Thermoplastics in the thermopress 400 Injection Moulding System

Instructions for use

English

Please read these processing instructions and the respective instructions for use carefully before using this product!

bredent

PLEASE NOTE

Intended use:
The thermopress 400 System is intended for use for the purposes described in the instructions for use.
Any use beyond this is considered improper use.
The use of heat-protective gloves, a face/dust mask and safety goggles is strongly recommended when using this system. (Follow the instructions for use)

Qualification of the user:
The product may only be used by dentists, dental technicians or appropriately trained specialists.
It must be ensured that these instructions for use are always available to the user.

Please also observe the operating and maintenance instructions for the thermopress 400 device REF 009183EX and the instructions for use for the respective product (materials).

Introduction

Foreword

Our high-purity, high-performance thermoplastics enable you to fabricate metal-free, biocompatible and physiological dentures for allergy sufferers and non-allergy sufferers. With the thermopress 400 System, we provide you with a wide range of these high-performance thermoplastics that are suitable for a wide variety of purposes.

In contrast to chemoplastics (powder-liquid process or hot polymerisation), residual monomer has been reduced to a minimum or is completely residual monomer free, and are therefore bio-compatible.

In order to integrate this system quickly and efficiently into your daily laboratory routine, we describe below how you can process our materials safely while maintaining consistent and maximum quality.

Important information

Symbol usage:

In addition to special warnings, the processing instructions contain

 symbols, 

to facilitate processing with special processing tips.

 **Heat the flask!**

 **Press flask hot (40-50°C)**

 **Close flask!**

 **Conditioning of surfaces**

 **Read the instructions for use of the product in question!**

 **Quick Reference Card (Parameter settings)**

 **Protect granules from moisture, store pre-filled cartridges in a dry place. (Moisture in the granulate develops water vapour in the heating phase - cartridges could burst).**

 **Pre-dry measured bulk material (from the 500 g Bulk Container) the empty cartridge with its lid for at least 2-3 hours at 80 °C before filling the empty cartridges. Fill the measured quantity promptly into the empty cartridges.**

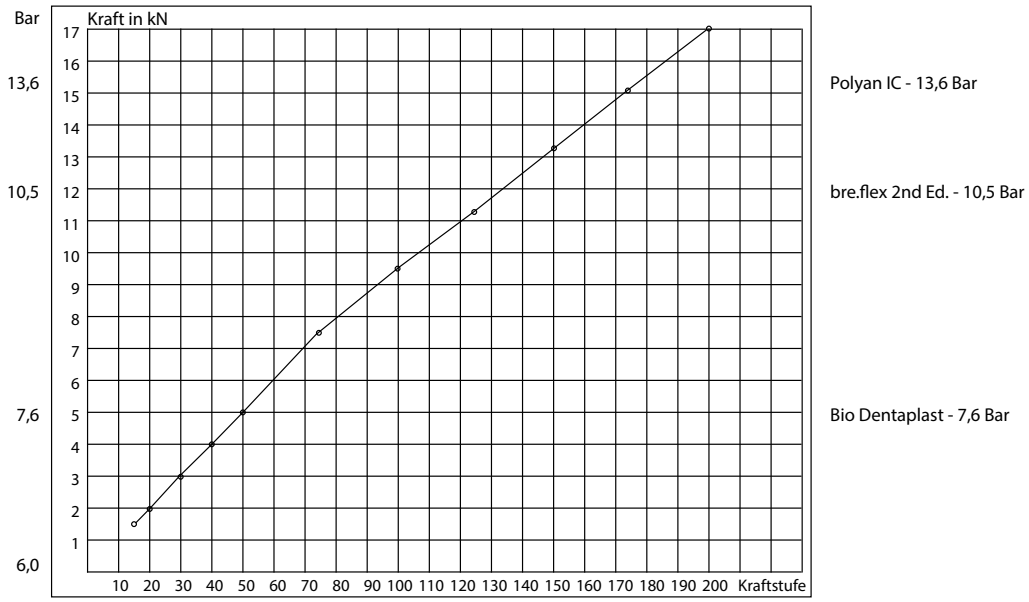
Important information and safety instructions

…to facilitate processing with special manufacturing tips.

- Follow the product-specific instructions for use
- * Observe the setting parameters in the Quick Reference Card (included with the device!) • Store granulate and filled cartridges in a dry place (moisture in the granulate develops water vapour during the heating phase - cartridges can burst!)
- Pre-dry the weighed quantity of bulk material (granulate) and cartridge with lid before filling the empty cartridges in accordance with the instructions for use, then pour the measured quantity into the empty cartridges promptly and close them using the coping and flange the edges.
- Correct conditioning of surfaces (bonder instructions!)

*Conversion of force into kN/table of adjustable force levels

Force level	kN
200	17,0
185	16,0
165	13,5
150	13,0
145	12,7
125	11,5
100	9,5
95	9,0
90	8,7
80	8,0



Physical properties according to DIN EN ISO standards

		DIN EN ISO	DIN EN ISO	Polyan IC	bre.flex 2nd Edition	Bio Dentaplast	Bio Dentaplast
PA (Polyamide/Nylon					✓		
PMMA (Polymethyl methacrylate)				✓			
POM (Acetal/Polyoxymethylene)						✓	✓
Test according to DIN EN ISO		20795-1	10477	20795-1	20795-1	20795-1	10477
E-Module [Mpa]		> 2.000	keine Anf.	> 2600	> 1300	> 1700	> 1700
Bending strength [Mpa]		> 65	> 50	> 100	< 60	> 70	>80
Water absorption [µg/mm3]		<= 32	<= 40	< 25	26	< 14	< 14
Water solubility [µg/mm3]		<= 1,6	<= 7,5	< 0,1	0,4	< 0,1	< 1
Elongation at break [%]		-	-	> 10	> 10	> 10	> 10
E-module [Mpa]	Thermo-cycling	-	-	> 2600	> 1300	> 1700	n.B
Bending strength [Mpa]	Thermo-cycling	-	-	> 100	> 60	> 70	n.B
Elongation at break [%]	Thermo-cycling	-	-	> 10	> 10	> 10	n.B

Intended Used

Removable dentures

Polyan IC (PMMA: hard/rigid)

Partial and Total Prosthesis
Prosthesis splint
Simple Orthodontic Appliances
Individualisation with composites possible, see crea.lign (visio.lign concept)

bre.flex 2nd Edition (polyamide/nylon: semi-flexible)

Partial and full dentures
Splint technology
Base plates
Transversal bars
Clasp prostheses
Secondary constructions: Bar, telescope, attachments

Bio Dentaplast (Polyoxymethylene, POM/Acetal: semi-flexible)

Clasp prostheses
Splint technology
Base plates
Transverse bars/conectors
Secondary constructions: Telescope, attachments

	Polyan IC	bre.flex 2nd Edition	Bio Dentaplast
Material Properties			
Hard/rigid	✓		
semi-flexible			✓
Fully flexible		✓	
Indications			
Base plates		✓	✓
Clasp Prostheses		✓	✓
Splint technique	✓	✓	✓
Attachment work		✓	✓
Bar attachment		✓	✓
Telescope		✓	✓
Total Prosthesis	✓	✓	
Transverse bar/connector		✓	✓
Simple KFO	✓		
either direct injection			
or subsequently incorporate with uni.lign prosthetic plastic			

Dental contraindications

Polyan IC	retaining elements such as: Tooth clasp, attachments, telescopes, crowns & bridges
Bio Dentaplast	crowns & bridges (fixed)
bre.flex 2nd Edition	crowns & bridges (fixed)

Pressing Sprue Placement and Retention

General information on the topic of “spruing ”

The thermoplastic materials in the cartridges become viscous masses by the heating process. When the target temperature is reached and after the specified melting time has elapsed, these masses are injected into a preheated flask at high pressure and then cooled to room temperature. De-vesting can take place after 30 minutes at the earliest; Polyan IC should cool down slowly to room temperature to avoid the formation of microcracks.

The right spruing method plays an important role in this process. It is crucial for a uniform and safe flow into the gypsum hollow form of the flask. It prevents deformations on the plastic teeth to be injected, inhomogeneity, missing areas or warping in the processed material.

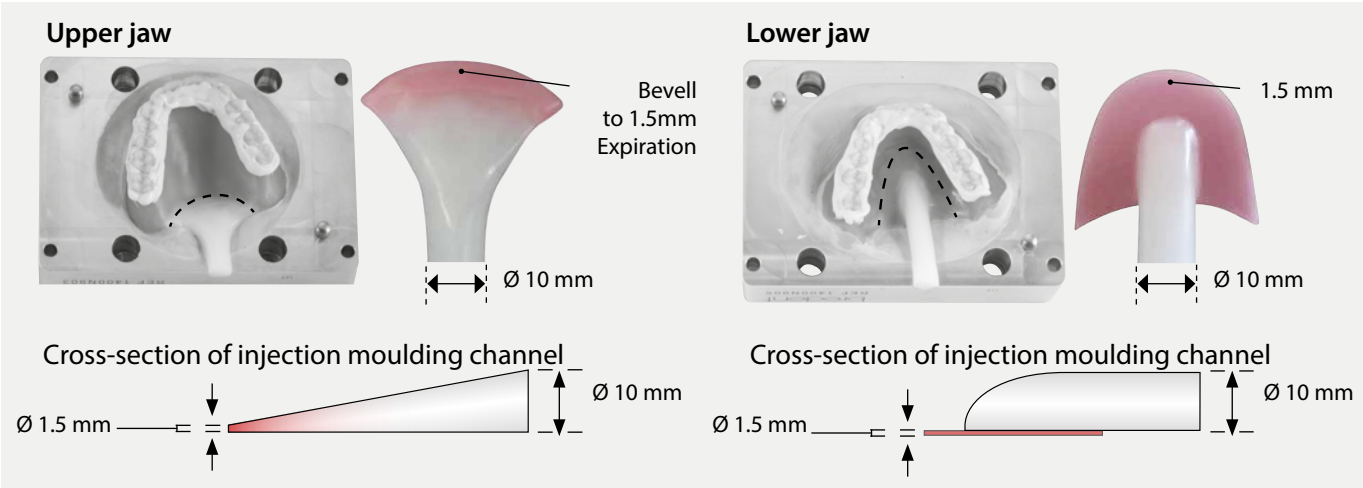
The correct spruing supported by adherence to the specified temperatures, as this is the only way for the material to flow optimally so that even the most delicate areas are filled reliably.

The pinning methods specified by us and the procedure described in these processing instructions take into account the respective situation (material and modelling) and, according to our experience, provide the best work results.

Film Spruing

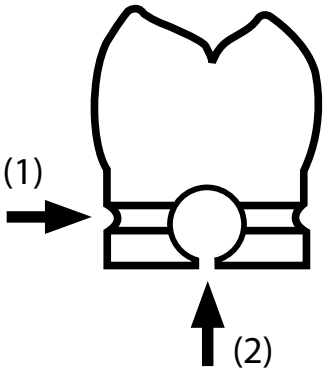
For work in which a lot of mass is injected into thin geometries or on low crossed-linked teeth, we recommend film spruing for optimised pressure distribution.

Deformations on low-cross-linked confection teeth (so-called “cheap teeth”) are largely avoided by film spruing, as the injection pressure is distributed over a large area of the teeth. However, this never poses a problem with highly cross-linked, stable confectional teeth (neo. lign).



Bonding of prefabricated teeth

The correct bonding of the prefabricated teeth is primarily achieved by retentive anchoring (grooves, drilled holes, undercuts, retentions) and reinforced by blasting with a suitable blasting medium (110 µm aluminium oxide/max. 2 bar) and/or additional conditioning with bonding agents (poly-link IC bredent)



Mechanical retention

Apply a circular retentive groove to each tooth in the cervical area around the denture tooth using a groove cutter (REF D225KF23) or diamond bur (REF 34000830). In principle, the thermoplastics shrink to fit precisely in/on the retentive area during the cooling phase, which fixes the teeth precisely and permanently in this position. This saves time and the teeth can remain in the flask after boiling-out.

