match Maker PRESS

Pressable Ceramic System

Perfect shades first time every time

Instruction Manual

THE QUEEN'S AWARDS FOR ENTERPRISE 2004

matchMaker PRESS

Pressable Ceramic System

Perfect shades first time every time

Matchmaker Pressable Ceramic is designed to enable the Clinical and Technical Team to provide beautiful, lifelike all ceramic crowns as well as inlays, onlays and veneers. Its special leucite and glass matrix imparts strength in excess of the requirements of EN ISO 6872 together with optical properties which blend seamlessly with the natural tooth. This special matrix is also less abrasive to the opposing dentition than traditional feldspathic porcelain formulae.

Matchmaker Pressable Ceramic is designed to match standard shades and be fast and simple to use – a benefit in a busy dental laboratory. However, since it has been designed in conjunction with the Matchmaker LF Low Fusing Ceramic range and Matchmaker Living Stains, the range of artistic and clinical options is virtually endless.

Within the Matchmaker Pressable system are many ancillary products which enable both dentists and dental technicians routinely to obtain superb results. These range from furnaces to special die colours, investment, rings, pressing rods etc.

Shade Range

The shade range of Matchmaker Pressable Pellets enable the requirements of every clinical situation to be matched. The product range and their applications are shown on pages 4 and 5. All pellets in the range can be used with the opalescent enamel options from the Matchmaker LF range.

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Perfect shades
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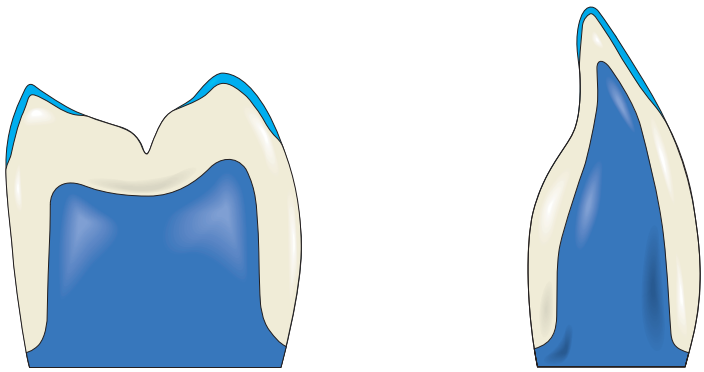
Matchmaker Pressable - for Press & Stain and the Simple Crown Technique

Matchmaker Pressable Translucent pellets are designed both for Press & Stain and the majority of situations where only an incisal edge needs to be added to the pressing together with staining at the glaze stage where required. Use the complementary Matchmaker LF Low Fusing Ceramic and Matchmaker Living Stains. The range of shades shown below includes three Hollywood bleach shades and is supplied in standard 2g and 5g pellets.

Matchmaker Pressable Translucent Pellets are also the pellets of choice for Press over Metal



2g Pellets

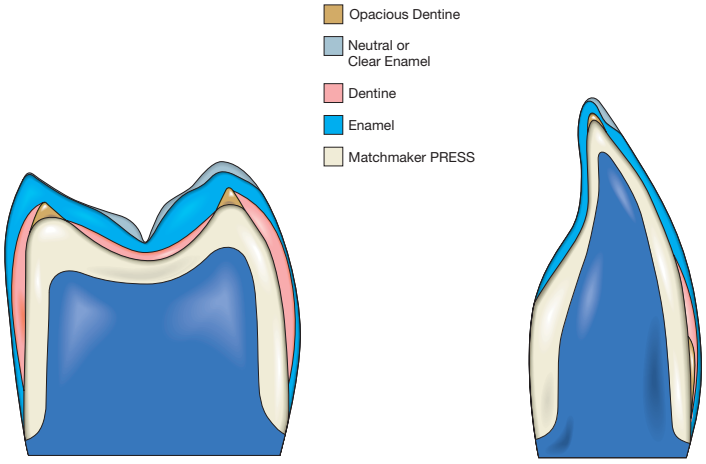
Shade	Code	Shade	Code
TA1	**169-TA1**	TC1	**169-TC1**
TA2	**169-TA2**	TC2	**169-TC2**
TA3	**169-TA3**	TD2	**169-TD2**
TB1	**169-TB1**	THA0	**169-THA0**
TB2	**169-TB2**	THB0	**169-THB0**
TB3	**169-TB3**	THB000	**169-THB000**

