



Fabricating Flexible Partial Dentures - The TCS Way

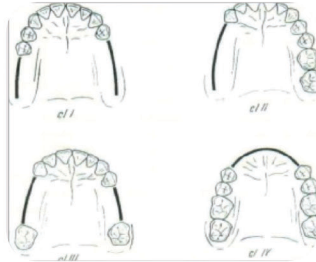
Step-by-step guide



1. DESIGN



An accurate impression is the first step and is key to a successful partial. Check for anatomical details, voids, and air pockets.



Study the case. Path of insertion, stability of remaining teeth (if any), etc. can play a roll in helping determine what resin to use, and to determine the appropriate design.

Flexibility. Flexibility of the resin is controlled by the thickness of the major connectors. Keep this in mind when designing distal extension cases (there should be very little lateral movement).

Attend our hands-on training classes to learn more about proper design.

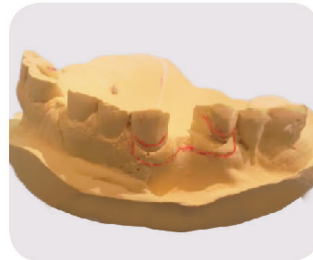
Sample design



Lingual apron design, rest on cingulum of anterior and above the height of contour on posterior lingual, include palatal seal.

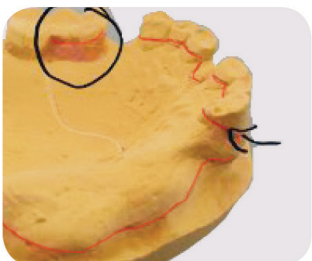


Buccal flange and clasp. **Note:** Use gingival contour to shape buccal clasp as shown.

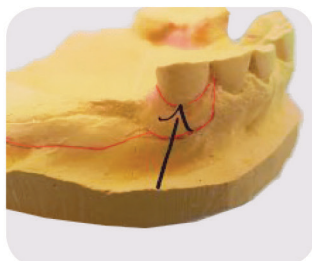


Bilateral buccal design.

2. BLOCK OUT



Use wax to blockout undercuts for path of insertion. Never block out 100% as retention is needed.



Note: Small amount of wax is used to relieve deep margins. Use little-to-no wax to blockout free end saddles.

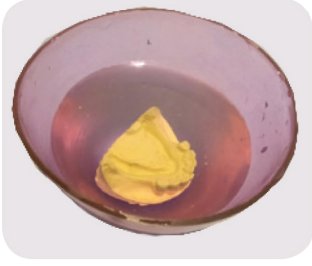


Relieve margins.

TCS Block-Out Mentality:

It is better to under blockout than to over blockout. You can relieve during the finishing stage, but cannot add. Play it safe.

3. DUPLICATING



Soak designed and blocked out master model.



Use all purpose hydrocolloid gel to duplicate the model. We recommend Type IV die stone for the duplicate.
TCS Pour Flask



Check duplicate for accuracy. From this point forward you will work on the duplicate model until you get to the finishing stage.

4. SETUP TEETH



Use Twist Drills for diatoric retention on teeth.

005- Item # 5005-01
006- Item # 5006-01
009- Item # 5009-01
012- Item # 5012-01

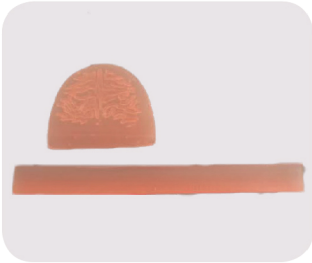


The bond between the resin and the teeth is mechanical. Drill 3 holes on each tooth; 1 on each side and 1 from the bottom. The 3 holes should meet in the middle (T-shape). For **Karadent™**, drill bigger holes due to its high viscosity characteristic.



Set the teeth.

5. WAX



Use TCS preformed waxes.

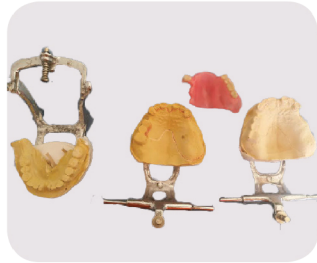
Palate Wax

Item # 5015-01 (80 box)

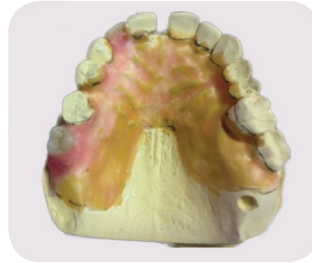
Lingual Wax

Item # 5020-01 (1 lb)

Note: Wax 1/8" from design line to allow room for grinding during the finishing stage.