Preparation of plastic teeth for anchoring in thermoplastic materials

Measures	**** Polyan IC**	**bre.flex 2nd Edition**	**Bio Dentaplast**
	poly.link IC	**visio.link**	**visio.link**
* Chemical adhesive bond between prosthetic tooth and base material	✓	-	-
Increase in microretentive adhesive bond to the base material	✓	✓	✓
mechanical retentions is required.	-	✓	✓

*** No chemical adhesive bonding of base material to base material (rebasing)!**
**** For the red-white aesthetic with crea.lign, sandblasting with 110 µm and conditioning with visio.link (visio.lign system) on the Polyan IC base material is sufficient.**

Surface Conditioning

Note
With polyan IC, the adhesive bond between the denture tooth and the denture base is increased by conditioning poly.link IC on the denture teeth.

REF: polylnk5

When re-basing without retention with poly.link IC bonding agent, there is an insufficient chemical bond to the existing polyan IC denture material! Please proceed as described in the processing instructions (see page 41 - 42)

Attention

Please do not use any cleaning agents containing alcohol or acid (acetone/ benzene) on thermoplastic materials made of PMMA. These can cause cracks or small tears in the material.

The visio.lign concept (crea.lign) makes it easy to individualise the gingival sections with perfect red-white aesthetics and to adapt the prefabricated teeth.

thermopress processing kit - REF 33000830


Contents

REF	designation
S187QG23	Silicone burr
H263M740	Tungsten Carbide Rotary Burr - Generation M - 4.0 mm Ø - Round Nose
H274M840	Tungsten Carbide Bur - Generation M - 4.0 mm Ø - round bud
H289MH23	Tungsten Carbide Bur - 2.3 mm Ø - Torpedo
34000M25	Diamond disc GiflexTR Master x-tray
H001NH21	Rapidy Micro Bur
H272M814	Tungsten Carbide Burr - 1.4 mm Ø - Granate
34001030	Diacrylic Coarse Sander
34000830	Carbide Rotary Burr - 1.2 mm Ø
H010NH12	Tungsten Carbide Burr - 1,2 mm Ø

Preparation of the working models for the injection moulding process

Mixing ratio for special expansion plaster for pressing Bio Dentaplast

Material	Model	Expando-Rock	Expando-Sol	Distilled water	Expansion time
Bio Dentaplast	per	100 g	26 ml	0	6 h

Use of formaldehyde-free Class IV Gypsum

Material	Model	Exakto-Rock S (alternative Thixo Rock)	Distilled water	Distilled water
Polyan IC	per	100 g	20 ml	2 h
bre.flex 2nd Edition	per	100 g	20 ml	2 h

Model Production

When processing Bio Dentaplast, the volume contraction during the cooling process must be compensated for by expanding the plaster model. For this reason, a special expanding plaster Expando-Rock (REF 5700ER05) must be used during model fabrication, which forms different expansion values depending on the mixing concentration (see table).

For Polyan IC and bre.flex 2nd Edition, a formaldehyde-free class IV gypsum is used to produce the models. Exakto-Rock S REF 5700SB50 (brown) or 5700SE50 (ivory)] is particularly suitable, alternatively Thixo Rock can be used.

Pressing a Bio Dentaplast clasp prosthesis with thermopress 400

Bio Dentaplast Clasp Prosthesis

Bio Dentaplast is available in 2 ways: 500 g bulk and empty cartridges or pre-filled 16 g and 20 g cartridges in the shades A1, A2, A3, B2, B3.

REF	
500 g Bulk	*REF 540B_ _05 (Please insert shade required)*
Aluminium cartridges empty, 18 Pieces	*REF 540KL018*
20 x 16 g Pre-filled cartridges	*REF 540B_ _16 (Please insert shade required)*
20 x 20 g Pre-filled cartridges	*REF 540B_ _20 (Please insert shade required)*

Blocking-out

It is important to avoid undercuts and deep incisions in the palate and so these areas are to be blocked-out. In general, the cervical area of the teeth is always to be blocked-out.

REF

Biotec-Blocking out wax, pink, 28 g	*REF 51000615*

Model preparation

Saddle areas are prepared with Spacer Wax in this case 0,4 mm thickness. The palatal or lingual border is lined with profile wax. This later reduces spacing between the framework and acrylc due to twisting of the framework on insertion.

REF

Protek spacer wax, 0,4 mm	*REF 43005830*
Protek wax patterns cut to size, 0/ 1,2 mm	*REF 43001210*

Duplicating Silicon Exaktosil N 21

For best results duplicating silicones with a shore hardness of between 20-22 shore will give the best results. Exaktosil N 21 has proven with its excellent properties; a processing time of 5 – 6 minutes, is very thin-bodied and are therefore very precise. Excellent resilience, high tear strength and breaking elongation limits, this Exaktosil N 21 duplicating silicone is safe from demolding damage and thus offers the technician an incomparable quality standard. The right duplicating silicone for every purpose – Exaktosil.

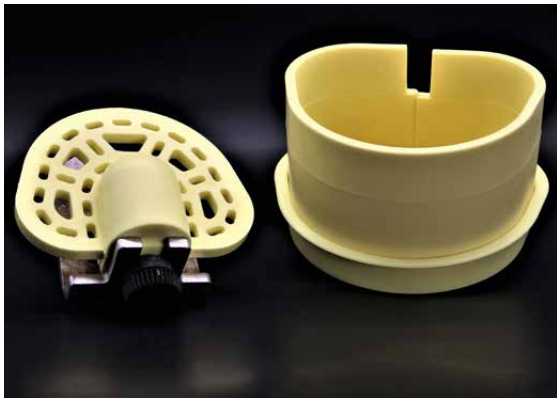
REF

Exaktosil N21 Duplicating silicone, Component A, 1000 g	*REF 5400116A*
Exaktosil N21 Duplicating silicone, Component B, 1000 g	*REF 5400116B*
Exaktosil N21 Duplicating silicone, silicone, Component A and B each 1000 g	*REF 54001147*

Block-out kneading material

This blocking-out putty is quick and easy to use. It can also be used to fill part of the bredent duplicating systems, as can be seen in this picture.

REF *54001018*



The duplicating method is an important element and the basis for highly accurate duplicates. The stable plastic components ensure precision when duplicating and reduces errors.

REF

Duplicating system small, 5 Parts	*REF 520DBSTK*
Duplicating system large, 5 Parts	*REF 520DBSTG*

The 5 pieces:

Flask Tray, Flask Sleeve, Spacer Base Insert, Stabiliser, Investment Aid (Aluminium), Block-Out Kneeding Material.

Model correctly placed and ready for duplicating.

The model is ready for duplicating, the stabilizer is placed in the receptacle of the flask collar and the height is adjusted according to the model. This protects the silicone mould from unwanted distortion when pouring out the Expando-Rock material.

The duplicating stabilizer is sprayed with Isosil. Isosil is a silicone lubricator and ensures the repositioning of the silicone when removing the model after the silicone has set.

REF

Isosil 125 ml *REF 520IS125*

Expando-Rock is a specially formulated plaster for the pressing of Bio Dentaplast. Expando-Rock requires an expansion time of 6 hours. Expando-Rock has a mixing ratio of 100 g to 26 ml Expandosol.

REF *5700ERS5*

Expando-Rock expansion plaster Assortment, 2 Parts

5 kg expansion plaster, 500 ml Expandosol

Surface tension reducing agent avoids the formation of bubbles and improves the flow characteristics of plaster and/or investment materials. After a reaction time of 2 minutes the duplicating mould is blown dry using compressed air. Technolit avoids surface segregation of plaster and/or investment materials. Consequently, a more homogeneous surface is achieved.

REF

125 ml *REF 520ET125*

The Expando-Rock model can be removed after initial set however it is a mistake to invest the model before the full expansion time of 6 hours has expired, as this leads to fitting problems.

Light-curing die varnish

The first thin layer soaks into the model and is light cured for 180 sec. The light-curing die varnish create a particularly hard surface. This protects the model from damage when pressing.

The second layer is also applied thinly and this forms a surface that allows the pressing material to flow easily. Light cure for a second time 180 sec., while the flasks are hot from the boiling out process. The surface is now glossy.

Of course Acrylic-Sep can also be applied in two layers, as normal.

REF 52000291

REF

Light-curing die varnish, transparent	*REF 54001006*
Disposable brush, 100 pieces	*REF 33001142*
Brush holder straight, 12 pieces	*REF 33001149*

Experience a new level of reliability and speed when polymerizing your objects. The innovative and new LED technology of bre.Lux 2 covers the entire relevant spectrum of light below 400 nm and hence enables a new quality of polymerization. It offers the user more consistent and faster curing since different wavelengths can reach different depths. Increase your reliability and reduce your polymerization times.

REF

bre.Lux power unit 2 basic unit incl. accessories	*REF 14001000*

So now we start with the waxing-up process. Of course it is easier to boil-out normal pink modeling wax than casting waxes. The preformed clasps have been specially designed for the thermopress system. There are 2 different sheet thicknesses to choose from and 3 different hardness levels.

REF

Protek Clasp patterns, Premolar clasp, bent, for resin injection moulding, 10 sheets of 10 clasps le + ri	*REF 43007485*
Modelling wax pink Standard, medium	*REF 43001645*
Wax pattern sticks, red, 2.0 x 115	*REF 43001723*

(these sticks are hard and resistant to deformation when modelling and investing).

As can be seen this is a ring framework, the center has also been waxed-in. The 10 mm pressing sprue will be fixed here, this ensures the void is completely and evenly filled from the center of the framework outward. This can be seen in a later picture (Page 16).

The height of the model is being checked. This check is important when completing full upper cases. There is nothing worse than investing the model only to realise the top part of the flask is impeded.

When using the thermopress 400 System it is important to work with a Class IV stone. This is because of the injection forces involved being greater than 6,0 bar and up to 13,6 Bar as can be seen at the begining of this manual. bredent has an excellent Class IV stone, Exakto-Rock S. This stone is for use in the Crown and Bridge & CAD/CAM discipline (reaches full expansion after 2 hours, with no further expansion, ideal for scanning). Exakto-Rock S is available in 2 colours brown and ivory, and available in 2 kg bags and multiples thereof

REF

Exakto-Rock S Super-hard stone for scan models, brown, 2 kg	*REF 5700SB52*
Exakto-Rock S Super-hard stone for scan models, ivory, 2 kg	*REF 5700SE52*

The wax-up model has been invested using Exakto-Rock S and the 10 mm pressing sprue added. As mentioned before the pressing sprue has been placed so that the pressing material enters the void in the middle and then fills the void evenly towards the outside edge.

REF

thermopress Flexible acrylic sprue wax Ø 10 mm	*REF 43007410*

The first half is now isolated as normal, but an insolation fluid that soaks into the Exakto-Rock S surface is an advantage, no gap after boiling out.

REF

Plaster insulating liquid 750 ml *REF 54000135*

Fluid-Rock is a smoothly flowing Class IV super-hard stone

The topping stone used here is called Fluid-Rock. Once mixed, 25 ml distilled water to 100 g Fluid-Rock, it is very runny. This avantage reduces the amount of trapped air that is difficult to control as the two halves of the flask are bolted together.

Fluid-Rock is supplied in 2 kg bags.

REF

Fluid-Rock, base stone 2 kg *REF 5700FB52*

As can be observed the flask has been tilted to fill the front of the void first. This technique also helps to reduce air beeing trapped. This completes the flasking process, (the back of the flask being the one with the material pressing hole).

For the trimming and polishing stratergy please turn to page 56-58.

clasp prosthesis bre.flex 2nd Edition pink

bredent Model for bre.flex 2nd Edition

REF

REF 9925K100

bre.flex 2nd Edition is available in 2 options. 500 g bulk and empty cartridges or pre-filled 16 g & 24 g cartridges in the shades clear, PC20 & Pink Veined.

REF	
500 g Bulk	
Clear	*REF 5400F805*
PC20	*REF 5400FS05*
Pink Veined	*REF 5400F605*
18 Aluminium Cartridges	*REF 540KL018*

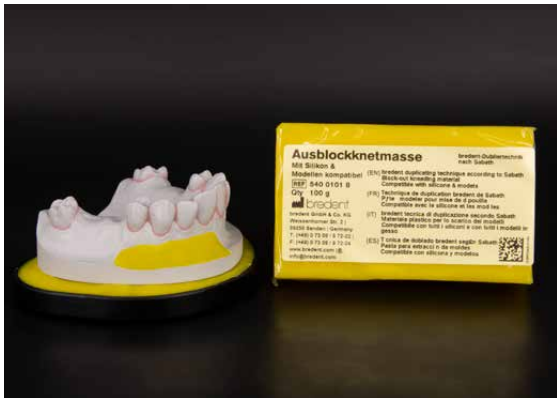
2x 16 g	
Clear	*REF 5400F816*
PC20	*REF 5400F516*
Pink Veined	*REF 5400F616*
2x 24 g	
Clear	*REF 5400F824*
PC20	*REF 5400F524*
Pink Veined	*REF 5400F624*

Blocking-out

It is important to avoid undercuts and deep incisions in the palate to be blocked. In general, the cervical area of the teeth is always to be blocked-out.

