

JP90 Handheld Injector

Operating Instructions



The JP90 Handheld Injector and JP90 Flask were designed to work in conjunction with the TCS Digital Furnace to inject thermoplastic clasps, 1-3 teeth unilaterals and up to 5 teeth saddles. Using this handheld injector completely eliminates the need to flask the case using the traditional method, saving time and money.



PLEASE READ MANUAL PRIOR TO USE

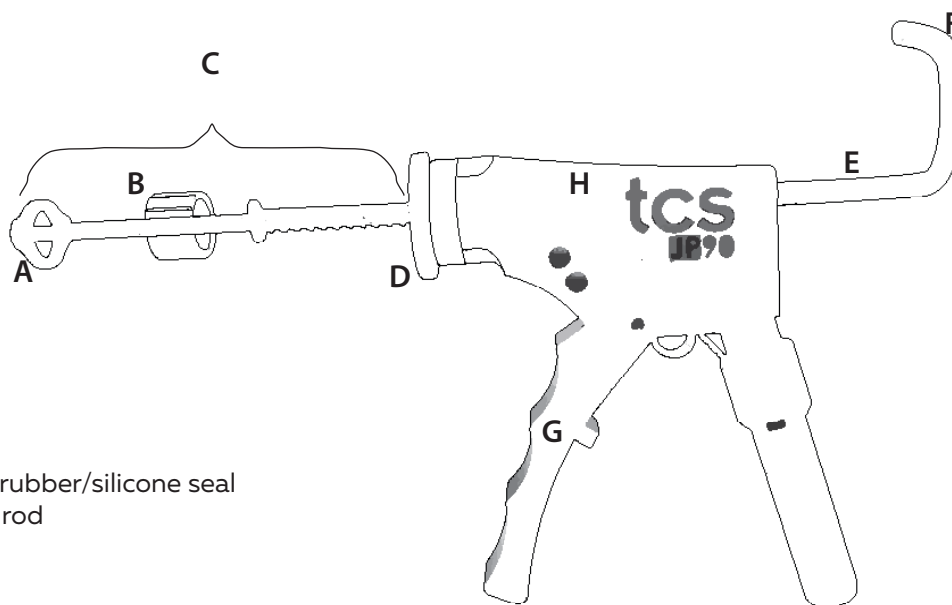
The JP90 Handheld Injector was designed with simplicity in mind, however, there is a learning curve to its use. There are specific tips and techniques that are crucial to successfully using this device. We included waxed sample cases for testing, we strongly recommend that you take the time to use them as practice for your first injections.

Please read the instructions carefully.



Special tips from the designer and technicians that are key for a positive outcome.

1. Get to Know the JP90 Handheld Injector



- A. Tip
- B. Ring
- C. Barrel
- D. Orange rubber/silicone seal
- E. Ratchet rod
- F. Tail
- G. Trigger
- H. Body

Items Needed:



TCS Digital
Furnace
3512-01



JP90 Flask
7005-JP



JP90 Bullets



Putty 95 (Base)
4296-01

Putty 95 (Catalyst)
4296-01



Matrix Pusher
7010-JP



Metal Sprue
7014-JP

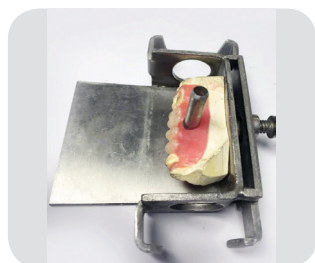
2. JP90 Flask

When to use the JP90 Flask:

- Flask case for: 1-5 tooth unilaterals, saddles, large repairs and/or additions
- Flask is not necessary for: Clasps and small repairs

Suggested JP90 Flask Positions:

Unilaterals



Slide the curved edge of the JP90 Flask lid into the slit when injecting unilaterals, repairs, and/or whenever possible. Inject through the top. Notice the placement of the model.

Combination Cases



Slide the straight edge of the JP90 Flask lid into the slit when injecting combination cases. Notice that the curved side holds the model in place. Inject through the side.