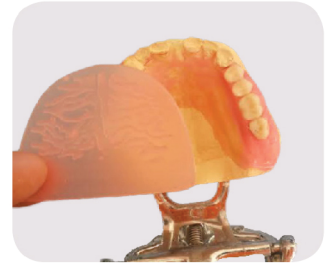


It is recommended to articulate duplicate while waxing to avoid open bite.



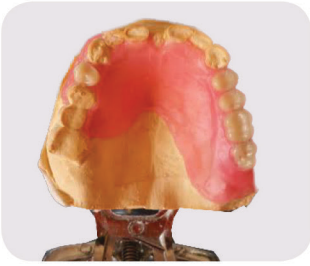
Lay a thin coat of melted wax on the palatal area and/or lower lingual section before using wax patterns. *(Like butter on bread)*

Note: For **Karadent™** full dentures and for free end saddles (of any TCS resin) skip this step and simply place 2 palate wax patterns.



TCS palate wax has a rugae side and a smooth side.

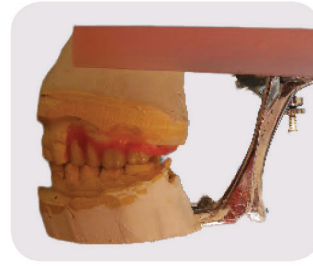
It is recommended to use the smooth side facing up. This will save significant time in the finishing and polishing stages.



Soften wax palate and gently fit on model. (Do not change the thickness by pressing too much).



Lingual bar wax can be used for buccal flanges and lower major connectors. Note the triangular shape of the lingual wax strip.



Soften strip and place the thin side against the teeth and the thicker side on peripheral roll.



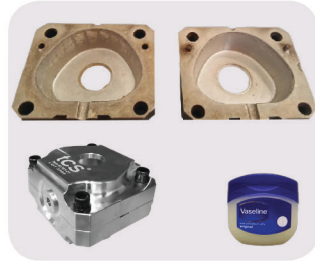
Refine wax and check occlusion.

6. INVEST AND FLASK



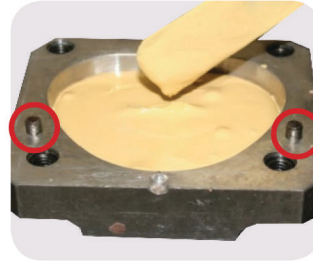
Trim the stone model **without** touching the wax to facilitate deflasking.

White Knock Down Wheel
Item # 4211-01
White Knock Down Chuck
Item # 4204-01



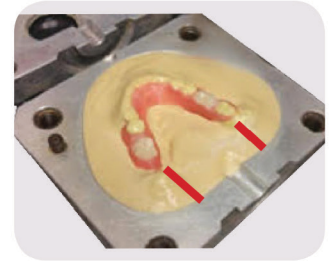
Apply a thin coat of Vaseline to both halves of the flask.

Injection Flask
Item # 3701-01



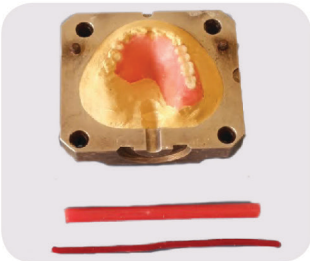
Use yellow stone (Type III). Pour stone into the bottom half of flask.

Note: The bottom of the flask has 2 screws.



Place the model so that it is leveled to the top of the flask, and 1.5 cm from the saddles to the front of the flask. Allow stone to set.

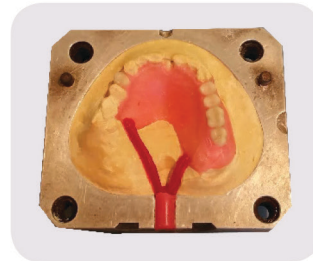
7. SPRUE AND PUTTY 95



Sprue Wax (0.5 gauge)
Item # 5024-01 (1 lb)
Sprue 9.5 Wax
Item # 5027-01 (5 pc - yields 50 injections)



Apply a **very thin layer** of Vaseline or tinfoil substitute to stone and allow to dry.