REF

Biotec-Blocking out wax, pink *REF 51000615*



Blocking Out Material

This blocking out material is quick and easy to use. It can also be used to fill part of the bredent's duplicating system as will be seen later.

REF

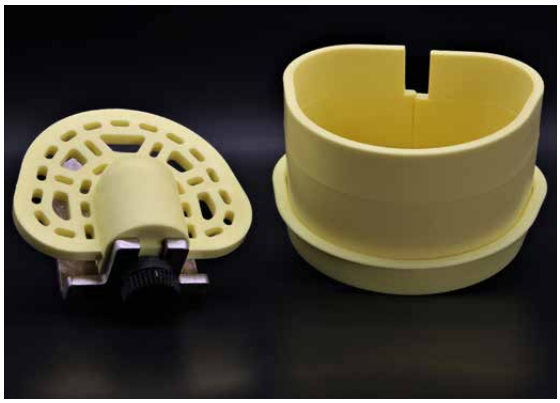
Block-out kneading material *REF 54001018*

Duplicating Silicon Exaktosil N 21

For best results duplicating silicones with a shore hardness of between 20-22 shore will give the best results. Exaktosil N 21 has proven with ist excellent properties; a processing time of 5 – 6 minutes, is very thin-bodied and are therefore very precise. Excellent resilience, high tear strength and breaking elongation limits, this Exaktosil N 21 duplicating silicone is safe from demolding demage and thus offer the technician a incomparable quality standard. The right duplicating silicone for every purpose – Exaktosil.

REF

Exaktosil N21 Duplicating silicone, Component A, 1000 g	*REF 5400116A*
Exaktosil N21 Duplicating silicone, Component B, 1000 g	*REF 5400116B*



The duplicating method is a major element and basis for highly accurate duplicates. The stable plastic componenets ensure precision during duplicating and reduce errors.

REF

Duplicating system small, 5 Parts	*REF 520DBSTK*
Duplicating system large, 5 Parts	*REF 520DBSTG*

The 5 pieces:

Flask Tray, Flask Sleeve, Spacer Base Insert, Stabiliser, Investment Aid (Aluminium), Block-Out Kneeding Material.

Model correctly placed and ready for duplicating. As mentioned earlier the insert has been filled with the blocking out material.

The model is ready for duplicating the stabilizer is placed in the receptacle of the flask collar and the height is adjusted according to the model. This protects the silicone mould from unwanted distortion when pouring out the Expando-Rock material.

The duplicating stabilizer is sprayed with Isosil. Isosil is a silicone lubricator and ensures the repositioning of the silicone when removing the model after the silicone has set.

REF

Isosil 125 ml *REF 520IS125*

The master model can be removed after the Exaktosil has set. You must wait 20 minutes for the silicone to reset before pouring the working model.

Surface tension reducing agent avoids the formation of bubbles and improves the flow characteristics of investment material and plaster. After a reaction time of 2 minutes the duplicating mould is blown dry using compressed air. Technolit avoids surface segregation for investment materials and plasters. Consequently, a more homogeneous surface is achieved.

REF

125 ml *REF 520ET125*

bre.flex 2nd Edition is processed on a Exakto-Rock S model

Exakto-Rock S is available in 2 colours brown and ivory, and available in 2 kg bags and multiples thereof

REF

Exakto-Rock S Super-hard stone for scan models, brown, 2 kg *REF 5700SB52*

Exakto-Rock S Super-hard stone for scan models, ivory, 2 kg *REF 5700SE52*

The Exakto-Rock S model can be removed after initial set however it is a mistake to invest the model before the full expansion time 2 hours has expired.

Light-curing die varnish

The first thin layer soaks into the model and is light cured for 180 sec. The light-curing die varnish create a particularly hard surface. This protects the model from damage when pressing.

The second layer is also applied thinly and this forms a surface that allows the pressing material to flow easily. Light cure for a second time 180 sec. The surface is now glossy.

Of course Acrylic Sep can also be applied in two layers, as normal.

REF: 52000291

REF

Light-curing die varnish, transparent	*REF 54001006*
Disposable brush 100 pieces	*REF 33001142*
Brush holder straight 12 pieces	*REF 33001149*

Experience a new level of reliability and speed when polymerizing your objects. The innovative and new LED technology of bre.Lux 2 covers the entire relevant spectrum of light below 400 nm and hence enables a new quality of polymerization. It offers the user more consistent and faster curing since different wavelengths can reach different depths. Increase your reliability and reduce your polymerization times.

REF

bre.Lux power unit 2 basic unit incl. accessories	*REF 14001000*

It makes life a lot easier if the mechanical retention is prepared before waxing the tooth onto the model. The tooth is drilled to the form required, a hole is drilled mesially/distally using a multi-drill. Using the diamond point a groove is drilled at the cervical margin of the tooth. Using the Giflex-TR Master x-tray a slit is opened up along the hole to produce a key hole effect. This can be efficiently accomplished as discribed using the following tools.

REF

Diatit-Multidrill	*REF 33000730*
Diamond grinding tool for veneering techniques Vb2	*REF 34000830*
Giflex-TR Master x-tray	*REF 34000M25*

The waxing-up process

Of course it is easier to boil-out normal pink modeling wax than casting waxes. The preformed clasps have been specially designed for the thermopress 400 System. There are 2 different sheet thicknesses (1,25 mm & 1,5 mm) to choose from and 3 different hardness levels (Hard/Middle/ Soft).

REF

Protek Clasp patterns, Premolar clasp, bent, for resin injection moulding, 10 sheets of 10 clasps le + ri *REF 43007485*

neo.lign posterior teeth REF TO1G3A30 *REF TO2G3A30*

Modelling wax pink Standard, medium, 1,5 mm *REF 430 0164 5*

Wax-Up completed

The height of the model is being checked. This check is important when completing full upper cases. There is nothing worse than investing the model only to realise the top part of the flask is impeded.

When using the thermopress 400 System it is important to work with Class IV stone. This is because of the injection forces involved being greater than 6,0 bar and up to 9,5 Bar as can be seen at the begining of this manual.

bredent has an excellent Class IV stone, Exakto-Rock S. This stone is for use in the Crown and Bridge & CAD/CAM discipline (reaches full expansion after 2 hours, with no further expansion, ideal for scanning). Exakto-Rock S is available in 2 colours brown and ivory, and available in 2 kg bags and multiples thereof

REF

Exakto-Rock S Super-hard stone for scan models, brown, 2 kg *REF 5700SB52*

Exakto-Rock S Super-hard stone for scan models, ivory, 2 kg *REF 5700SE52*

Once the Exakto-Rock S has set the pressing canal can be completed. As can be seen a sheet wax was used to feed the future void with bre.flex 2nd Edition during the pressing process. On top of this is placed a 10 mm diameter wax sprue which has a low melting point. There is a diagram of this technique in each packet delivered to you. This is a useful attribute as it speeds up the opening of the flask and allows the molten wax to escape during boiling out.

Fluid-Rock is a smoothly flowing class IV super-hard stone. Once mixed, 25 ml distilled water to 100 g Fluid-Rock, it is very runny. This advantage reduces the amount of trapped air that is difficult to control as, the two halves oft he flask are bolted together. Use 63 ml distilled water to 250 g Fluid-Rock. Before topping with Fluid-Rock, follow normal procedures and isolate the stone using a isolating liquid that does not form a layer but soaks into the surface of the stone.

REF

Plaster insulating liquid 750 ml	*REF 54000135*
Fluid-Rock, base stone, blue, 2 kg	*REF 5700FB52*
Brush holder straight 12 pieces	*REF 33001149*

As can be observed the flask has been tilted to fill the front of the void first. This technique also helps to reduce air being trapped. This completes the flasking process, (the back of the flask being the one with the material pressing hole).

For the trimming and polishing stratergy please turn to page 56-58.

Press

The instructions for pressing have been delivered with the thermopress 400. Please read these carefully. If you have any doubts please get in touch with you bredent representative.

The pressing technique is the same for each type of case. The thermopress 400 is programmed for the material you will be pressing and then follow the instructions on the display. Maintenance of the thermopress 400 is important. Clean the cartridge heating element regularly with the wire brush supplied.

(DE)

Sprache wählen

(Eingangsmenü)

Menu Hier wird mit der **Menütaste (12)** „Select language“ angewählt

Enter und mit **Enter (16)** bestätigt,

Menu mit **Menütaste (11)** oder **Menütaste (12)** wählen Sie „**German**“ aus

Menu

Enter mit **Enter (16)** bestätigen

CE und mit der **CE Taste (15)** wieder beendet (abgespeichert).

(GB)

Selecting a language

(Start menu)

The menu-guidance is factory preset to the English language.

(F)

Choix de langue

(Menu d’accueil)

Menu Ici, vous choisissez la langue par la **touche Menu (12)** „Select language“

Enter et vous confirmez avec ‘**Enter**’ **(16)**,

Menu Par la **touche Menu (11)** ou **(12), v**ous choisissez „**French**“

Menu

Enter et vous confirmez avec **Enter (16)**

CE puis vous terminez avec la **touche CE (15)** (mémorisation).

(I)

Selezione dalla lingua

(Menù principale)

Menu Selezionare con il **tasto (12)** „Select language“

Enter e confermare con il tasto **Enter (16)**,

Menu Con il **tasto (11)** o con il **tasto (12)** selezionare „**Italian**“

Menu

Enter Confermare con **Enter (16)**

CE e con il **tasto CE (15)** concludere (impostazione salvata).

(E)

Elección de idoma

(Menú principal)

Menu Con la **botón de Menu (12)** pueden elegir el idioma **deseado** „Select language“

Enter con **Enter (16)** se confirmará.

Menu Con el **botón Menu (11) o botón Menu (12)** eligen el idoma „**Spanish**“

Menu

Enter con **Enter (16)** se confirma

CE y con el interruptor **CE (15)** se terminará (memorizado).

(RO)

Selectarea limbii

(Meniul de intrare)

Menu Cu **tasta meniu (12)** se selecţionează ”Select language”

Enter şi cu ‘Enter’ (16) se confirmă.

Menu Cu **tasta meniu (11)** sau cu **tasta meniu (12)** se selecţionează ”**Romanian**”

Menu

Enter se confirmă cu **Enter (16)**

CE şi cu tasta CE (15) se memorează.

(PL)

Wybrać język

(Menu startowe)

Menu W celu wybrania funcji „Select language“ należy wcisnąć **klawisz Menu (12)**

Enter i potwierdzić wybór klawiszem **Enter (16)**,

Menu przy pomocy **klawisza Menu (11)** lub **klawisza Menu (12)** należy wybrać **„Polish“**

Menu

Enter przy pomocy klawisza **Enter (16)** potwierdzić wybór

CE przy pomocy **klawisza CE (15)** ponownie zakończyć (zapamiętać).