5g Pellets

Shade	Code	Shade	Code
TA1	**569-TA1**	TC1	**569-TC1**
TA2	**569-TA2**	TC2	**569-TC2**
TA3	**569-TA3**	TD2	**569-TD2**
TB1	**569-TB1**	THA0	**569-THA0**
TB2	**569-TB2**	THB0	**569-THB0**
TB3	**569-TB3**	THB000	**569-THB000**

Matchmaker Pressable - for the Layering Crown Technique

Matchmaker Pressable Standard pellets have higher chroma and less translucency and are suitable where a full layering technique is required. Such situations would occur when the underlying tooth is particularly dark in colour or the restoration needs additional colours to be added to match an adjacent tooth. Because a thin layer of Matchmaker LF Clear is applied under the enamels, great vitality can be attained. The range also includes four Hollywood bleach shades and is compatible with the whole range of Matchmaker LF Low Fusing layering porcelain.



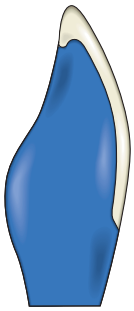
2g Pellets

Shade	Code	Shade	Code
A1	**169-A1**	B1	**169-B1**
A2	**169-A2**	B2	**169-B2**
A3	**169-A3**	B3	**169-B3**
A3.5	**169-A3.5**	B4	**169-B4**
A4	**169-A4**	C1	**169-C1**

Shade	Code	Shade	Code
C2	**169-C2**	D4	**169-D4**
C3	**169-C3**	HA0	**169-HA0**
C4	**169-C4**	HA00	**169-HA00**
D2	**169-D2**	HB0	**169-HB0**
D3	**169-D3**	HB00	**169-HB00**

Matchmaker Pressable - for Veneer and Inlays

Matchmaker Pressable TT series pellets are designed for veneers and inlays where it is primarily enamel that is being replaced. Their subtle pigmentation reduces the subsequent number of staining cycles required. Usually only an incisal edge needs to be added to the pressing together with staining at the glaze stage where required. In many situations, the crown can be pressed to the final anatomical shape with just stain and glaze required. Use the complementary Matchmaker LF Low Fusing Ceramic and Matchmaker Living Stains. The pellets and their application are shown below:

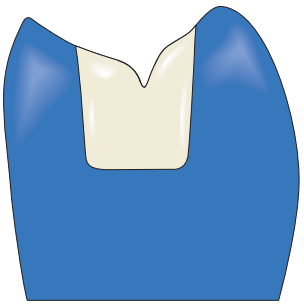


2g Pellets

Shade	Code	Veneers and Inlays to match shades
TT1	**167-TT1**	A1, B2, C1
TT2	**167-TT2**	A2, A3, B2
TT3	**167-TT3**	A3.5, A4, B3, B4
TT4	**167-TT4**	C1, D2

Matchmaker Pressable - for Occlusal Restorations with greater opacity

Matchmaker Pressable OT series pellets have greater opacity and are designed for occlusal restorations. Usually only staining is needed at the glaze stage. Use the complementary Matchmaker Living Stains. The pellets and their application are shown below:

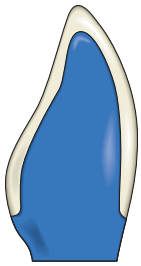


2g Pellets

Shade	Code	Occlusal Restorations with greater opacity to match shades
OT1	**168-OT1**	A1, B1
OT2	**168-OT2**	C1, D2
OT3	**168-OT3**	A3, C2
OT4	**168-OT4**	Bleached tooth inlays

Matchmaker Pressable - for Custom Shading

Matchmaker Pressable V series pellets are designed for clinical situations where satisfactory results are not readily achieved using standard materials. Shade V1 has a chameleon effect, absorbing the colours of the underlying teeth. The other two shades are used as a base where the shade has been observed in the mouth by the Ceramist who will then match it using artistic flair and the Matchmaker LF powders and Matchmaker Living Stains range of available complementary materials.