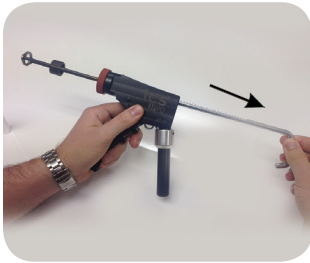
3. JP90 Bullets

Determine the Size of JP Bullets Needed:

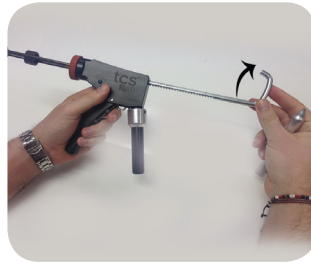
- Use small JP Bullets for: Clasps
- Use large JP Bullets for: 1-5 tooth unilaterals and saddles

4. Loading the JP90

a. Preparing to load the JP90 Injector



Rotate the ratchet rod so that the tail is facing down and pull all the way back.



Rotate the ratchet rod so the tail is facing up.

b. Determine size of JP Bullet needed (refer to bottom of page 2: "What size JP Bullets to use?")

c. Inserting a small JP Bullet (Note: different positions when flaking and not flaking)



JP Small Bullets are inserted through the mid section of the injector.

Note: They have a small lip that does not allow them to be inserted through the tip.



Align the tip of the JP Bullet with the tip of the JP90 Injector. See images in circles above. Squeeze the trigger until it is inserted approx. 2 mm inside the bullet, this may push the orange rubber (inside the bullet) in slightly. This secures the bullet in its proper position for injection.

Note: Use your finger as a stopper to keep the tip of the bullet aligned with the tip of the JP90 Injector.



Inserting a Small JP Bullet when **NOT Flaking**

Push the JP Bullet forward until the lip secures against the ring. Squeeze the trigger until it is inserted approx 2 mm inside the bullet, this may push the orange rubber (inside the bullet) in slightly. This secures the bullet in its proper position for injection.

d. Inserting a large JP Bullet



Insert the JP Large Bullet through the tip of the JP90 Injector.



IMPORTANT: The orange silicone/rubber has a circular groove that the JP Large Bullet needs to be pressed into. In order to do this, push in as you twist into place. This is important as it holds the bullet in place.

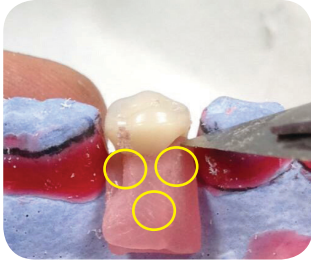
circular groove

IMPORTANT: Be sure the bullet is secure in the groove. If the JP Bullet slides out when tilted downward, it is not secured properly.

Step-By-Step (Using the JP90 Flask)

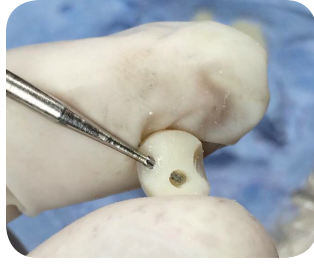
Note: Work on a duplicate model.

Note: This may be a good time to preheat furnace to recommended temperature.

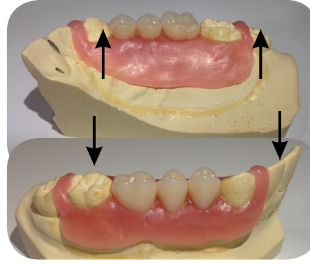


1. Set up and wax.

As with any thermoplastic injection, when setting teeth, be sure to leave enough space for material to flow. Specifically marked areas.



Tip: Make diatorics slightly larger than usual.

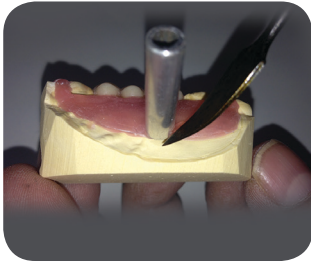


Tip: It is recommended to connect the tips of the clasps to ensure a full injection.



2. Trim model.

Trim the model to fit into the JP90 Flask. (Refer to page 2, "Suggested JP90 Flask Positions"). Leave enough space around the model for the putty. **Note:** Leaving the putty walls too thin may cause the matrix to break during injection and cause an open bite. The waxed lingual area should be parallel to the base of the flask or slightly tilted downward. This helps facilitate the flow of the thermoplastic.



