up for “Layering Method”

Wax thickness at the shoulder

Wax-up for “Staining Method”

11. Spruing, Attaching to the Pedestal Base and Ring Preparation

Use 8 gauge (3.3mm diameter) sprues of 2-3mm in length. Attach sprues to wax patterns and position sprues on pedestal base to facilitate a smooth flow of the press ceramic to all areas of the patterns. If the wax pattern is thin in some areas, more than one sprue may be used.

(1) Single crowns:

For larger posterior teeth, position one sprue on each marginal ridge, closer to the proximal walls so that pressed ceramic may flow smoothly. Spruing this way preserves delicate wax contours and little morphological correction is needed (See A, page 9).

(2) Bridges:

Place one sprue each on each abutment and each pontic. Make the sprue length as short as possible. (See B, page 9).

After attaching sprues, weigh the waxed restoration and then deduct previously recorded weight of the metal framework — this is the net wax weight.

Position the wax patterns at the same height in the ring and maintain a minimum distance of 5mm between wax patterns. The distance between the wax pattern and the ring inner wall must be at least 8mm. Use Noritake Ring Former (pedestal base) , Ring and Ring Gauge (leveling cap) for the best results. Apply a dry Teflon®-Silicone spray to the inside of the ring, Ring Former (pedestal base) and Ring Gauge (leveling cap) to prevent investment from sticking to the surface.

(A)

After attaching the sprue (B)

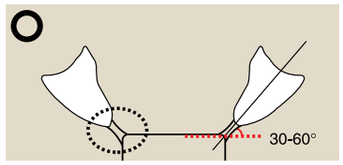
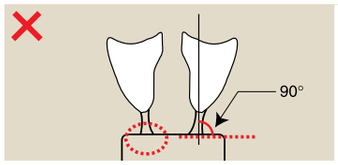
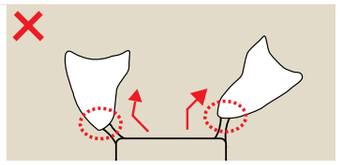


Fig. 1 Correct spruing



Wrong spruing



Wrong spruing

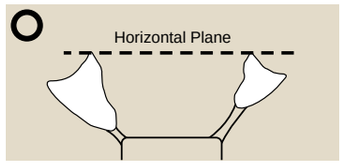
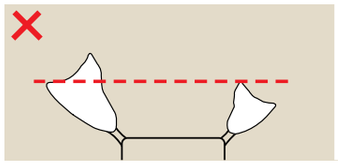


Fig. 2 Correct spruing



Wrong spruing

Attach the wax sprue to the edge of the Ring Former (pedestal base) at an angle of 30-60°(Fig. 1). When spruing two crowns of different lengths, position the margins of the crowns at the same height (Fig. 2).

12. Investing

Mix Investment powder with liquid in the mixing bowl. Make sure the measurement of powder and liquid is accurate. Next, mechanically mix the investment under vacuum and then carefully fill the wax pattern (s) and ring without producing any bubbles. After investing, the ring bench set . When transporting the ring, hold from the pedestal base, not the sides of the ring.

Mix with Vacuum Mixer

Investing

Bench set

13. Preparation before Burn-out

Remove the button of investment created by leveling cap

Carefully level the ring so that the top and bottom are perpendicular to the sides of the ring.

After bench setting at room temperature, remove the ring from the Ring Former and Ring Gauge. Remove the investment button created by the leveling cap with a dry knife. The ring top surface and the side, and the bottom surface and the side should be kept at 90 degrees angle respectively. When a paper ring is used for investing, a vertical seam line is produced where the paper overlaps itself. This must be smoothed with a knife.

14. Burn-out of Investment Ring

Burn-out

Preheat the burn-out furnace to 850°C (1562°F). Place the investment ring in the center of the furnace. Preheating of the ceramic ingot and the plunger is not required.

Do not burn-out press rings with other rings (e.g. soldering models, casting ring, etc) .

15. Selection of Ceramic Ingots

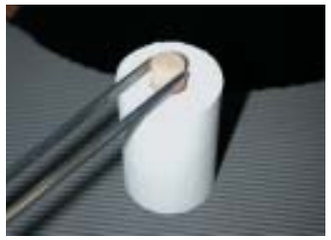
Select ingots dependent upon the method. For the Layering method, select L-ingot with low transparency and for the Staining method, select H-ingot with higher transparency of the specified shade.

Note For the bleached color, select Esthetic white ingot.