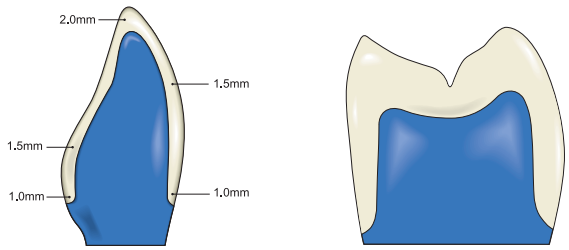
2g Pellets

Shade	Code	Shade description
V1	**166-V1**	Translucent
V2	**166-V2**	Neutral
V3	**166-V3**	Whitish

Tooth Preparation

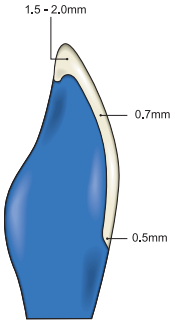
Crowns

Reduce the incisal edge by 1.5-2.0 mm and labial and buccal walls by 1-1.5 mm. Prepare a well-formed deep chamfer or 90° shoulder with rounded internal edge. There should be no sharp edges, all line angles should be rounded with a minimum space of 1 mm axially.



Veneers

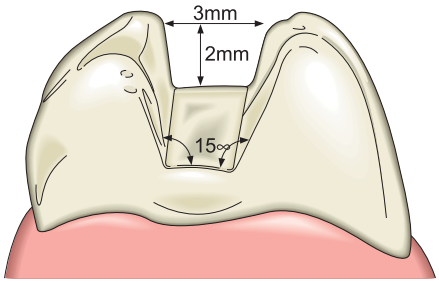
Prepare an incisal reduction of 1.5-2.0 mm (minimum 1.0mm), 0.7 labially and a minimum of 0.5 mm in the gingival area. All preparation margins should be deep chamfers. Avoid putting the porcelain enamel junction at the area of contact with the opposing dentition.



Hint: After cutting the preparation, the dentist should take the stump colour using the Matchmaker Pressable shade guide for matching tooth preps.

Inlays and Onlays

Inner walls should not be prepared parallel, but taper approx. 15° towards the occlusal surface. Occlusal reduction should be a minimum 2mm. Box preparations should have rounded corners and edges. The margin between porcelain and enamel should be out of contact with the opposing dentition and feather edges must be avoided.



1.0 - 1.5mm
wide gingival floor

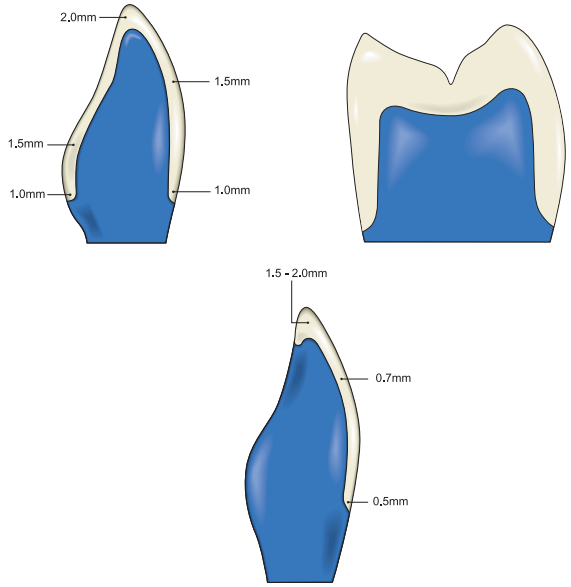
Care: Avoid preparations with sharp angles or corners.

Die Preparation

In the laboratory block out any undercuts and eliminate all sharp line angles. If a pencil is used to mark the margins seal the pencil line with die hardener or clear varnish so that the marking does not come off with the wax. Apply one or two coats of coloured Matchmaker PRESS Die Colour of the shade previously selected in the surgery, leaving a gap of 1mm from the preparation margin and allow to dry thoroughly before waxing up. Use Matchmaker PRESS Ash Free Carving Wax which has been developed for pressable ceramics and which burns out without residue.
Do not use sticky wax.

Waxing Up for Crowns and Inlays

Using either of the two techniques shown below, wax up to give overall porcelain thicknesses as shown on the right.