(RU)

Выбрать язык

(Стартовое меню)

Menu Выбрать язык с помощью **клавиши Меню (12)** „Select language“

Enter и потдвердить выбор клавишей **Enter (16)**,

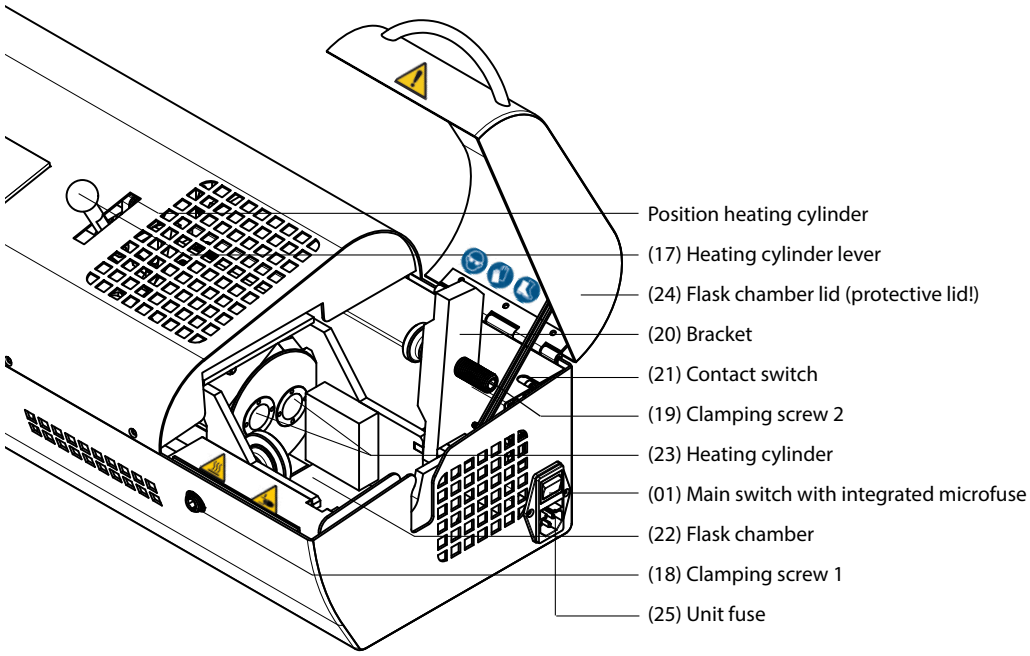
Menu **клавишей Меню (11)** или **клавишей Меню (12)** выбрать поле **„Russian“**

Menu

Enter подтвердить клавишей **Enter (16)**

CE и **клавишей CE (15)** завершить программу (сохранить данные).

Control elements



Factory stored programs

The heating time of the unit to 260° C is approx. 10 minutes and to 380° C approx. 20 minutes.
No changes may be performed while a program is running.

CE The **CE key (15)** can be used to abort any program which has already been started;
the display returns to the previously selected menu items.

Example based on version 2.62

Program No.	Material	Flask / Muffle	Set temperature	Heating time	Pressure time	Injection speed	Force level (power)	Flask-/Muffle-temperature
1	Polyan IC	flask	250 °C	10 min	60 s	6	200	40 °C
2	* bre.dentan HP	flask	280 °C	7 min	60 s	6	145	40 °C
3	* bre.flex	flask	222 °C	15 min	90 s	6	90	40 °C
4	bre.flex 2nd Edition	flask	280 °C	15 min	90 s	6	165	60 °C
5	Bio Dentaplast	flask	195 °C	15 min	120 s	7	100	40 °C
6	* Bio XS	flask	380 °C	20 min	60 s	6	95	150 °C
7	* bre.dentan HP	muffle	280 °C	7 min	120 s	2	80	40 °C
8	Bio Dentaplast	muffle	195 °C	15 min	120 s	7	100	40 °C
9	* Bio XS	muffle	380 °C	20 min	120 s	2	60	150 °C
10-30	free seats	---	---	---	---	---	---	---

CAUTION: * Products have been discontinued!

Selecting - starting a program	Display and help
(Start menu, CE level)	
01: Set **main switch (01)** to On.	The company logo of bredent is displayed for approx. 7 sec (initalizing phase); then the menu selection is displayed.
 02: Select program; if necessary use **yellow keys (11/12)** to select in the main menu.	Select program
03: Confirm by pressing **Enter (16)** once.	Program / No. 1-30 / name is displayed
 04: Use the **yellow keys (11/12)** to select the respective program.	
05: Confirm by pressing **Enter (16)** once.	The display changes to program name with set temperature (°C).
 06: Start program with **Start heating (03)** key.	Display changes to Heating set and actual temperature. The buzzer is heard when the set temperature is reached
 07: Deactivate **buzzer** with **key (10).**	Program + Set reached
08: Insert cartridge and slide in according to chamber lever position 1 / 2. Lubricant must be added! Note: Adhere to the instructions for use of the thermopress resins!	Insert K1 – K2 To ensure uniform melting of the resin, the cartridge must be inserted 1 mm deeper (avoid flush insertion).
 09: **Start heating time key 1 (05)** or **Start heating time key 2 (07)** or activate both within approx. 5 minutes according to the selected chamber.	Heating time parameters Program name HZ1: .. min = ... °C HZ2: .. min
 10: At the end of the heating time deactivate **buzzer** with **key (10)**.	Program Inject1ready (protective lid!) =...°C
11: Insert flask into the flask chamber (22) and fix with the clamping screws (18/19).	Attention: When inserting the flask, the injection opening must face the cartridge.

When fixing the flask with the clamping screw 1 (18), slightly press against the wall of the unit and then use the clamping screw 2 (19) to clamp the flask against the heating cylinder (23). The flask should not move the heating cylinder (23) when it is fixed in order not to block the injection process. (error message shown on the display) If required, the position of the heating cylinder lever (17) must be adjusted.
Attention: Do not insert the flask into the clamping device too early since the metal flask absorbs too much heat from the heating cylinder. This will affect the melting hehavior of the resins. The granular material is not melted and faulty injections may result.

 12: Attention! The injection process can only be started, if the flask chamber lid (24) (protective lid!) is closed. Press **Start injecting key (09).**	Time runs down on the display. Program Inject1: ...s HZ2: blank
13: Open the flask chamber lid (24) (protective lid!) after the injection process; then loosen the clamping screws (18/19) and move the bracket (20) upward	Program Inject1ready Eject K1?
 *14:* Press **Eject cartridge key (08).** The piston will move backward **<u>Attention!</u> Press the eject key only after the piston has completely moved back after the injection process and is in idle position.** Then remove the flask from the flask chamber (22).	The cartridge is pressed out of the heating cylinder. It is not required to previously separate it from the flask. Excess material is pressed in the empty flask chamber together with the flask. Ejecting K1
15: A new injection process can be performed	The temperature is kept until new start **Heating time 1/2 (05/07) or End CE (15)** is selected.

Changing - creating a program

Display and help

(Start menu, CE level)

00: ATTENTION! If required, it is recommended to perform only minor changes of the default parameters of the individual materials.

The sequence of entries must be strictly adhered to to ensure correct storage of the values.

01: Set **main switch (01)** to On

The company logo of bredent is displayed for approx. 7 sec; then the menu selection is displayed.
Create/change data

02: Select Create/change data in the menu using the **yellow keys (11/12).**

03: Confirm by pressing **Enter (16)** once.

Dataset – Number <Name> is displayed.

04: Use the **yellow keys (11/12)** to select the respective program.

A maximum of 30 datasets can be stored.

05: Confirm by pressing **Enter (16)** once.

The display changes to the first menu parameter
Set temperature [°C]: 0

06: Confirm by pressing **Enter (16) two** times.

After pressing for the first time, the value is highlighted and flashes after pressing for the second time.

07: Use the **blue keys (13/14)** to change the value.

08: Confirm by pressing **Enter (16)** once.

The value stops flashing and remains highlighted. The entered value is not retained unless the 'Enter' key is pressed.

09: Use the **yellow keys (11/12)** to access the next parameters step by step and process as described under item 06: to 09:

1: Set temperature	[° C]:	0-400
2: Heating time	[min]:	0-255
3: Pressure time	[s]:	0-255
4: Speed:		0-9
5: Force:		0-255
6: Dataset name:		A-Z+special characters

Temperatures above 400°C can not be entered. The display returns to 400°C.
If temperatures below room temperature are entered, the program sequence will be blocked; the value should be approx. 5-10°C higher.

Use the **blue cartridge ejecting keys (06) (08)** to select the respective character position in the word.

Then use the **blue keys (13/14)** to select the individual small and capital letters, special characters and numbers. The cursor jumps to the next position in the word if no further entry is made.
If required, use the **blue keys (06/08)** for corrections.

10: **Press CE key (15)** once. .....

Only after pressing the CE key, all entries will be permanently stored.
You will return to operating level 1

11: Press **CE key (15)** one more time and you access the Start menu, CE level.

Operation

Manual mode

(Start menu)
After selecting the menu item 'Manual mode' **[yellow keys (11/12)]** and confirming with Enter, a cartridge which had been accidentally inserted can be ejected using the blue **Manual mode key (08)**. The piston will move back after approx. 6 seconds.
Attention: Do not inject any objects using the manual mode. The parameters of the individual materials will not be adopted in this mode. Manual mode is only intended for cleaning or individual cartridge ejection.

Selecting a language

(Start menu)

The menu-guidance is factory preset to the English language.

CE key

The **CE key (15)** is used to abort any process and to complete storage of data. **Regardless of any occurring malfunction, the piston will always return to its initial position.**

Parallel mode

Parallel operation of both heating chambers is possible.
It must be ensured that there is sufficient time (approx. 5 minutes) between the starts of the two programs to avoid overheating of the material.

Attention! In the parallel mode only materials with identical melting temperatures can be processed. Proceed like in the single operation mode; move the **heating cylinder lever (17)** and press the corres-ponding **heating time keys (05/07)**.

Buzzer key

The buzzer is deactivated after pressing the buzzer key. The program sequence will not be discontinued.

Button - Previous program

If several objects are injected using the same material, the same program is started with the **Previous program (04)** key without selecting the individual steps 02-05.
Program changes and accompanying temperature changes result in a cooling phase or heating phase displayed correspondingly.

Care and maintenance

Aluminium residues of the cartridges, burnt-in silicone grease or other material residues must be removed from the heating chambers of the unit within regular intervals These residues may become stuck between the piston tip and the wall of the cylinder and thus affect the casting result. If Bio XS is used, the unit should be cleaned before and after each injection process due to the low melting temperature of aluminium and other residues.

Do not use objects with sharp edges for cleaning. Select Manual mode in the main menu, confirm by pressing **Enter (16)** once and then move the piston several times using the **Piston forward (08)** and **Piston backward (06) keys** until the aluminium residues are removed. Use an extraction system or a suitable cloth to remove the residues. Fine residual particles can be removed with the special thermopress metal cleaning brush (accessories - REF 11000402)

Note: Cartridges containing a different material composition may damage (scratches) the polished inner wall of the cylinder. This will affect the injection performance of the unit considerably. In order not to damage the polished inner cylinder, exclusively use the metal cleaning brush available from bredent.

Lubricant

thermopaste 400 (REF 54001051) must be used for all materials; silicone paste will be burned at such temperatures.
Spread a small quantity (size of a pea) evenly to the cartridge wall.
Do not apply any lubricant in the area of the cartridge lid to avoid contaminating the resin.
Note: Other lubricants will be burned and lead to poor injection results.

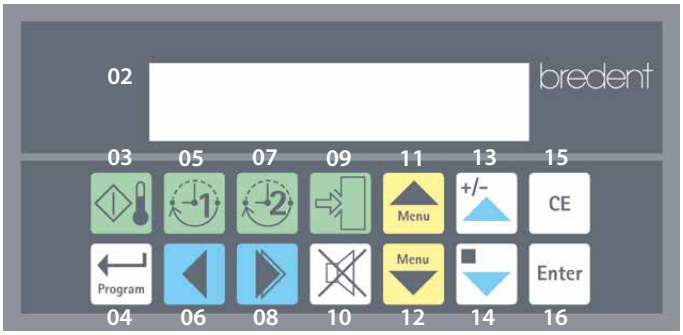
Main Fuse

The unit fuse holder can be accessed from the exterior. The fuse holder is located between the unit plug and the main switch (01). The rectangular fuse box can be opened with a tool. Remove the cord and apply a tool against the fuse box from below and pull out. See also 3.2 attention