16. Inserting Ceramic Ingot and Plunger.

Relation of Wax Weight and Number of Ingot

Wax Weight	Number of 2g ingots
0.6g or less	One 2g ingot
0.7g up to 1.4g	Two 2g ingots
1.5g up to 2.0g	One 5g ingot



Insertion of the Ingots

Insertion of the Noritake EX-3 PRESS Dispo Plunger

After heating the investment ring at 850°C (1562°F) for an hour, insert the Ceramic ingot of the desired shade and the plunger into the canal of the investment ring. Be sure to use clean tweezers, used exclusively for picking up ingots. Use one ingot for up to two crowns and two ingots for three or more crowns; however, if the wax pattern (s) weight is 0.6g or less, use one ingot, and if the weight is between 0.7g and 1.4g, use two ingots. Pay special attention during this procedure so that no foreign debris attaches itself to the ingots or to the plunger. Note that the plunger is to be inserted vertically into the pressing canal.

17. Pressing in the Press Furnace

Pressing cycle completed

Insert the ceramic ingots and press plunger into the ring, then center the ring on the pressing platform. The pressing schedule may differ depending upon the press furnace manufacturer. Adjust the schedule so that pressing will stop once the ceramic is fully pressed into the cavity. Excessive press time may cause various problems including: split rings, porosity, value shift and brittle or fractured restorations. Follow the pressing schedule according to the pages 23-25. After pressing, immediately remove the investment ring from the furnace and leave it to cool at room temperature until the ring is cool enough to be held.

18. Removal of EX-3 PRESS Dispo Plunger

Mark the top position of the plunger, and cut the investment ring with a separating disk. Separate the ring with a plaster nipper. Be careful not to damage the pressed ingot.

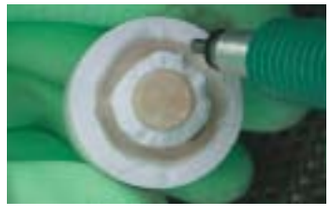
Marking the top position of the plunger

Section with a separating disk

Final removal with a plaster nipper

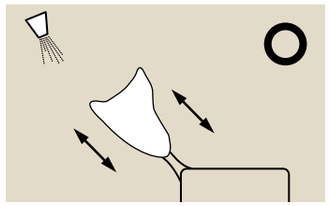
19. Divesting

Carefully divest the ring to avoid breaking the pressed ceramic. First, remove the bulk of the investment material (without exposing the pressed ceramic patterns) using 50µm alumina sands at a pressure of 58-87psi (0.4MPa-0.6MPa). Once the pressed ceramic is exposed, lower the sandblasting pressure to less than 29psi (0.2MPa) and continue alumina sandblasting carefully so as not to chip the thin areas such as the margins or incisal edge. Glass beads are recommended for the thin areas such as the margin and the incisal edge. When divesting patterns, the direction of sandblasting spray should be parallel to the long axis of each crown.

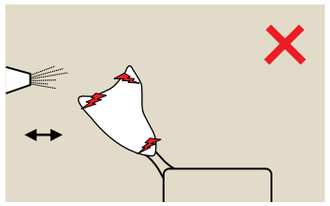


Roughly remove the investment

After Divesting



correct sandblasting



Incorrect sandblasting

When divesting the pressed ceramic, blast from the direction indicated in the schematic at the left

20. Cutting off the Sprue

Using a diamond disk for sprue separation, first score a line around the sprue, 2mm from the crown at a low speed, then carefully section through the sprue. In this way, even if the cracks are created within the sprue, they will not spread into the crown. Next, using a diamond point at a low speed, reduce the remaining sprue button on the crown. During this process, do not generate excessive heat or vibration as it may propagate cracks. Noritake Meister Points are recommended for sprue reduction and morphological correction of the porcelain.

21. Morphological Correction of Pressed Ceramic

"Layering Method"
cut-back to create mamelon structure

"Staining Method"
after morphological correction

Place the pressed restoration on the model and check the fit at the margin under magnification. The cut-back process depends on which technique is chosen:

- For the "Layering Method", create the mamelon structure with Meister Points. Special care should be taken to maintain a minimum thickness no less than 0.8mm.
- For the "Staining Method", refine the delicate surface morphology & texture. After the contours have been finalized, prepare the surface of the pressed ceramic by sandblasting with 50µm alumina at a maximum 29psi (0.2MPa).

22. Cleaning

Clean the pressed ceramic for 5 minutes in an acetone using an ultrasonic cleaner.

The following are instructions for the "Layering Method".

For instructions of the "Staining Method", please see page 15.

23. Application of ACT Liquid for Greening prevention

Anti-Greening ACT Liquid

Apply ACT Liquid

Silver-containing alloys or silver-contaminated furnace might cause greening. ACT Liquid is recommended to prevent such greening. First, dry the pressed ceramic that has been cleaned ultrasonically. Dip the brush (with cap) into the ACT Liquid, and apply it all over the surface of the dried pressed ceramic. Be sure to apply it on the shoulder part of the pressed ceramic which is just inside the margin line. There is no problem even if the liquid is applied on the surface of the metal framework. After the liquid is completely dry, move to the next step of either LF porcelain build-up or stain application.