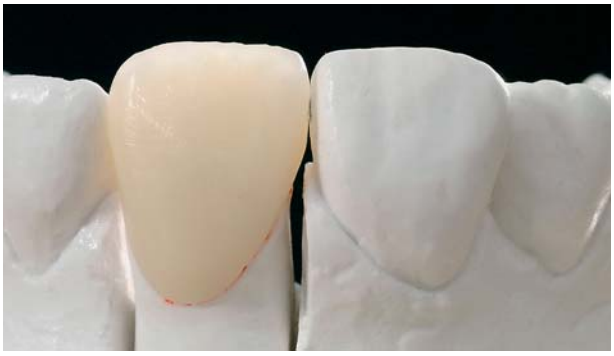
Use Matchmaker PRESS Ash Free Wax Cervical Brown round the cervical area and Ivory for the rest of the wax up. To facilitate checking that the wax is of even thickness, a thin layer of Cervical Brown may be applied overall before waxing up in the Ivory.

Note : The substructure itself (coping before layering) should have a minimum thickness of 0.8mm and be as uniform in thickness as possible.

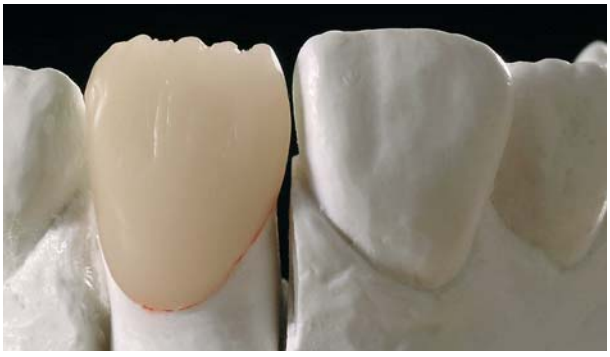
The pattern does not undergo any dimensional change during the pressing process and so will have precisely the same dimensions as the wax up.

There are two methods of Waxing up

Method 1: The restoration is waxed up fully anatomically and then reduced using appropriate instruments. The pattern can be used as a diagnostic wax up.



Method 2: The restoration is waxed up leaving space to allow for layering the Matchmaker LF Low Fusing Ceramic on top. For the Layering Crown Technique or veneers the coping should be waxed to at least 70% of the total size of the finished crown – minimum 0.8mm to press (This can be reduced to 0.6mm after pressing and trimming).



Note : Matchmaker Pressable Ceramic should ALWAYS be thicker than the layer of Matchmaker LF Low Fusing Ceramic which is applied to the surface i.e. at least 70% of the total crown thickness.

Sprueing

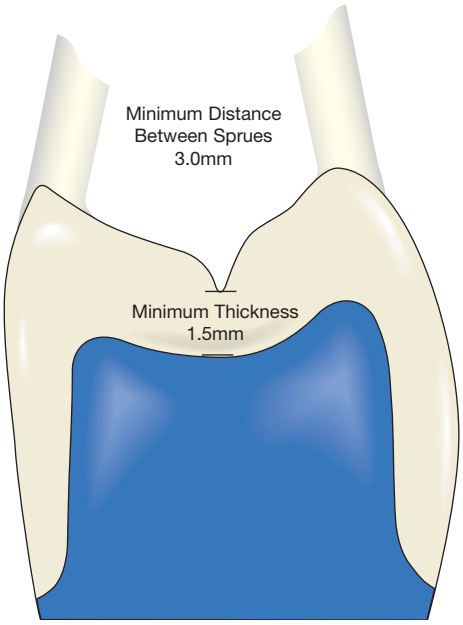
Anterior Crowns and Veneers

The wax sprue should be 3-3.5mm in diameter and be 5-6mm long and should not taper at or before the join to the patterns. Wax the patterns securely onto the crucible former so that they are at an angle of approximately 45 degrees and in a central position. For anterior crowns the attachment should be to the incisal edge. For veneers it should be to the incisal third.

The minimum distance between patterns or sprues should be 3mm and between the pattern and the interior wall 6mm.

Posterior Crowns

For posterior crowns the sprue should be attached to the thickest part of the crown such as a buccal or lingual cusp at an angle of 45 degrees from the occlusal surface.



Care: For successful pressing the material must always flow from a thicker area to one which is thinner and can **never** then flow to a thicker one again, see diagrams opposite. Either use multiple sprues to thick areas or else build up the thickness of the thinner area and cut back after pressing. When using two or more sprues, the distance separating them should not be less than 3.0mm.