Description of the error/questions	Possible causes, elimination
The menu selection is not shown on the display after pressing the main switch	1. Check the fuses for the power supply. 2. Check the cable connections to the unit. 3. Mains voltage does not correspond to the value indicated on the type-plate. 4. Socket is not live. 5. Change the unit fuse/10 [A] microfuse, see 3.2 Cautio
The thermopress unit has been correctly installed. After a short time, the injection performance decreases. Objects are not filled completely	1. The heating chamber or the front side of the pressure piston is contaminated. 2. Too little or no thermopaste (lubricant) has been used for aluminium cartridges (increased cartridge friction). 3. Check program settings. If necessary, correct them once the parameters for injection moulding have been entered.
The unit fails to reach the desired temperature, or does so extremely slowly. The material does not melt.	1. Compare the mains voltage with the technical data of the unit. 2. One or more heating elements may be defective. 3. The temperature probe is not showing the correct value - use the digital thermometer and temperature sensor to calibrate it (optional accessories: REF 99300364 and REF 99300366). 4. Important: Annual checking of the target/actual temperature ensures flawless injection moulding. 5. Incorrect parameters have been entered for the thermoplastic material; please check those parameters and, where necessary, adjust the program to suit the material.
The injection process cannot be started. No further error messages are displayed.	1. Check that the position of the heating cylinder and its filling is identical to that shown on the display. 2. The heating cylinder was not brought to the final position during fixing of the flask (displaced). 3. Use the selection lever to move the heating cylinder to the desired final position (1 or 2) until it stops. 4. Check that the flask chamber lid (protective lid) is correctly closed. 5. Check that the right rear contact switch is functioning correctly.
What do I do if the piston becomes wedged in the forward position?	1. Please call the bredent Customer Service Team. Germany. Tel. +49 7309 872-22.
Incomprehensible messages are shown on the display screen.	1. Unit is not sufficiently ventilated. Please check that the unit is set up in an adequately ventilated area and, if necessary, adapt the area accordingly. The unit's ventilation slits must be kept free at all times in order to prevent overheating within the unit. See also 3.2 Positioning/functioning of the unit. 2. Switch the unit off and wait approx. 2 minutes until a quiet „click" is heard (there is a delay before the frequency converter switches off), then restart the unit.
Motor temperature too high! Please wait! Housing temperature too high! Please wait!	1. The unit can no longer be used, as the thermal protection switch has been activated. Ensure that the unit is set up in an adequately ventilated area. 2. Abort the program using the CE key and allow the injection moulding unit to cool down while still switched on (ventilation mode).
There are large quantities of aluminium residue in the heating cylinder.	1. Too little or no thermopaste has been applied to the aluminium cartridge. 2. Increased abrasion of the aluminium cartridges; the residue is deposited on the inside wall of the heating cylinder (narrowing/diameter is reduced). 3. If necessary, have the heating block replaced
The display shows «Cooling down».	1. The target temperature currently programmed for the insertion of the filled aluminium cartridges is below that of the heating cylinder (injection moulding of different materials) 2. Wait until the unit cools down and the temperature is reached

Keyboard / icons / functions

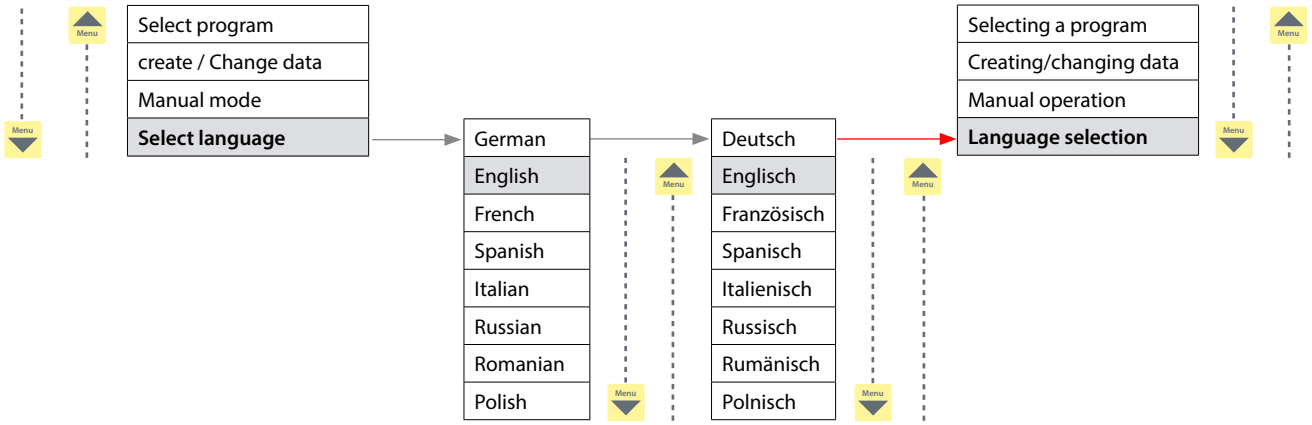
(01) Main switch with integrated microfuse
(02) Display (start menu) - (operating level)
(03) Start heating
(04) Previous program
(05) Start heating time 1
(06) Piston back
(07) Start heating time 2
(08) Piston forward
(09) Start injecting
(10) Buzzer off
(11) Menu key
(12) Menu key
(13) Input key
(14) Input key
(15) CE key
(16) ENTER key
(17) Heating cylinder lever
(18) Clamping screw 1
(19) Clamping screw 2
(20) Bracket
(21) Contact switch
(22) Flask chamber
(23) Heating cylinder
(24) Flask chamber lid (protective lid!)
(25) Unit fuse

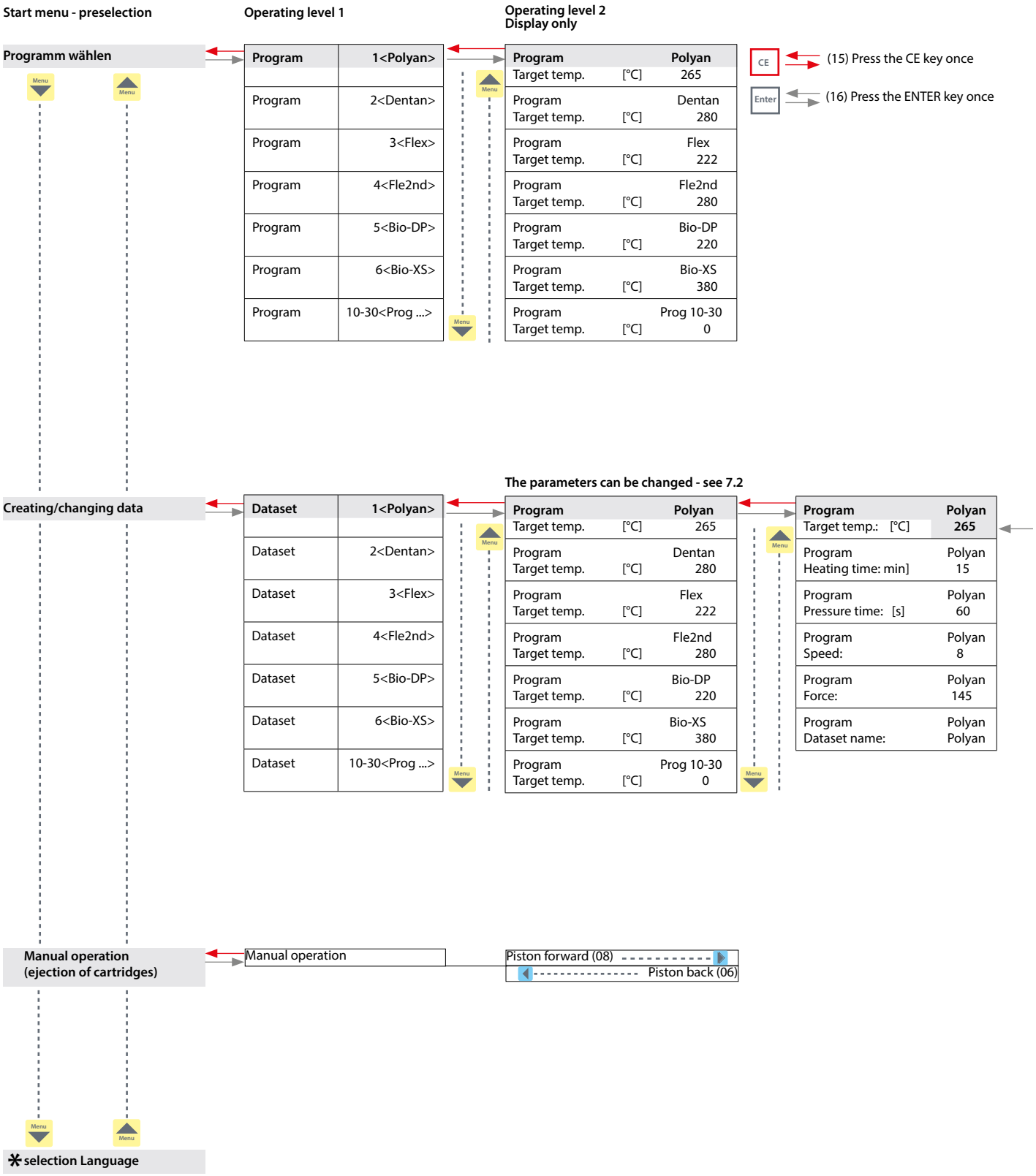


Displayanzeige (ab Version 2.61)

* Note: Language setting on delivery is English

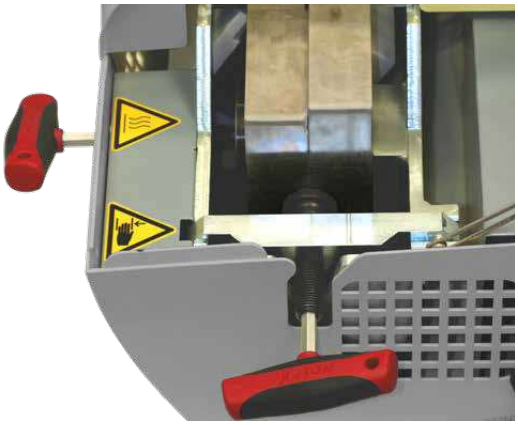
➔ **Please change to the relevant country language as described below.**




Start menu - preselection
Operating level 1
Operating level 2
Display only
Programm wählen
Program 1<Polyan>
Program 2<Dentan>
Program 3<Flex>
Program 4<Fle2nd>
Program 5<Bio-DP>
Program 6<Bio-XS>
Program 10-30<Prog ...>
Program Polyan
Target temp. [°C] 265
Program Dentan
Target temp. [°C] 280
Program Flex
Target temp. [°C] 222
Program Fle2nd
Target temp. [°C] 280
Program Bio-DP
Target temp. [°C] 220
Program Bio-XS
Target temp. [°C] 380
Program Prog 10-30
Target temp. [°C] 0
CE
(15) Press the CE key once
Enter
(16) Press the ENTER key once
Menu
The parameters can be changed - see 7.2
Creating/changing data
Dataset 1<Polyan>
Dataset 2<Dentan>
Dataset 3<Flex>
Dataset 4<Fle2nd>
Dataset 5<Bio-DP>
Dataset 6<Bio-XS>
Dataset 10-30<Prog ...>
Program Polyan
Target temp.: [°C] 265
Program Polyan
Heating time: min] 15
Program Polyan
Pressure time: [s] 60
Program Polyan
Speed: 8
Program Polyan
Force: 145
Program Polyan
Dataset name: Polyan
Manual operation
(ejection of cartridges)
Manual operation
Piston forward (08)
Piston back (06)
selection Language

Scope of delivery

thermopress 400
1 unit with power cord
2 Allen keys
1 cleaning brush
1 special tool
REF 11000400



Accessories

thermopress 400:

1 devesting aid and punch*	REF 14000904
1 cartridge pliers*	REF 14000906
1 flask hook and Allen key*	REF 14000912
1 flask, small* (L 122 cm, W 102 cm, H 72 cm)	REF 1400N903
1 flask, large (L 140 cm, W 102 cm, H 72 cm)	REF 1400N905
1 cleaning brush	REF 11000402
1 thermo paste 400 special lubricant (50 g*)	REF 54001051
1 Expando-Rock-Set 5700ERS5	REF 5700ERS5
(5 kg expansion plaster, 500 ml Expandosol)	

thermopress 400 Set of accessories
7 pieces
REF 11000401

See above, Accessories - thermopress 400:
Items marked with * are included in the thermopress 400 Set of accessories!

Dimensions and data are indicated for reference only. Illustrations and descriptions are accurate at the time of printing.
Subject to change.

for 2press 2

Processing instructions

For processing our PEEK-based high-performance plastic BioHPP, we recommend processing in our for 2press system.

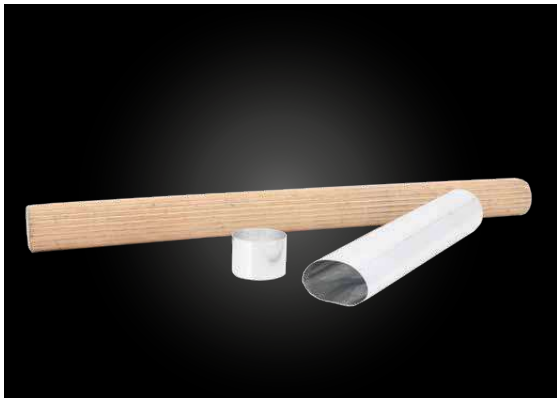
REF 000538GB

Hints & Tips

Boil out as normal. About 8 minutes. Loosen the bolts before boiling out, everything is hot later. If using a boiling out machine place the pressing hole downwards so that the wax flows out. If boiling out in a container then have the pressing hole facing upwards to allow the wax to float out.