Note Make sure the surface is completely dry before moving to the next step. If the next step of LF porcelain build-up is performed before the surface is dried, there is a possibility that the LF porcelain will become whitish after baking. Close the bottle cap securely immediately after use.

Layering Method

L1. Build-up and Baking of EX-3 PRESS LF Body, Enamel, Clear Cervical, Translucent / Luster Porcelain

Build-up EX-3 PRESS LF Body, Enamel and Translucent / Luster Porcelains over the pressed ceramic. The baking schedule for layering porcelain is page 21. If required, apply EX-3 PRESS LF Internal Stain on the pressed ceramic or baked EX-3 PRESS LF porcelain. After internal staining, it should be covered by EX-3 PRESS LF porcelain layer.

L2. Morphological Correction

Perform morphological correction as usual. If required, perform second build-up of EX-3 PRESS LF Porcelain and bake according to baking schedule.

L3. Stain & Glaze

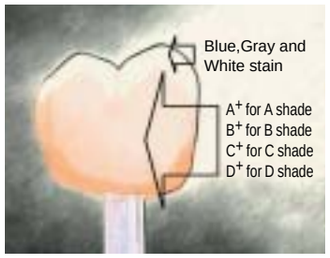
"Layering Method"
after morphological correction

Completed crown after glaze bake

If necessary, apply the EX-3 PRESS LF ES (External Stain) to characterize restoration. Perform glaze bake according to the "Self Glaze" or "Glaze Powder & External Stain Bake" schedule in the EX-3 PRESS LF Baking Schedule on page 22.

Staining Method

S1. Application of External Stain and Baking



Example of ES


Application of ES

Mix EX-3 PRESS LF ES (External Stain) with ES liquid. Mix ES to the same consistency as with ordinary stains. If too much liquid is used, the stain will move after the application.
For A shades, first apply A^+ ES stain over the area except the incisal edge or occlusal surface of the entire crown. Similarly, apply B^+ ES stain for B shade, C^+ for C shade, D^+ for D shade. For incisal edge or occlusal surface, apply ES stains such as Blue, Gray and White. Considering esthetics; apply the mixture over the surface of the restoration for the final shades. Then, bake according to the baking schedule on page 22. Perform characterization, if necessary, and bake again by the same baking schedule. If characterization is over lapped by more than two stains, separate baking is recommended.

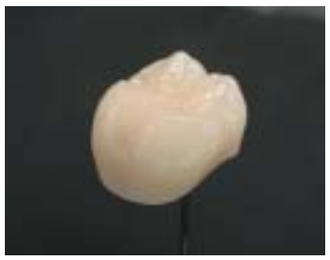
S2. First Glazing

Using IS (Internal Stain) Liquid, mix with EX-3 PRESS LF Glaze Powder to create a “cold honey-like” glaze paste. Do not wet the surface of the restoration with IS liquid prior to glaze application, otherwise inconsistent coverage may result. Apply liberally and evenly over the restoration in a 0.2mm thickness. Inspect restoration to verify complete coverage. Perform the first glaze baking according to the baking schedule on page 22.

S3. Adjusting the Contact Area and Morphological Correction

Using a rubber wheel such as the Meister Point # SF-41, adjust the contact area of glaze layer. If necessary, make morphological correction. Finally, clean the restoration in an ultrasonic cleaner as in Step 22, page 13.

S4. Second Glazing and Completion


Completed crown after
second glaze baking

Dilute the glaze mixture used in the first glaze application to a little runnier consistency. Apply the glaze over the entire surface of the restoration and bake again according to the baking schedule page 22 to complete the staining method.

Stand-alone Restoration Method

Applications: Anterior Single Crown, Porcelain Laminate Veneer, Inlay and Onlay
Stand-Alone method can be applicable only for Staining technique by using H-ingot or ET_0-ingot (Extra translucency ingot). Never use layering technique as it will deform margin area of the crown.

Working Procedures:

1. Fabrication of a working model

Apply plaster surface hardener, “Noritake Stone Hardener”, on the surface to protect an abutment model. If there are any undercuts, be sure to close them completely.

2. Application of cement spacer

Apply cement spacer according to the following guideline.

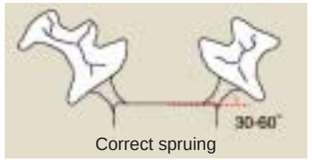
Crowns / Veneers	Apply once with 1mm space left from the margin line.
Inlays / Onlays	Apply twice at the sharp edges and the internal surface, and as close as possible to the margin line.

Note The above is just the guideline, and some adjustments may be needed according the abutment shape and the expansion of the investment to be used.

3. Wax-up

Perform wax-up for the final crown shape and proceed to spruing, The thickness should be more than 1.0mm in order to avoid chipping.

4. Spruing and Investing, Preheating of Investment Ring



Correct spruing

For Spruing before pressing steps, see pages 9-10. Attach sprues to the thick part of the wax patterns.
Wax patterns of Inlays , Onlays and Porcelain Laminate Veneers should be connected to the Noritake Ring Former with the inside of the wax patterns facing to the outside toward the ring wall.