Do not mix the type of restoration in the same ring i.e. crowns and veneers as you will require a different concentration of investment liquid to achieve the correct expansion.

Always use Matchmaker PRESS Sprue rods to ensure clean burn out and straight pressing sprue channels.

Pellet Size selection

Weigh the wax pattern with the sprue attached. Select pellets in accordance with table opposite. For units which are 0.2g or less (small inlays, veneers etc) a phantom sprue (a sprue without a restoration attached) with a height the same as the sprue unit may be used.

Wax Weight	Pellets Required	Ring Size
Up to 0.6g	1 x 2 g	200g (100g)
From 0.6 to 1.4g	2 x 2g	200g
From 1.4 to 1.7g	1 x 5g	300g
From 1.7 to 2.2g	3 x 2g	300g
From 2.2 to 2.6g	1 x 5g + 1 x 2g	300g
From 2.6 to 3.0g	2 x 5g	300g

Investing

Investing with the Matchmaker Pressing Ring

Spray the wax patterns using Matchmaker PRESS Surface Tension Relief liquid and gently blow off any excess. Do not use debubblizer or sprays that leave residues.

For the best result use a Matchmaker PRESS Pressing Ring size 200g or larger. This ring helps to ensure that the base of the mould is absolutely flat and prevents cracks in the investment. It also avoids the need for a stabilising ring to be used. The units should be at least 6mm from the wall of the ring.

Fill to just below the top of the ring with Matchmaker PRESS Investment for pressable ceramics. Put on the base former turning it gently. (Investment should exude easily through the opening).

After the investment has set, turn the mould base former and remove. Gently press the investment from the Matchmaker PRESS Pressing Ring.

Investing with Paper Sleeve and Former

When using a paper sleeve remove the backing and stick it to a ring at the appropriate mark. Put the ring onto the crucible former and put the stabilising ring in place. Fill to just below the stabilising ring with Matchmaker PRESS Investment for pressable ceramics. Remove the stabilising ring and put on the mould base former turning it gently. (Investment should exude easily through the opening).

After the investment has set, remove the foil. Then turn the mould base former and ring carefully to remove them. Smooth the underside with a plaster knife.

Notes: The base of the mould **must be absolutely flat** so that the mould stands perfectly upright in the injection furnace.

Do not use a model trimmer with water. Follow the directions for preheating in the instructions for the investment

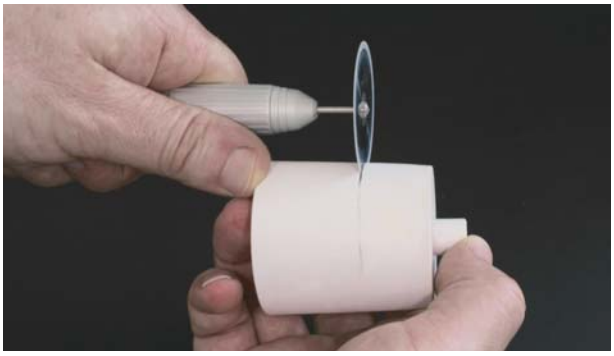
Pressing, Devesting and Finishing

Pressing

Select one or more pellets in the shade chosen from one of the Matchmaker Pressable Pellet ranges. Preheat the investment mould in a preheated burnout furnace according to the investment instructions. For best results use a Matchmaker disposable pressing rod.

When using re-useable rods they must be completely clean and should be preheated in the burnout furnace for a minimum of 15 minutes prior to pressing.

With the investment mould still in the furnace rotate so that the open end is facing upwards. Place the ceramic pellet(s) (where more than one size, insert the smaller one first) and where appropriate the preheated pressing rod into the investment ring and place the ring into the pressing furnace when requested to do so by the furnace cycle. Follow the instruction for the programmed cycle as shown.



Do not preheat the Matchmaker Pressable Pellets or disposable pressing rods.

Decontaminate the pressing furnace before use and at regular intervals of every one to two weeks in accordance with the decontamination cycle of the furnace manufacturer.

Devesting

Care: After pressing allow the investment to bench cool until room temperature. Never devest if the inside of the mould is still warm.