Use good rubber gloves. Here you can see that two layers were use to further reduce heat transfer to your hands. This technique allows your hands to be immersed for a short time in very hot water.

Great care must be observed during the boiling out process.



How to repair a damaged cartridge using the transportation rod for the heating element of the thermopress 400.

Insert the wooden transportation rod into the cartridge and roll them both on the palm of your hand to repair the deformity.

Hints & Tips

When completed check that the cap fits passively.

When pressing with Bio Dentaplast or Polyan IC the prosthetic teeth should be primmed with poly.link. This will increase the chemical bond.

REF

poly.link IC bonding agent for acrylic teeth, 50 ml *REF polylnk5*

After pressing voluminous cases place in a clamp straight after pressing. This stops the formation of voids within the pressed appliance due to loss of material exiting the pressing channel.

bre.flex and bre.flex 2nd Edition - Injection of thermoplastics

For example, type: bre.flex 2nd Edition on an existing UK prosthesis

1st option: Drilling through the prosthesis body

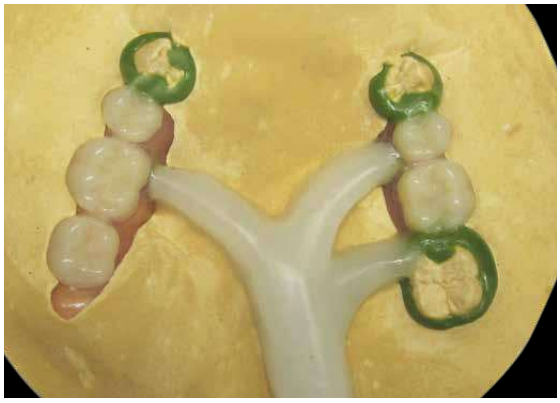
In the first step, the prosthesis body with bre.flex 2nd Edition without all retaining elements and worked out to the extent that the prothese sits tension-free on the model.

The prosthesis is then ground free in the area of the retaining elements. and a feed channel that also serves as a retention part.

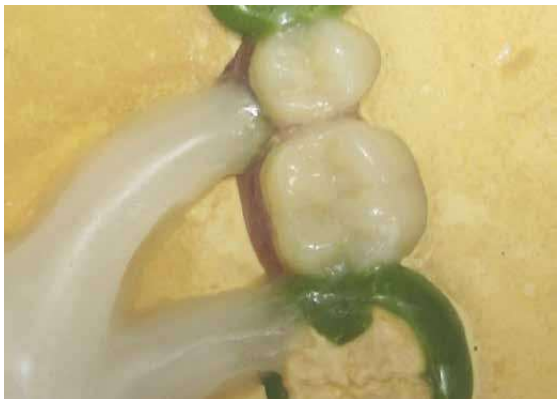
However, it can also be injected directly from the approximal area to retention when there is enough space.

The prosthesis is precisely adapted to the model and the retaining element thought modelled.

Here too, a closed bracket design is to be aimed for (free-saddle in the dorsal area).

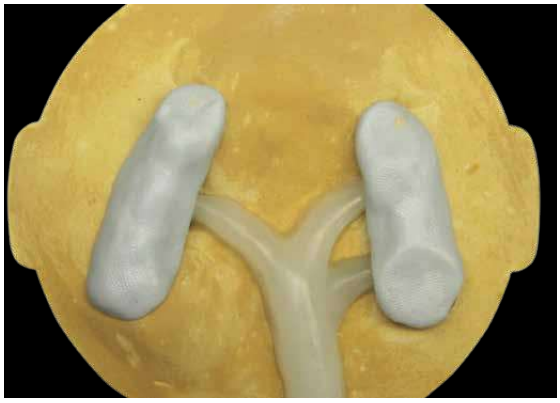


Feeding of the wax channels to the modelled clamps.



Detailed view of injection moulding channels.

Create soft transitions!

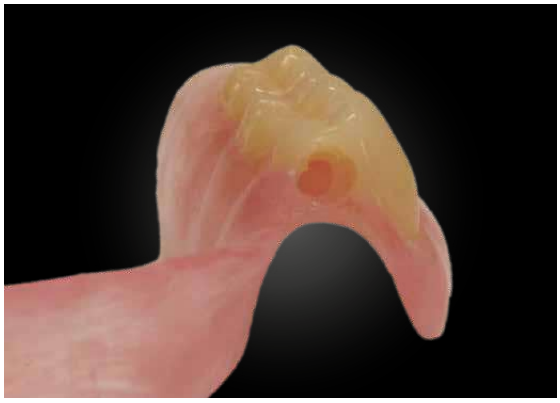


Prior to investing, the existing prosthesis is protected with Haptosil D or Dentasil. This method allows you to reuse the model for finishing.

Method Two: Drilling through the tooth row without perforation of the prosthesis base

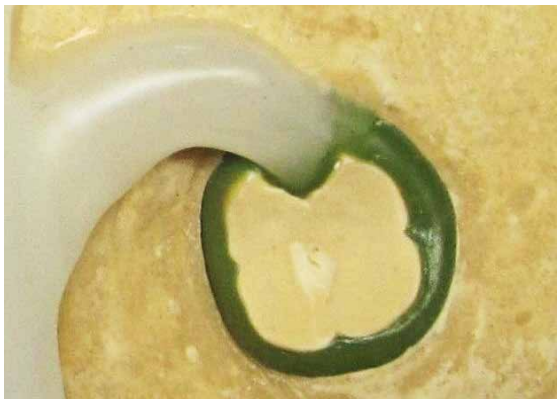
Tip:
After the first injection moulding (bre.flex 2nd Edition), take care of the work that has been prepared on the plaster model and position it. It is important that the work rests as perfectly and flat as possible on the model. The material with the lower temperature must always be injected onto the one with the higher melting temperature!

bre.flex 2nd Edition carefully prepared for the clasps lower prosthesis with transverse lingual bar.



Rotation-protected hole for the clasps to be modelled is displayed.

Invested working model with modelled clasp portions in wax and bre.flex 2nd Edition partial prosthesis (not visible).
Feeding of injection moulding channels: Central spray channel Ø 10 mm, the connecting to the clampsis Ø 2.5 mm.



Close-up shot showing the molded clasp portions in plaster.

Finished injection molding in Bio Dentaplast A2. The complete plaster mold is removed from the flask using an extrusion plunger and a short hammer blow (back of the flask - guide hole). Then, separate the supply channels and carefully remove the plaster mold as usual.

Bio Dentaplast clasps injected, finished, and polished into the bre.flex 2nd Edition denture base.

*Metal-free "clasp model casting" completed and fitted to the master model made of bre.flex 2nd Edition and tooth-coloured Bio Dentaplast clasps (A2).

Polyan IC / Rebasing (relining/hypoallergenic)

Note

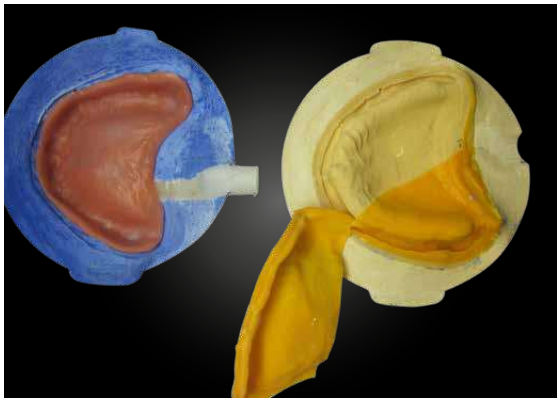
Relining and repairs using uni.lign cold-curing resin (Chemoplast) are possible!

Model fabrication is possible indirectly on a rebasing model or directly embedding the impression in the flask. The functional margin is also built up beforehand.

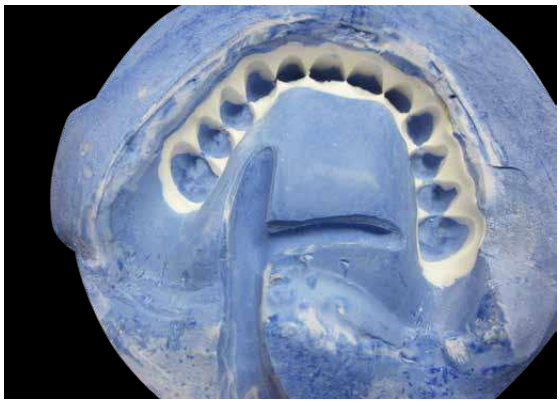
Remove excess relining material and apply Dentasil dental protective silicone in such a way that the occlusal surface and incisal edges can still be set in plaster.

The 5 mm diameter injection channels in the area of tooth 26 and 2.5 mm diameter can also be installed reversed if necessary.

Isolate the plaster (thinly with Vaseline) and counter it, avoiding undercuts!

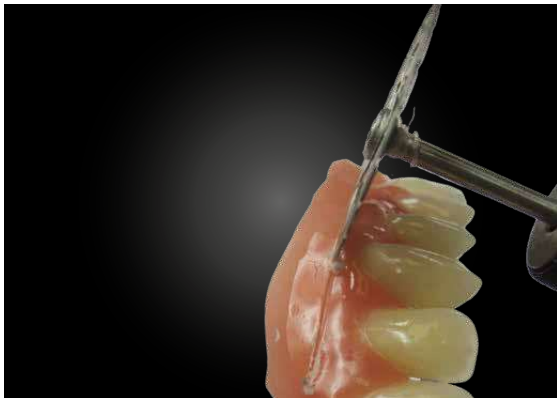


After boiling out, separate the flask halves and remove the silicone from the model and denture. Remove the upper denture from the counter.



Don't forget to insulate!

Remove thin, fragile edges and loose plaster residue. Apply two thin coats of Acrylic Sep. Allow to dry thoroughly. The surface of the insulation must not be flakey! Otherwise, these flakes will be carried along by the flowing thermoplastic material and contaminate the it.



Cutting off the prosthesis base at low speed.

The plastic must not be overheated, otherwise there is a risk of contamination of the material and odour development.

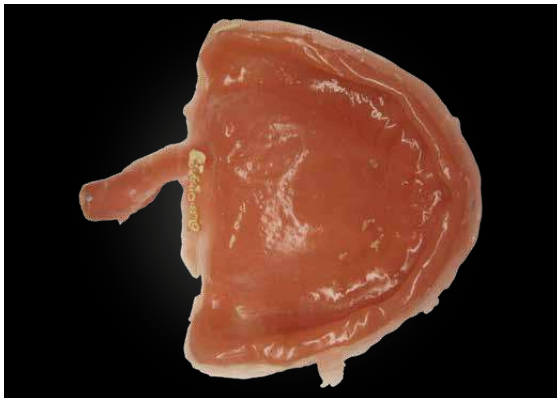
The removed tooth arch is reduced using cross-cut milling burs, and the tooth necks to be injected are exposed.

Grind back the interdental spaces. These will serve as placeholders for the material that will be rebased later.

Remove any white resin residue (due to grinding). This is the only way to achieve a homogeneous, retentive anchorage after overmolding. This prevents discolouration and inclusions after injection moulding.

TIP: Condition prefabricated teeth using poly.link IC!

Precisely fitting rebased complete upperdenture. The relined material is perfectly retentively anchored, and the prefabricated teeth are additionally chemically bonded to the denture base using poly.link IC



Maxillary denture completly rebased.
A shiny base with no flaws!

A full upper prosthesis can be prepared quickly as usual and shows finally a top fit on the master model.

Homogeneous, rebasing without white discoloration and recognisable transitional areas.

Perfect, relined and high-gloss polished upper total prosthesis made of Polyan IC.

Polyan IC - adjusted bite splints

Note

For the best possible fit, we recommend measuring the master model, blocking out the extreme undercut areas with blocking-out wax, and creating a working model after duplicating.

The film spruing technique, with a 10 mm wax main sprue, is waxed directly onto the 1.5 mm thick pink wax plate. This ensures complete material penetration into all areas.

Finished and highly polished Polyan IC occlusal splint.