5. Pressing of EX-3 PRESS Ingots, Divesting and Sprue-cutting

See pages 10-12. For the suggested Liquid and the Diluting Water Ratio (Liquid/Water), please refer to the manufacturer’s recommendations of the investment to be used.

Note The higher the percentage of Water to Liquid is, the smaller the fit becomes.

6. Fitting

Before fitting the Pressed ingot to the abutment model, remove cement spacer from the model as needed. (Please refer to the cement spacer manual for the procedure to remove cement spacer.)

Note If there are any bubbles inside the pressed ceramic, remove them with Noritake Meister Points DP-01 and DP-02. Also, if there are any burrs in the margin area, carefully smooth the area not to make chippings, using Noritake Meister Point SF-41.

7. Morphological correction of Pressed ceramic

Perform morphological correction, using Meiser Point, Meister Cones and Pearl Surface and smooth the surface.

8. Alumina Sandblasting and Cleaning

After the contours have been finalized, prepare the surface of the pressed ceramic by sandblasting with 50µm alumina at a maximum 29psi (0.2MPa).
Clean the restoration for 5 minutes in acetone with an ultrasonic cleaner.

9. Application of External Stain

Mix EX-3 PRESS LF ES with Noritake ES Liquid. Mix ES to the same consistency as with ordinary stains. If too much liquid is used, the stain will move after the application. Apply the mixture over the surface of the restoration for the final shades. Then, bake according to the baking schedule Table4, page 22.This procedure is not required in the clinical cases where stain is not needed.

10. First Glazing

Using Noritake IS Liquid, mix with EX-3 PRESS LF Glaze Powder to create a cold “honey-like” glaze paste. Do not wet the surface of the restoration with IS Liquid prior to glaze application, otherwise inconsistent coverage may result. Apply glaze liberally and evenly in a 0.2mm thickness. Inspect the restoration to verify complete coverage. Perform the glaze baking according to the baking schedule Table5, page 22.

11. Adjusting the Contact Area and Morphological Correction

Using a rubber wheel such as the Meister Point # SF-41, adjust the contact area of glaze layer. If necessary, make morphological correction. Finally, clean the restoration in an ultrasonic cleaner as in Step 22, page 13.

12. Second Glazing (If necessary)

Dilute the glaze mixture used in the first glaze application to a little runnier consistency. Apply the glaze over the entire surface of the restoration and bake again according to the baking schedule Table5, page 22.

13. Completion

Completed crown after glaze bake

Completed onlay after glaze bake

14. Cementing

Be sure to use adhesive resin cement for bonding.

Resin Cement Examples

Product Name	Manufacturer
Panavia F2.0	Kuraray
Panavia 21	Kuraray
Relyx Unicem	3M

V. Precautions for Handling

Alloy Selection for EX-3 PRESS

1. The CTE matching with alloy in Press technique is much more important than the matching in the case of PFM build-up. Please note that the ideal CTE for EX-3 Press is 13.8-14.2 x 10^{-6} K^{-1} (25-500°C)
2. Noble alloys should be with less than 10% Silver (Ag) and without Copper (Cu). Otherwise, EX-3 Press may be contaminated due to greening.
3. The alloys with smaller flexural strength or the alloys with lower melting point should not be used as they may be deformed by the pressure during the pressing process. For example, High noble alloys with gold colors are not recommended.
4. The alloys that will form a thick oxidation film due to the heating during pressing process should also not be used as they may cause peeling off of the porcelain.

Press Ceramic and Opaque

1. **Never use conventional (layering) EX-3 porcelains (Opaque, Body, Enamel, etc.) in the process of EX-3 PRESS techniques.**
2. EX-3 PRESS cannot be used on alumina frameworks, Zirconia frameworks and Titanium frameworks.
3. If the thickness of EX-3 PRESS pressed ceramic on a metal framework is less than 0.8mm, the margin area will be deformed.
4. EX-3 PRESS LF Porcelain is precisely matched with EX-3 PRESS ingots. Do not use other manufacturers’ porcelains for metal frameworks when layering on the EX-3 pressed ceramic.
5. Do not use other manufacturers’ paste opaque when performing EX-3 PRESS.
6. To prevent contamination from foreign materials in the pressed ceramic, always use new wax which does not contain impurities and burns-out without leaving ash and other residues. Be sure that the framework surface is clean before wax-up.
7. Ceramic ingots cannot be re-used. Re-using ingots will cause certain restoration failure.
8. Secure at least more than 0.8mm thickness evenly for a rounded shoulder in the margin area. (Refer to the illustration) Knife-edge design toward the margin end is not acceptable as the thickness will gradually be less than 0.8mm.
9. The best thickness at the margin area of the EX-3 PRESS ceramic, not including the thickness of the metal framework, is less than 1.0 mm. If it is thicker than 1.0mm, there may be deformation at the margin area after baking of the EX-3 PRESS LF Porcelain.
10. The metal frame margin line should be finished very smoothly. Do not give the metal frame margin line serration-finish.