Mark the length of a spare pressing rod on the mould and separate along the length of the mark. Then carefully break apart the sections of the mould.

Roughly sandblast the pressed patterns with fresh 50 micron aluminium oxide at 4 bars pressure and then clean completely at 2 bars with glass beads.

Finishing

Cut off the sprues carefully using a suitable cut-off disc. Take great care not to heat the ceramic material. To reduce heat, the material may be cut under a waterjet or through a wet sponge. Do not use carbide burs or use a high speed handpiece.

The pressed units are fitted back carefully onto the dies and then prepared according to the technique used.

For Typical Pressing Programmes see page 15.

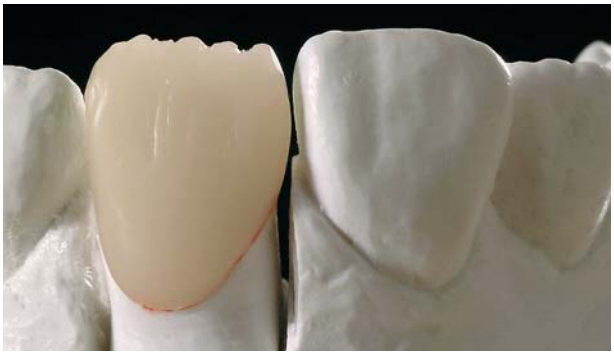
Preparation of the Core

For Press and Stain

For Press and Stain the Matchmaker Pressable core should have been pressed to the full anatomical shape. The surface should then be microblasted using fresh 50 micron aluminium oxide at low pressure and then thoroughly cleaned using an ultrasonic cleaner before staining with Matchmaker Living Stains see page 12.

For Veneering - when pressed to full anatomical form

If the Matchmaker Pressable core has been pressed to the full anatomical shape then it is reduced in the incisal region using Schottlander Super V diamonds or Resi-Diamon points. The surface should then be microblasted using fresh 50 micron aluminium oxide at low pressure and then thoroughly cleaned using an ultrasonic cleaner. It is then ready for the build-up with the Matchmaker LF Low Fusing Ceramic as described in the Matchmaker LF instruction manual.



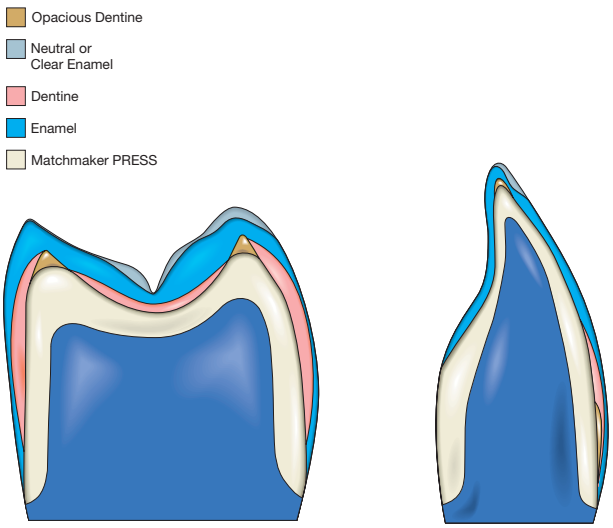
For Veneering - when pressed to reduced form

If the Matchmaker Pressable core has been waxed up and pressed to its reduced form ready for veneering then the surface should be lightly ground using Schottlander Super V diamonds or Resi-Diamon points. The surface should be microblasted using fresh 50 micron aluminium oxide at low pressure and then thoroughly cleaned using an ultrasonic cleaner. It is then ready for the build-up with the Matchmaker LF Low Fusing Ceramic as described in the Matchmaker LF instruction manual.

Hint: For even greater vitality, a thin layer of Matchmaker LF Clear may be laid down in between the dentine and enamel layers.

Notes: The coping should be waxed to at least 70% of the total size of the finished crown - minimum 0.8mm to press (This can be reduced to 0.6mm after pressing and trimming).

Matchmaker Pressable Ceramic should ALWAYS be thicker than they layer of Matchmaker LF Low Fusing Ceramic which is applied to the surface i.e. at least 70% of the total crown thickness.



Glazing and Staining

Glaze firing

Due to the high processing temperature of Matchmaker Pressable Ceramics, glaze powder and liquid must be used to achieve a glazed surface.