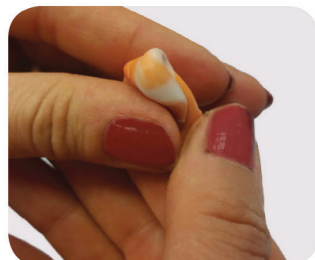
Place 2 sprues (0.5 gauge) on the far bottom ends of the wax. Avoid placing the sprues right below the teeth to avoid bubbles. Apply a small piece of sprue 9.5 wax to the flask opening.

Notes:

- Sprue 9.5 wax is the same diameter as the TCS injection flask opening.
- Typically 2 sprues is all you need to inject TCS resins. However, a 3rd sprue is necessary when using an air injector and for full dentures.



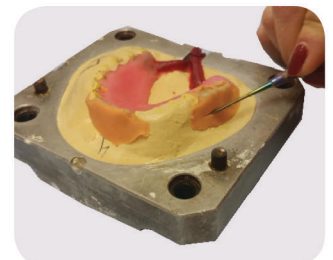
Putty 95- base & catalyst
Item # 4296-01 (400 grm ea.)
Item # 4291-01 (1 kg ea.)
Item # 4292-01 (5 kg ea.)



Mix equal amounts of TCS putty and catalyst (or similar putty with a minimum of 95 shore strength).



Apply a thin layer of TCS putty on the buccal side of the case for clean injection. This will save time in the finishing and polishing stages.



Remove excess putty.

8. FLASK AND BOILOUT



Close flask. Save time by securing 2 opposite screws only. Do not over tighten.



Pour stone to invest the 2nd half (use a vibrator to avoid air pockets). When stone sets, remove screws and proceed to boilout.



Open flask and clean thoroughly with hot water. Make sure there is **no wax in the diatorics**. Blow off excess water.

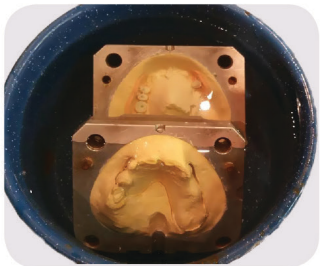
Note: TCS recommends drilling diatorics in teeth during setup, however diatorics can be done after boilout.



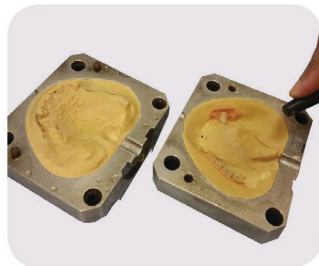
Use TCS cement to place teeth back in the stone. **Note:** If you used TCS putty to invest use a dab of crazy glue rather than TCS Cement.

TCS Cement
Item # 3801-01

9. PREPARE CASE FOR INJECTION / EZ FLOW SEPARATOR



Prepare flask to apply EZ Flow separator by placing the flask in cool water for approx. 15-20 min.



Air dry flask.



Paint EZ Flow on both halves of the flask. The coat should be thick and should cover all areas. It is safe to apply EZ Flow on the teeth, this will not affect the flow of the material during injection.

EZ Flow Item # 4217-01 (16 oz)



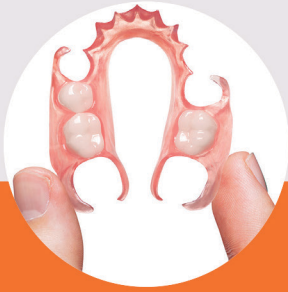
Stand flask halves for approx. 3 minutes to allow excess EZ Flow to drip. Be sure the surface looks wet before injecting.



Secure flask firmly. You are now ready to inject.

Note: EZ Flow must be applied on a **cool or room temperature flask**. The separator will evaporate if applied on a hot or warm flask.