11. Improper furnace parameters for the pressing cycle may lead to the problems such as an incomplete pressing, a split investment ring, movement and absorption of the Paste Opaque into the pressed ceramic, porosity, brittleness and value or shade changes. Every manufacturer's press furnace is slightly different; therefore, observe the most appropriate heat-pressing schedule with your press furnace.
12. On occasion, when tooth reduction is inadequate, less than ideal space is available for pressable thickness over the metal framework; consequently, the space created for pressable material is not sufficient and this in turn, creates resistance against the flow of ingot material.
13. To prevent flash on the pressings, be sure to observe the above mentioned instructions during spruing and investing.
14. Noritake EX-3 PRESS Dispo Plungers must be used for EX-3 PRESS technique. Never use other manufacturer's plungers.

LF Porcelain

1. Stand-Alone method can be applicable only for Staining technique by using H-ingot or ET$_0$-ingot. Never use layering technique with LF porcelain as it will deform margin area of the crown.
2. The only restorations that can be made by EX-3 PRESS ingot without using a metal framework are an anterior single crown, a porcelain laminate veneer, an inlay and an onlay. Do not make a bridge without a metal framework.
3. Do not use EX-3 PRESS LF for the clinical cases where the thickness of the pressed ceramic cannot be more than 0.8mm, cross bite and attrition of the tooth. The restoration receives unexceptionally strong pressure.
4. Carefully grind the pressed ceramic not to produce cracks and chipping.
5. Do not mix with other porcelain, including other Noritake porcelain or other manufacturer's porcelain.
6. When without a metal framework, Do not build up and bake of EX-3 PRESS LF porcelain on the EX-3 Pressed ceramic.
7. Use only LF liquid or distilled water.
8. EX-3 PRESS LF is baked properly when the surface has a slight luster after baking. Please adjust your furnace to achieve this result.
9. EX-3 PRESS LF is a low fusing porcelain. In case any fiber such as tissue paper remains after baking, it should be removed.
10. For porcelain separation, please use Noritake Magic Separator that can be used for low fusing porcelain.
11. In case of stand-alone restoration, do not use metal baking pegs. The metal may stain the inside of the framework. The pegs must be clean. Leftover porcelain may fuse to the inside of the framework.

12. Keep all liquids in a dry cool place, avoiding direct sunlight.
13. In case of stand-alone restoration, be sure to use adhesive resin cement for bonding.

LF Stain

1. Be sure to use EX-3 PRESS LF stain for staining and glazing. Other stains cannot be used.
2. There is a risk of blackening when using the stain liquid of other manufacturers. It is very important to use Noritake Stain Liquid exclusively.
3. EX-3 PRESS LF Internal Stain (IS) is made exclusively for internal staining.
4. IS liquid should not be mixed with water, use as is without diluting.
5. After mixing EX-3 PRESS LF Internal Stain with IS Liquid on the palette, avoid letting it sit for a long time and avoid making repeated additions to the original mixture. Using stain from which too much moisture has evaporated will result in bubbles.
6. If different colored stains are applied over on the same area without baking between applications, they may blend unpredictably. To avoid this, divide the staining process into two parts and bake between applications.
7. IS Liquid contains ingredients that dissolve some plastics. Please handle with extreme caution in the presence of plastic materials.

Investment

Spruing

1. The distance from the top of the wax pattern to the top of the ring should be at least 10mm, and the distance from the wax pattern to the inside wall of the ring should be at least 8mm.
2. Always use the new wax which does not contain impurites. Be sure that the framework surface is clean before wax-up.
3. Always keep the sprue former very clean to avoid mixing any dust particles into pressings.

Burn-out

4. After investing, leave the ring to bench-set (undisturbed) at room temperature, then place it into the center of the burn-out furnace at 850°C (1562°F).
5. Burn-out of the investment ring needs to be done at sufficient oven temperature in order to prevent insufficient wax elimination and to burn-out the remaining ammonia gases from the investment ring.
6. Do not proceed with the pressing process if cracks appear in the ring after burn-out.

Divesting

7. Divesting must be carefully carried out to avoid any breaking the pressed ceramic.

VI. Baking Schedule

Baking Schedule for EX-3 PRESS Paste Opaque

Table 1

	1st bake		2nd bake	
Dry-Out Time	8min.		8min.	
Low Temperature	400°C	752°F	400°C	752°F
Start Vacuum	400°C	752°F	400°C	752°F
Heat Rate	65°C/min.	117°F/min.	65°C/min.	117°F/min.
Vacuum Level	96kPa ※1		96kPa ※1	
Release Vacuum	980°C	1796°F	980°C	1796°F
High Temperature	980°C	1796°F	980°C	1796°F
Hold Time	1min. (air)		1min.(air)	
Cool Time	0min.		0min.	