Make any final adjustments and characterise the surface. Note that if a smoother surface is required after glazing, then the surface before final glaze must have been made smoother using very fine abrasives or rubbers.

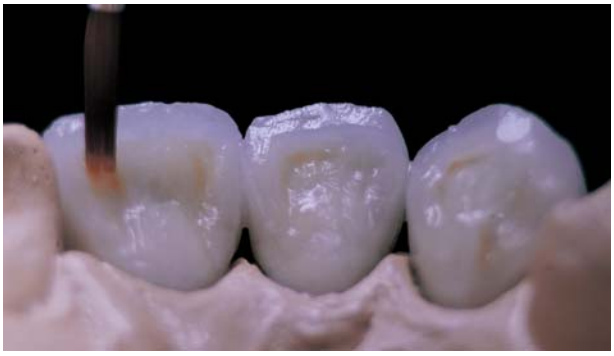
The unit must then be thoroughly cleaned using an ultrasonic or steam cleaner.

Mix the Matchmaker LF Glaze Powder with the Matchmaker LF Glaze & Stain Liquid to a thin creamy consistency and apply as thinly as possible over the surface. Any excess should be removed with the brush.

Introduce into the furnace and fire on cycle shown below without vacuum.

Matchmaker Living Stains

Shade	Code	Shade	Code
White	**616-01**	Grey	**616-08**
Yellow	**616-02**	Red Brown	**616-09**
Peach	**616-03**	Black	**616-10**
Orange Brown	**616-04**	A	**616-A**
Dark Brown	**616-05**	B	**616-B**
Pink	**616-06**	C	**616-C**
Blue	**616-07**	D	**616-D**



Application of Surface Stains

Select the shade or combination of shades using the Matchmaker Living Stains Shade Plate.

Mix the Matchmaker Living Stains with the Matchmaker LF Glaze & Stain Liquid and apply as required and fire. When cool apply a further coat of glaze powder mixed with glaze liquid and fire.

When required, Matchmaker Living Stains may be mixed with Matchmaker LF Glaze Powder to give a softer colour wash.

Introduce into the furnace and fire on the cycle shown below.

After glazing and staining the fit surface of the finished restoration should be etched with a suitable hydrofluoric acid gel according to the manufacturers instructions

Warning: Hydrofluoric acid is extremely dangerous. Request safety data sheet from suppliers before use.

Image supplied by Luca Dondi.

Matchmaker LF	Start Temp °C	Minimum Drying Time	Temp Rise °C / Min	Vacuum	High Temp °C	Hold Time Without Vacuum
Glaze with Glaze Powder	450	4 minutes	45	No	750	1 minute

matchMaker PRESS

Pressable Ceramic System

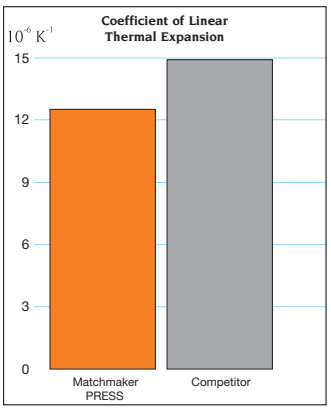
Perfect shades
first time every time

Physical Properties

Physical Properties

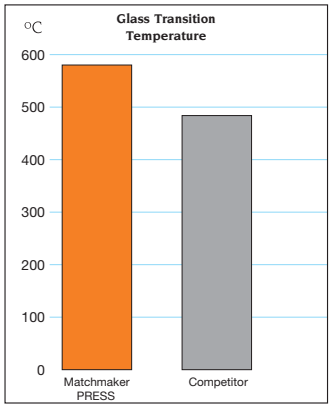
Coefficient of Linear Thermal Expansion

Although it is always thermal expansion which is quoted, it is in fact primarily the contraction on cooling that this measure predicts. Ideally the core material should have a contraction slightly less than that of the overlaid veneering material. The coefficient of Matchmaker PRESS enables a matching veneering material, Matchmaker LF, to have been produced which is also compatible with standard alloys i.e. in the range 13.9 - 15.1 at 10^{-6} K^{-1}. The coefficient of Expansion is measured between 25 and 500°C in accordance with EN ISO 9693:2000.