Detailed view of Polyan IC
Best fit with glass-clear view!

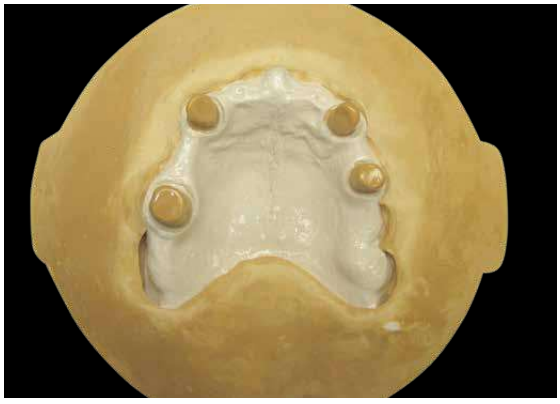
Bio Dentaplast telescopic travel prosthesis

Upper Model situation with 4 telescopes made of zirconium oxide

Telescopic prosthesis with transverse connector modeled on the duplicate model. Film sprue: Ø10 mm central channel with 1.5 mm tape feed on the prosthesis model and connector.

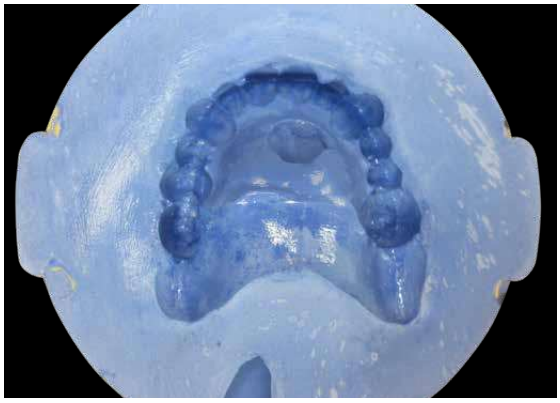
The Exakto-rock S stumps were reinforced with wire in the duplicate model (prevents breakage of the stumps).

Insulated duplicate model. The stumps were made of Exacto Rock S with metal reinforcement, and the model base was made of Expando Rock. For plaster mixing ratios, see the mixing table.
→ see page 11



Important

Please cast the telescopic stumps in the silicone impression with Exakto Rock S (REF 5700SB51) and reinforce it with a metal pin. After Drying the plaster stumps, fill the model base with Expando Rock (REF 5700ERS5). This ensures that you don't break off any blunt and the best fit results are achieved.



Upper counter-investment with injection moulding channel. Please insulate the model with Acrylic Sep.

The injection moulding is removed from the metal flask fitting perfectly on the duplicate model, which still has to be removed from the investing plaster.

Detailed view of telescopic work with transverse connectors for the model situation.

Bio Dentaplast telescopic work. Monochrome injected in one piece

Note

In principle, all areas should be accessible when investing. This allows for controlled boil-out, deburring, and isolation! Unlike with conventional model casting, undercuts for clasps (retention areas) must NOT be blocked out.

Manufacture of individual clamps from thermoplastic materials

Observe the indications for the individual materials!

Lower model situation

Wax-up of the clasping parts with retention appendixes

Film sprueing of the clasp model.

Clasps can be modeled closed (ring) and subsequently separated. This facilitates devesting safety.

Separated and finished clasps.
Hole retention cleats have been drilled into the appendix.

Tip

These clasps, made from thermoplastic materials, can also be incorporated into conventional chemoplasts (cold-curing polymers, uni.lign) for a more aesthetically pleasing result!

Simply take advantage of the wide product range and see for yourself the aesthetic and functional perfection in every detail.

Tooth protector silicone (Dentasil)

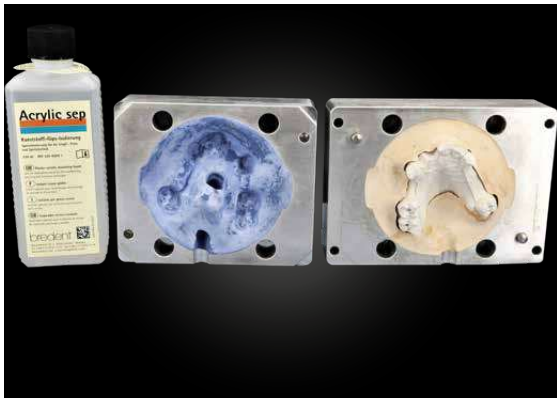
Dentasil protection silicone (REF 52000296 / Dispensing device REF 32000440) is the perfect aid when it comes to easily devesting teeth – without damaging them.

The plastic teeth are covered to such an extent that only the incisal edges and chewing surfaces remain in the plaster. This prevents raised bites caused by raised prefabricated teeth, which could be pressed into the silicone during the pressing proceedure due to the high injection pressure. This allows the dentures to be devested without problems after the injection process, and no compression occurs.

Note

Ceramic teeth, in particular, are invested stress-free with the Dentasil protection silicone, and unwanted chipping or even cracking in the ceramic during demolding is avoided.

Boiling-out, Steam cleaning and Isolating



When boiling out, steam cleaning, or insulating, care must be taken to ensure that no wax/plaster residue or insulating material buildup remains on the flask halves, in the screw channels, and in the cavities. If this occurs, this will result in raised bites and defective areas on the dentures being fabricated.

Boiling:

To completely degrease the plaster mold and remove all wax residue, a dash of dishwashing liquid is poured into the boiling water, and the plaster surface is then boiled—in other words, cleaned.

Insulation:

Acrylic Sep insulation (REF 52000294) is applied to the still warm gypsummodel 1 to 2 x thinly applied. The end result is a silky matte or shiny surface. Ifthe maximum absorption capacity of gypsum of insulating agent can causestreaks to form through the excess, torn insulation in the thermoplastic material.Please avoid this!

Wax emulsion agent:

Rinse thoroughly with clean water after boiling-out. Flask screws: Must be completely removed before theboiling-out process.

Alginate insulation: Not suitable!

Surface Conditioning

poly.link IC
Conditioning takes place 5 minutes before the spraying process. The assembly teeth are provided with all retentions and the connection surfaces to be conditioned are blasted accordingly, so that only the cuvette needs to be screwed on.

Coat the contact surfaces on the plastic teeth with poly.link IC three times within 5 minutes. Allow 30s to flash off between each process. After the last operation, immediately close the cuvette, insert the cuvette and start spraying.

crea.lign

powered by
visio.lign

crea.lign composites
visio.link is only applied to the surface, once it has been blasted with 110 µm aluminum oxide at 2 bar and cleaned of abrasive, it is then light-cured in the bre.Lux Power Unit or equivalent with a 90-second polymerization time.
The prefabricated teeth (neo.lign) and the Polyan IC denture base can then be customized with crea.lign composites

Notes

- Do not clean Polyan IC with alcohol!
- Please avoid contact of the surfaces to be conditioned with wax, plaster, grease (fingers) and silicone-containing materials.

Execution of the injection moulding process

Ensure that the correct parameters have been selected for the thermoplastics to be processed. The programs for the various materials are stored there. Apply thermal paste 400 to the cartridge.
When inserting the cartridge, position the "perforated side" (membrane) above the constriction on the cartridge, facing the cuvette opening in the heating chamber.
If any thermal paste is still visible at the opening of the heating chamber, remove it using a strong cotton cloth or disposable paper towel.

Important

If no thermal paste is used, contamination will occur in the heating chamber of the device and subsequent malfunctions in the pressing process! Clean the heating chambers with a wire brush after every second spraying process.

If a second spraying process takes place immediately after the first, please work with a time delay of 5 minutes. This allows you to complete operations with sufficient time buffer without overheating the material. Only 2 pressing processes can take place in quick succession at the same temperature.

Only close the flask with screws shortly before the actual pressing process (approx. 1 minute) and tighten/retighten them evenly.

Setting parameters/Quick Reference Card

Investing Techniques	Material	Target Temp. in °C	Heating time in min	Pressing time in seconds	Speed	Force	Flask Temperature in °C	Program space in thermopress 400 versions 2.4 to 2.61
Flask	Polyan IC	250 °C	15 min	60 sec.	8	145	40 °C	1
	bre.flex 2nd Edition	280 °C	15 min	90 sec.	6	165	60 °C	4
	Bio Dentaplast	195 °C	15 min	120 sec.	7	100	40 °C	5
Muffle	Bio Dentaplast	195 °C	15 min	120 sec.	7	100	40 °C	8

Fill empty cartridges and close correctly!

Important reminders:

Please do not introduce lubricants, impurities or moisture into the granulate or cartridge.

Always pre-dry granulate and cartridge with lid at 80 °C for 2 hours before filling the cartridges!

For example, type: bre.flex/500 g bulk granulate

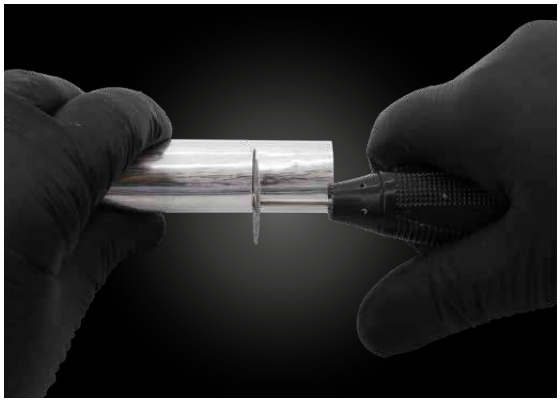
Select the correct cartridge size

Dispense the desired amount. The cartridge must have enough margin in order to be able to fold it onto the cap (cartridge edge / Projection: 1.5 mm).

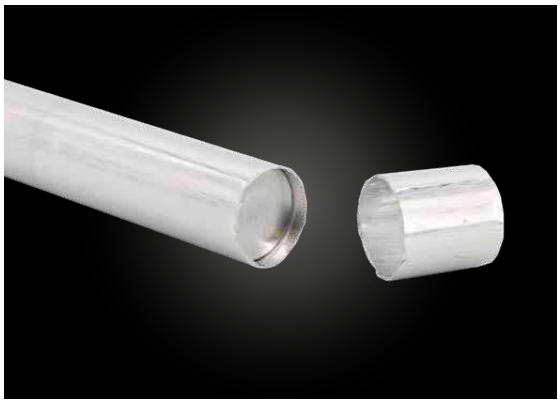
Standard filling at bredent			
540KL851	XL	Ø 21,8 mm x 125 mm	20-30 g
540KL852	L	Ø 21,8 mm x 110 mm	20-24 g
540KL853	M	Ø 21,8 mm x 90 mm	16-20 g
540KL854	S	Ø 21,8 mm x 70 mm	bis 16 g

Preparatory work:

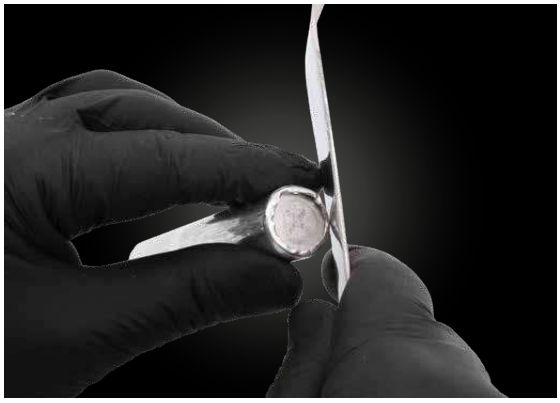
The lid, empty cartridge and the dosing cap with the Granulates must be pre-dried. The drying time depends on the respective material.
Read the instructions for use.



Carefully shorten using the Flex-TR diamond disc (REF 34000110) without crushing the cartridge.
Use low speed and remove any dust after shortening.



Reduce the length of the cartridge, leave about 2mm to close the cartridge.



Secure the lid by folding it slightly!

Once the cartridge has been closed check for fit in the heating element of the thermopress 400 (Avoid inserting into a hot heating element to avoid burn injuries).

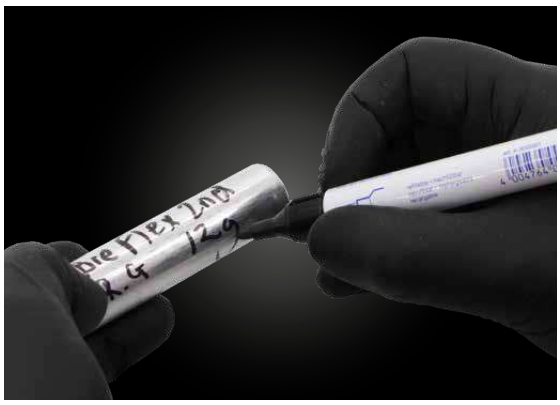
A perfect fit

Edge of cartridge for folding 1.5 mm!