※1 96kPa=72cmHg (29inchesHg)

Baking Schedule for EX-3 PRESS LF Body, Enamel, Translucent / Luster Porcelain

Table 2

	1st bake		2nd bake	
Dry-Out Time	7min.		5min.	
Low Temperature	500°C	932°F	500°C	932°F
Start Vacuum	500°C	932°F	500°C	932°F
Heat Rate	45°C/min.	81°F/min.	45°C/min.	81°F/min.
Vacuum Level	96kPa ※1		96kPa ※1	
Release Vacuum	760°C	1400°F	760°C	1400°F
High Temperature	760°C	1400°F	760°C	1400°F
Hold Time (in the air)	1min.		1min.	
Cool Time	0min.		0min.	

Note The above program is only a guideline.
Baking Temperature may be varied with the peculiarities of different furnace.

※1 96kPa=72cmHg (29inchesHg)

Baking Schedule for EX-3 PRESS LF IS Stain

Table 3

Dry-Out Time	5min.	
Low Temperature	500°C	932°F
Start Vacuum	—	—
Heat Rate	50°C/min.	90°F/min.
Vacuum Level	—	
Release Vacuum	—	—
High Temperature	720°C	1328°F
Hold Time (in the air)	0min.	
Cool Time	0min.	

Baking Schedule for EX-3 PRESS LF ES Stain / Glaze or Self Glaze

Table 4 Layering method

	LF ES Stain / Glaze with Glazing Powder		Self Glaze	
Dry-Out Time	5min.		5min.	
Low Temperature	500°C	932°F	500°C	932°F
Start Vacuum	—	—	—	—
Heat Rate	50°C/min.	90°F/min.	50°C/min.	90°F/min.
Vacuum Level	—		—	
Release Vacuum	—	—	—	—
High Temperature	760°C	1400°F	760°C	1400°F
Hold Time (in the air)	1min.		1min.	
Cool Time	0min.		0min.	

Baking Schedule for EX-3 Press LF Glaze Powder (0.2mm thickness)

Table 5 Staining method

	LF ES Stain		1st and 2nd Glaze with LF Glazing Powder	
Dry-Out Time	5min.		5min.	
Low Temperature	500°C	932°F	500°C	932°F
Start Vacuum	500°C	932°F	500°C	932°F
Heat Rate	50°C/min.	90°F/min.	45°C/min.	81°F/min.
Vacuum Level	87kPa ※2		96kPa ※1	
Release Vacuum	740°C	1364°F	740°C	1364°F
High Temperature	740°C	1364°F	740°C	1364°F
Hold Time (in the air)	1min.		2min.	
Cool Time	0min.		0min.	

※1 96kPa=72cmHg (29inchesHg) ※2 87kPa=65cmHg (26inchesHg)

Baking Schedule for EX-3 Press Add-on

Table 6

Dry-Out Time	5min.	
Low Temperature	500°C	932°F
Start Vacuum	500°C	932°F
Heat Rate	45°C/min.	81°F/min.
Vacuum Level	96kPa ※1	
Release Vacuum	740°C	1364°F
High Temperature	740°C	1364°F
Hold Time (in the air)	0min.	
Cool Time	0min.	

Note The above program is only a guideline.
Baking Temperature may be varied with the peculiarities of different furnace.

※1 96kPa=72cmHg (29inchesHg)

VII. Pressing Parameters

Press Parameters for the EP500 (Ivoclar)

Table 7 Pressing in a Small ring 1Ingot Ring Size= wt.100g

B	t↑	T	H	V1	V2	Pressure	N
700°C 1292°F	60°C 108°F	930°C 1706°F	15min. 15min.	700°C 1292°F	930°C 1706°F	4.5bar 4.5bar	— —

Pressing in a Large ring 1Ingot / 2Ingots Ring Size=wt.200g

B	t↑	T	H	V1	V2	Pressure	N
700°C 1292°F	60°C 108°F	940°C 1724°F	20min. 20min.	700°C 1292°F	940°C 1724°F	4.5bar 4.5bar	— —

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

B	t↑	T	H	V1	V2	Pressure	N
700°C 1292°F	60°C 108°F	950°C 1742°F	30min. 30min.	700°C 1292°F	950°C 1742°F	4.5bar 4.5bar	— —

In case of EP500, set the pressure at 4.5 bar.

Press Parameters for the EP600 (Ivoclar)

Table 8 Pressing in a Small ring 1Ingot Ring Size= wt.100g

B	t↑	T	H	E
700°C 1292°F	60°C 108°F	930°C 1706°F	15min. 15min.	300µm/min. 300µm/min.