10. CHOOSE YOUR RESIN



Unbreakable™

Nylon thermoplastic. *Millions of cases prescribed – proven success*

- Ideal degree of flexibility
- Lightweight and durable
- Guaranteed unbreakable
- Unbeatable strength
- Millions of cases prescribed – proven success
- BPA & monomer free

Time and Temperature:

Hydraulic Injector & Manual injector:
11 min | 550°F (288°C)

TCS Automatic Injector:
11 min | Set display at: 320°C | 145 psi



iFlex™

Polyolefin thermoplastic. *Ideal for technicians new to flexible partials*

- Ideal degree of flexibility
- Lightweight and durable
- Clinically unbreakable
- Easy chairside adjustments
- Quick and easy to finish and polish
- Stain-free
- High translucency
- BPA & monomer free

Time and Temperature:

Hydraulic Injector & Manual injector:
13 min | 450°F (232°C)

TCS Automatic Injector:
13 min | Set display at: 280°C | 145 psi



Karadent™

Microcrystalline polymer. *Ideal for full dentures, clear clasps & framework*

- Ideal for full dentures, clear clasps, frameworks, partial dentures & nightguards
- No volume shrinkage – exceptional fit
- Minimal water absorption
- Quick and easy to finish and polish
- Semi-rigid
- Easy to repair, rebase, and reline with acrylic
- An upgrade from acrylic dentures
- BPA & monomer free

Time and Temperature:

Hydraulic Injector & Manual injector:
14-16 min | 540°F (282°C)

TCS Automatic Injector:
14-16 min | Set display at: 310-320°C | 150-165 psi

**Important: melting time and temperature depends on furnace type, calibration, and brand.
For other injection systems please call 866-426-2970.**

Notes:

- › TCS resins are available in different diameter / type cartridges to fit different injection systems on the market.
- › All TCS injection units use 25 mm diameter cartridges.
- › All TCS cartridges are packed with 1 delivery bag, 1-week supply sample of TCS Denture CLEANER (in the US and Canada) for patients, and patient care instructions.

Shades.

Unbreakable™ & iFlex™



Light Pink | Standard Pink | Light/Dark Pink | Dark Pink | Natural (clasps)

Karadent™



Standard Pink | Clear (clasps & framework)

11. INJECTION

- › Spray cartridge and inside of furnace with Mold Release Spray.
- › Inject with flask at room temperature. When injecting with an automatic air injector, be sure to place the flask on the injector approximately 1 minute prior to injecting to avoid the flask from getting too hot.
- › Inject case and leave under pressure for a minimum of 3 min.



Mold Release Spray
Item # 3814-01 (12 oz)

Refer to YouTube videos, **channel tcsdentalinc**, for videos on all 3 TCS Injection Units.

12. DEFLASK



Allow flask to cool and remove screws. Gently brake the stone from the flask by hitting the opening (as shown above). Remove case by hitting the stone around the model. Do not open the case by pulling both side apart, this can cause the teeth to fall or warpage of the material.

Clean injections result from:

- › Clean waxup (use of TCS wax patterns)
- › Clean investing and proper spruing
- › Use of putty during flasking
- › Proper use of separator

13. FINISH & POLISH

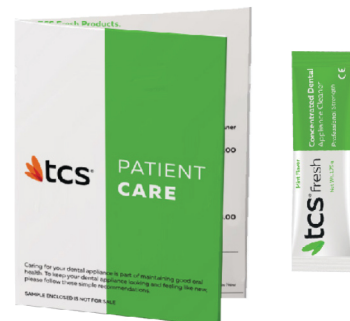
Refer to the finishing and polishing step by step guides:

- › Finishing and Polishing Step by Step Unbreakable™
- › Finishing and Polishing Step by Step iFlex™
- › For Karadent™ use Unbreakable™ techniques or traditional acrylic techniques.

Visit www.tcsdentalinc.com to download.

14. CASE DELIVERY

- › Proper care of dental appliance is vital to patient's health and the longevity of their appliance.
- › Deliver the case in the delivery bag with a little bit of tap water, together with the 1-week supply sample of TCS Dental Appliance Cleaner and the patient care instructions.
- › **Take the guesswork out of the appliance maintenance by including the sample cleaner and patient care instructions with the case.**



YouTube

YouTube channel:
tcsdentalinc

More step by step guides:

- › Repair
- › Rebase
- › and more

Visit www.tcsdentalinc.com to download or our YouTube channel: [tcsdentalinc](https://www.youtube.com/channel/tcsdentalinc)

 **tcs**®