Warning

- Do not crush the cartridge in!
- Do not fold the cartridge too tightly; the cartridge edge must lie flat against the cap!

Moisture can enter an improperly folded cartridge during storage! This moisture expands as water vapor during the heating process and can cause the cartridge to burst or leak material and damage the heating chamber.



Label the cartridge with the correct material and the fill level in grams.

Correct labelling prevents incorrect pressing if differentiation materials must be used. The cartridges must be dry and free of
Do not store moisture for too long - preferably immediately after self-drying filler material!

Correctly position the flask

Insert the flasks in the direction of the arrow, slide them along the frame toward the heating chamber, close the clamp, and lightly secure them with the front locking screw. Then tighten the right locking screw until it rests firmly against the frame.

Attention:
If the flask remains closed for a longer period of time before the injection process, form condensation in the cavities. This has a negative effect on the material quality, as this can lead to blistering and faulty areas on the finished injected denture.

When the beep sounds (heating phase ended), immediately insert it, lock it and trigger the pressing process (clamping bracket do not forget to fold down!).

After the pressing time has elapsed, release the clamping lever and fold it upwards and press the eject button. The remaining cartridge can now be removed using hammer and spatula and is knocked off the flask.

Remove the flask with the cuvette hook and place at room temperature. Allow to cool down. Devesting can take place after half an hour at the earliest.

Preparatory measures

Devesting

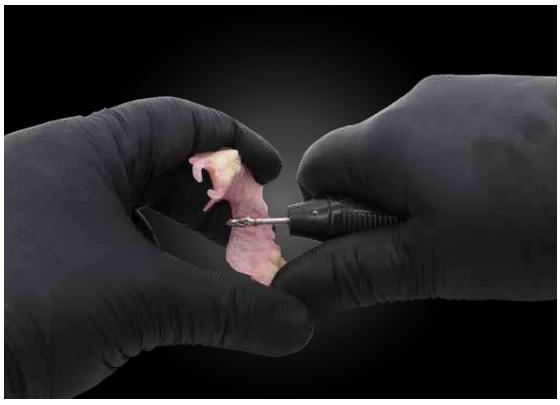
All four screws are completely removed from the flask before deflasking, place the flask across the embedding frame and on the embedding stamp by lightly tapping the free area on the top of the flask so that it is released from the gypsum embedding.

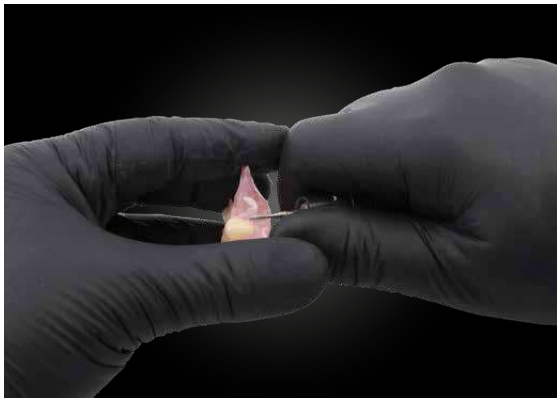
Then turn over the entire flask and use the second half-flask proceed in the same way. After removing both flask halves from the plaster mould, loosened, the thermoplastic denture using a plaster knife, plaster pliers or pneumatic chisel.

You can then use an instrument to remove the remaining plaster residue as usual.

Afterward, you can remove the remaining plaster residue with an instrument as usual. If properly insulated, the plaster particles will fall out of the areas below. If smaller plaster residues still adhere to the plastic, they can be blasted off using glass beads (50µm/2 bar).

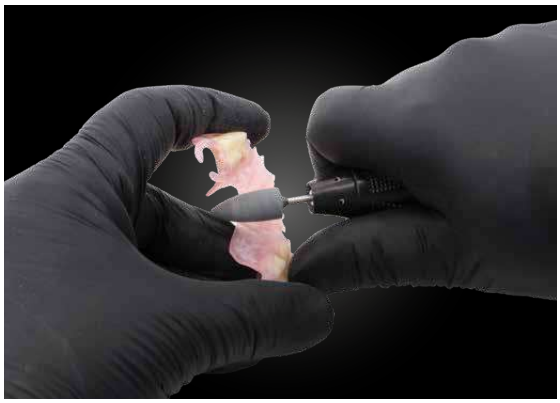
Clean the flasks and smear some petroleum jelly in the moulding area.





Once the prosthesis has been separated from the pressing sprue, you can start finishing in the normal way. It is good practice to trim with sharp burs with relative slow speeds.

Sandpaper can also be used up to 400 grit.



When using rubber wheels etc, care should be taken not to generate to much heat.

Pre and Final Polishing Wheels

REF

Abraso-Soft Acryl 50 mm	*REF 35001020*
Abraso-Soft Acryl 80 mm	*REF 35000800*
High Luster Buff Acrylic 60 mm	*REF 35000940*
High Luster Buff Acrylic 100 mm	*REF 35000820*

Pre-Polishing using the Abraso-Soft Acryl 80 mm brush.
This brush consists of a central, nonwoven fibre fabric and bleached Chungking bristles on the outside. These materials absorb more pumice and retain it for a longer time. The fibre fabric reduces friction heat.

for best results use a fine/medium grit pumice.

for pre-polishing in hard to get areas there is the 50 mm Abraso-Soft Acryl brush.

High Luster Buff Acrylic

The loose woven textile circulates the air during high luster polishing and prevents the surface being polished from overheating. Therefore, it polishes very gently.

REF

Abraso-Starglanz high luster polishing paste

2 x 50 ml *REF 52000163*

For polishing in hard to get areas there is the 50 mm High Luster Buff.

Processing Protocol

Abraso-Starglanz asg high luster polishing paste

VPE		
1	REF	**52000163**
	ml	2 x 50

Polishing acrylic set

VPE			
1	REF	**35000840**	
	Contents	1 x 150 g	Abraso-Star K50 light abrasive
		1 x 500 g	pumice stone polishing paste
		1 piece	Abraso-Soft Acryl
		1 piece	Abraso acrylic scourer
		1 piece	high-gloss buffing acrylic

Abraso-Gum Acryl Polisher, coarse

VPE		
1	REF	**P243HG10**

Abraso-Gum Acryl, Polisher medium

VPE		
1	REF	**P243HM10**

Abraso-Gum Acryl Polisher, fine

VPE		
1	REF	**P243HF10**

Abraso-Gum Acryl processing set

VPE		
1	REF	**35000992**
	Contents	1 Diatit tung. carbide bur REF **D263KG60** 1 Diatit tung. carbide bur REF **D200KF23** 1 plastic polisher, coarse green 1 plastic polisher, medium grey 1 plastic polisher, fine red

Abraso Soft Acrylic

VPE			
1	REF	**35001020**	**35000800**
	Ø mm	50	80

High luster buff Acryl

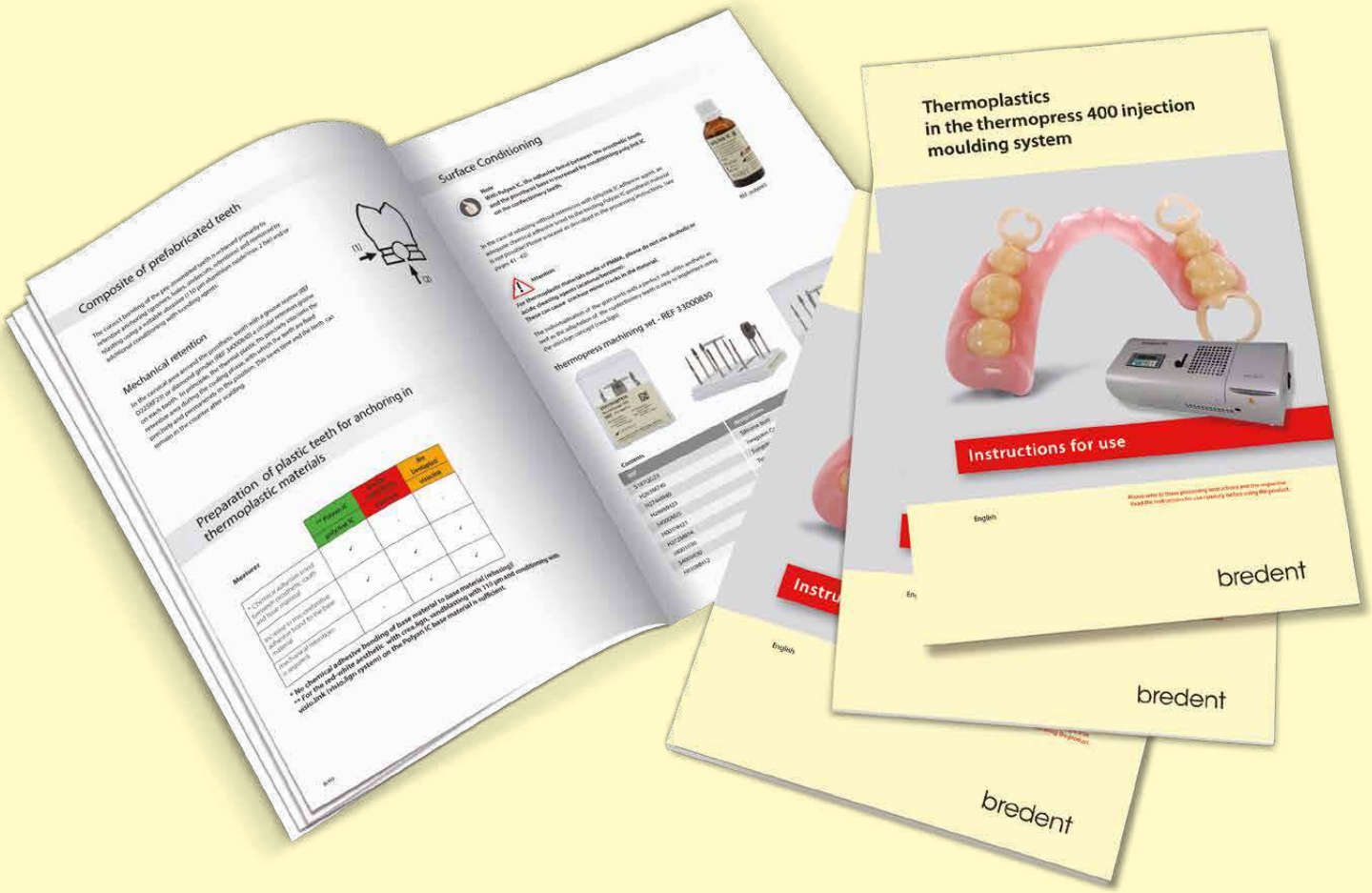
VPE			
1	REF	**35000940**	**35000820**
		40 layers	35 layers
	Ø mm	60	100

https://ifu.bredent-group.com/

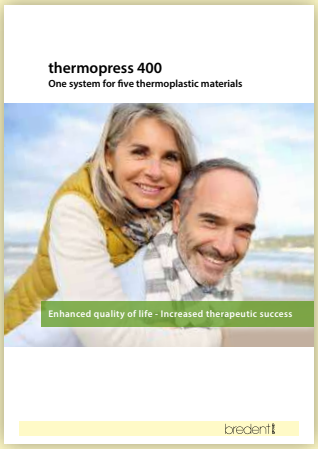
Simple download of instructions for use using a standard PC or mobile device and Adobe Acrobat Reader software. Free of charge at: https://get.adobe.com/reader/.
A printed version is available from the manufacturer within 7 days (in case of shipment to the EU).

Thermoplastics in the thermopress 400 injection moulding system

Instructions for use

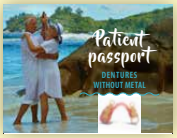


Other interesting offers for you:



Brochure
REF 000626GB

patient information
REF 000415GB



Patient passport
REF 000628GB

009830GB-20250314

50 years of bredent

bredent group

bredent GmbH & Co. KG · Weissenhorner Str. 2 · 89250 Senden · Germany · T: +49 7309 872-440 · F: +49 7309 872-444 · info@bredent.com · www.bredent.com