Pressing in a Large ring 1Ingot / 2Ingots Ring Size=wt.200g

B	t↑	T	H	E
700°C 1292°F	60°C 108°F	940°C 1724°F	20min. 20min.	300µm/min. 300µm/min.

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

B	t↑	T	H	E
700°C 1292°F	60°C 108°F	950°C 1742°F	30min. 30min.	300µm/min. 300µm/min.

In case of EP600, set the stopping speed at 300µm /min and adjust the press cycle.

Press Parameters for the Multimat Touch & Press (Dentsply DeTrey)

Table 9 Pressing in a Small ring 1Ingot Ring Size= wt.100g

Start temp	Vacuum Level	Heat Rate	Press Temp	Hold Time	Press Time	Pressure
700°C 1292°F	50HPa 50HPa	60°C/min. 108°F/min.	930°C 1706°F	15min. 15min.	4min. 4min.	2.7bar 2.7bar

Pressing in a Large ring 1Ingot Ring Size= wt.200g

Start temp	Vacuum Level	Heat Rate	Press Temp	Hold Time	Press Time	Pressure
700°C 1292°F	50HPa 50HPa	60°C/min. 108°F/min.	940°C 1724°F	20min. 20min.	5min. 5min.	2.7bar 2.7bar

Pressing in a large ring 2Ingots Ring Size=wt.200g

Start temp	Vacuum Level	Heat Rate	Press Temp	Hold Time	Press Time	Pressure
700°C 1292°F	50HPa 50HPa	60°C/min. 108°F/min.	940°C 1724°F	20min. 20min.	6min. 6min.	2.7bar 2.7bar

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

Start temp	Vacuum Level	Heat Rate	Press Temp	Hold Time	Press Time	Pressure
700°C 1292°F	50HPa 50HPa	60°C/min. 108°F/min.	950°C 1742°F	30min. 30min.	7min. 7min.	2.7bar 2.7bar

Press Parameters for the Pro-Press 100 (Whip Mix Intra Tech)

Table10 Pressing in a Small ring 1Ingot Ring Size= wt.100g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	PressTime (Note)	Cool Time	Pressure
700°C 1292°F	Full Full	60°C/min. 108°F/min.	930°C 1706°F	15min. 15min.	4min. 4min.	0.2min. 0.2min.	3.4bar 3.4bar

Note In case Special Function Button has been selected, enter “0min” for Re-Press time.

Pressing in a Large ring 1Ingot Ring Size=wt.200g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	PressTime (Note)	Cool Time	Pressure
700°C 1292°F	Full Full	60°C/min. 108°F/min.	940°C 1724°F	20min. 20min.	6min. 6min.	0.2min. 0.2min.	3.4bar 3.4bar

Note In case Special Function Button has been selected, enter “2min” for Re-Press time.

Pressing in a large ring 2Ingots Ring Size=wt.200g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	PressTime (Note)	Cool Time	Pressure
700°C 1292°F	Full Full	60°C/min. 108°F/min.	940°C 1724°F	20min. 20min.	8min. 8min.	0.2min. 0.2min.	3.4bar 3.4bar

Note In case Special Function Button has been selected, enter “4min” for Re-Press time.

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	PressTime (Note)	Cool Time	Pressure
700°C 1292°F	Full Full	60°C/min. 108°F/min.	950°C 1742°F	30min. 30min.	10min. 10min.	0.2min. 0.2min.	3.4bar 3.4bar

Note In case Special Function Button has been selected, enter “6min” for Re-Press time.

Press Parameters for the Ceram Press Qex (Dentsply NeyTech)

Table11 Pressing in a Small ring 1Ingot Ring Size= wt.100g

Start temp	Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C 1292°F	60°C/min. 108°F/min.	On On	930°C 1706°F	15min. 15min.	8min. 8min.	3.4bar 3.4bar

Pressing in a Large ring 1Ingot Ring Size= wt.200g

Start temp	Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C 1292°F	60°C/min. 108°F/min.	On On	940°C 1724°F	20min. 20min.	11min. 11min.	3.4bar 3.4bar

Pressing in a large ring 2Ingots Ring Size=wt.200g

Start temp	Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C 1292°F	60°C/min. 108°F/min.	On On	940°C 1724°F	20min. 20min.	14min. 14min.	3.4bar 3.4bar

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

Start temp	Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C 1292°F	60°C/min. 108°F/min.	On On	950°C 1742°F	30min. 30min.	17min. 17min.	3.4bar 3.4bar

Press Parameters for the Auto Press Plus (Pentron Lab)

Table12 **Pressing in a Small ring 1Ingot Ring Size= wt.100g**

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	930°C 1706°F	60°C/min. 108°F/min.	15min. 15min.	6min. 6min.	Max Vac Max Vac	3.4bar 3.4bar

Pressing in a Large ring 1Ingot Ring Size=wt.200g

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	940°C 1724°F	60°C/min. 108°F/min.	20min. 20min.	7min. 7min.	Max Vac Max Vac	3.4bar 3.4bar