Glass Transition Temperature

The transition of a glass from an elastic to a viscoelastic phase is defined by T_G the glass transition temperature. Above T_G stresses are relaxed as the material flows but beneath it considerable stresses can be built up within the material. Hence thermal expansion is always measured below T_G. The glass transition temperature is measured in accordance with EN ISO 9693:2000. For a core material 580°C is an ideal glass transition temperature when veneered with a low fusing porcelain with dentine firing temperature of 750-800°C.



Other Properties

Porosity of fired ceramic:	complies with EN ISO 9693:2000
Chemical Solubility:	complies with EN ISO 6872:1998
Flexural Strength:	115 MPa in accordance with EN ISO 6872:1998

Typical Pressing Programmes

	Start Temp °C	Heat Rate °C / min	Final Temp °C	Hold Time min	Pressing Time min	Vacuum 100 %
Matchmaker Pressable Furnace	700	60	950	20	10	Full pressing cycle

	Start Temp °C	Heat Rate °C / min	Final Temp °C	Hold Time min	Pressing Time min	Vacuum On Off
EP 500 Furnace	700	T 60	T 950	20	Refer to manual	V1 500 V2 950 Full pressing cycle

	T1 °C	R °C / min	T2 °C	H1 min	H2 min	V 100 %
Optimal Auto Press Furnace	700	60	950	20	10	Full pressing cycle

	Start Temp °C	Heat Rate °C / min	Final Temp °C	Hold Time min	Pressing Time min	V 100 %
Gemini 2	800	60	950	20	10	Full pressing cycle

	T1 °C	R °C / min	T2 °C	H1 min	H2 min	V 50 HPA
Touch Press	700	60	950	20.00	10.00	Full pressing cycle

	Start Temp °C	Heat Rate °C / min	Final Temp °C	Hold Time min	Pressing Time min	Vacuum °C On Off
EP 600	700	T 60	T 950	20	Refer to manual	V1 500 V2 950 Full pressing cycle

	T1 °C	R °C / min	T2 °C	H1 min	H2 min	V 100 %
Pro Press	700	60	950	20	10	Full pressing cycle

The above cycles are suitable for pressing 2 gram pellets using disposable pressing rods in 100 or 200 gram rings. When pressing 2 x 2gram pellets in a 200g ring it may be necessary to increase the pressing time.

When pressing 5 gram pellets in 300 gram rings increase the hold time by 5 minutes and the pressing time (in the Matchmaker Pressable Furnace) to 15 minutes. For Matchmaker Press over Metal, see separate instructions.

matchMaker MC
Metal Ceramic

Matchmaker MC is a complete bonded crown system, offering levels of quality and consistency that are greatly superior to those of any previous system. Matchmaker MC allows you to create beautiful, highly individual crowns that sparkle with vitality and natural fluorescence. Thanks to the systems components, a perfect match is guaranteed time after time.

matchMaker LF
Low Fusing Ceramic

Matchmaker LF has been developed both for metal ceramic crowns and bridges and also as a veneering ceramic on top of Matchmaker Press ceramic cores, inlays, onlays and veneers.

Matchmaker LF is compatible with all standard coefficient alloys and with a special leucite and glass matrix imparts strength in excess of the requirements of EN ISO 9693. This special matrix is also less abrasive to the opposing dentition than traditional feldspathic porcelains.

matchMaker ALX
Ceramic for Aluminium Oxide

Matchmaker ALX is a leucite free veneering ceramic that has been specially formulated for bonding to aluminium oxide copings. The dentine fires at 980ºC and shows remarkable vitality and colour veracity in the whole of the shade range A1 to D4 and the latest bleach shades HA0, HB0 and HB00.

matchMaker Zr
Ceramic for Zirconium Frameworks

Matchmaker Zr has been specially developed for layering on top of zirconium bridges and copings. Coefficient of expansion, shades and light handling properties have been carefully developed to give superb results over the whole range of such frameworks. The dentine fires at 810ºC and shows remarkable vitality and colour veracity in the whole of the shade range A1 to D4 and the latest bleach shades HA0, HB0 and HB00.

THE QUEEN'S AWARDS FOR ENTERPRISE 2004

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W3230-E/0305