Pressing in a Large ring 2Ingots Ring Size=wt.200g

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	940°C 1724°F	60°C/min. 108°F/min.	20min. 20min.	8min. 8min.	Max Vac Max Vac	3.4bar 3.4bar

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	950°C 1742°F	60°C/min. 108°F/min.	30min. 30min.	9min. 9min.	Max Vac Max Vac	3.4bar 3.4bar

Press Parameters for the VIP UNIVERSAL X-PRESS (JELRUS)

Table13 **Pressing in a Small ring 1Ingot Ring Size= wt.100g**

PredryTime	LowTemp	VacLevel	StartVac	HeatRate	PressTemp	HoldTime	PressTime	Re-PressTime	CoolTime	Pressure
0:00 0:00	700°C 1292°F	High High	700°C 1292°F	60°C/min. 108°F/min.	930°C 1706°F	15:00 15:00	4:00 4:00	0:00 0:00	0:00 0:00	3.4bar 3.4bar

Pressing in a Large ring 1Ingot Ring Size= wt.200g

PredryTime	LowTemp	VacLevel	StartVac	HeatRate	PressTemp	HoldTime	PressTime	Re-PressTime	CoolTime	Pressure
0:00 0:00	700°C 1292°F	High High	700°C 1292°F	60°C/min. 108°F/min.	940°C 1724°F	20:00 20:00	6:00 6:00	0:00 0:00	0:00 0:00	3.4bar 3.4bar

Pressing in a Large ring 2Ingots Ring Size=wt.200g

PredryTime	LowTemp	VacLevel	StartVac	HeatRate	PressTemp	HoldTime	PressTime	Re-PressTime	CoolTime	Pressure
0:00 0:00	700°C 1292°F	High High	700°C 1292°F	60°C/min. 108°F/min.	940°C 1724°F	20:00 20:00	8:00 8:00	0:00 0:00	0:00 0:00	3.4bar 3.4bar

Pressing in a 300g ring 1Ingot Ring Size=wt.300g

PredryTime	LowTemp	VacLevel	StartVac	HeatRate	PressTemp	HoldTime	PressTime	Re-PressTime	CoolTime	Pressure
0:00 0:00	700°C 1292°F	High High	700°C 1292°F	60°C/min. 108°F/min.	950°C 1742°F	30:00 30:00	10:00 10:00	0:00 0:00	0:00 0:00	3.4bar 3.4bar

Press Parameters for the AUSTROMAT® 3001 press-i-dent (DEKEMA Dental)

Table14

Pressing in a Small ring 1Ingot Ring Size= wt.100g	L9 C700 V9 T060 · C930 T900 L94 T240* L9 V0 C0 L6 T5
Pressing in a Large ring 1Ingot Ring Size= wt.200g	L9 C700 V9 T060 · C940 T1200 L97 T300* L9 V0 C0 L6 T5
Pressing in a Large ring 2Ingots Ring Size= wt.200g	L9 C700 V9 T060 · C940 T1200 L97 T300* L9 V0 C0 L6 T5

The above pressing times are recommended only as our guide. Please find the best pressing times that suit your furnace depending upon the size and number of the patterns.

Note For the pressing at low pressure, we have tested many times and decided the pressing schedule. But, please note that the pressing at lower pressure less than the recommended pressure by the press furnace manufacturer may be outside the performance guarantee of the manufacturer.

Remarks on Safety

- Work in a well-ventilated room during mixing and firing investment.
- Investment and ceramic material contains Silica. Avoid inhaling the dust. Use a dust collector and an approved dust mask. Over exposures may cause delayed lung injury.
- Avoid exposure to eyes. Wear the goggles for eye protection during cutting or polishing works. In case of contact with eyes, flush eyes with copious amounts of water and consult an eye-doctor.
- Avoid eye contact with all EX-3 PRESS liquids. In case of contact with eyes, flush eyes with copious amounts of water and consult an eye-doctor.
- Do not touch items heated by the furnace with your bare hand.
- Keep IS Liquid and ES Liquid away from flames and high temperatures. They are flammable.
- Some people are sensitive to skin contact. Wear rubber gloves to protect your skin.
- Avoid ingesting. Keep out of the reach of children.
- This material is for dental application only. Do not use for any purpose not specified in the instruction manual.

■SYMBOLS USED IN A LABEL

SYMBOL	MEANING	SYMBOL	MEANING
	MANUFACTURER	LOT	BATCH CODE
	USE BY	REF	CATALOGUE NUMBER
	CONSULT INSTRUCTIONS FOR USE		
EC REP	AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY		

· Contraindications

If the patient is hypersensitive to Dental Porcelain or any of the other components, this medical product should not be used. Or it should be only used under the strict supervision of the patient's doctor/dentist.

· EU Authorized Representative

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