3. Place sprue.

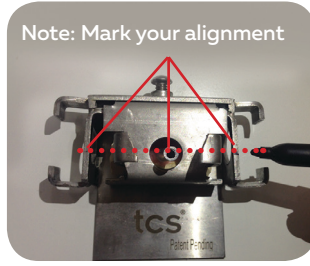
When placing the sprue, keep in mind that it needs to be centered to fit through the opening of the JP90 Flask lid. Gently push the metal sprue into the waxed case, without going deep enough to touch the stone model. Seal it with hot wax.

Note: Avoid placing the sprue too close to the teeth.



4. Position model.

Place the waxed model with sprue in the center of the JP90 Flask.

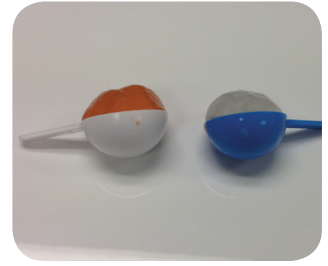


Note: Mark your alignment

5. Mark your alignment.

Ensure that the sprue is centered, by placing on the JP90 Flask lid. Remember that the JP90 Flask lid can slide in 2 positions, be sure to slide in the correct side. (Refer to page 2, "Suggested JP90 Flask Positions").

Note: To create a quick alignment guide for when the model (with the matrix) is placed back on the flask, it is highly recommended to use a sharpie to mark a dot at the center of each side of the flask.



6. Estimate amount of putty needed.

Scoop equal amount of base & catalyst. Average is approx. double the measuring spoons, as pictured.



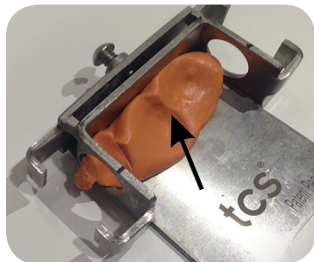
Tip: Use a 95 Shore A strength putty to avoid open bites.

Tip: Putting the putty in the freezer 2 to 5 min prior to use doubles the working time.



7. Combine putty.

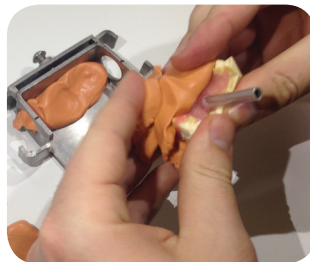
(refer to manufacturers instructions) TCS Putty offers approx 1:40 min of working time. Total set time is 3:20 min.



8. Create a matrix with the putty.

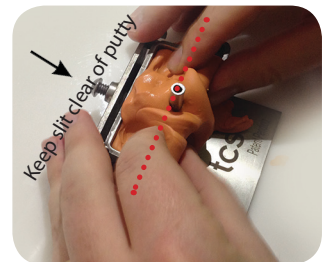
First place approx 1/4 of the putty on the flask base and up the wall to cover the 90 deg. angle between the back wall and the base. Make sure the angle has sufficient putty.

Note: Not putting sufficient putty at the bottom edge may create air pockets that may cause the model to shift.



Gently wrap and press putty around the model. Start by covering the teeth to avoid bubbles.

Note: Be sure that you are using enough putty to avoid gaps. Not using enough putty may allow the putty to expand, causing open bites and/or distorted injections.



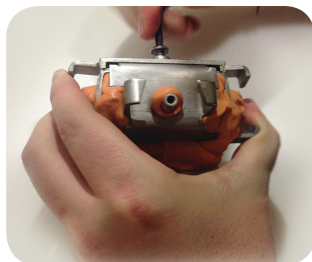
When flasking, follow the guides that you marked (in step 5) to center the sprue. You can also align by placing on the lid of the flask.

Note: Do not cover the slit that the JP90 Flask lid fits into.



9. Closing lid.

Making sure that the sprue is centered, push the lid all the way into the slit.



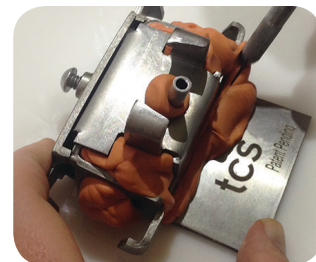
10. Secure lid.

Secure the lid with the Allen Key provided. This will prevent the putty from expanding.



11. Compress putty.

Use the matrix pusher to compress the putty from the side openings. This will compress the material, help avoid air gaps, and reduce excess putty that will need to be removed.



12. Remove excess putty.

Carefully use a scalpel or knife to cut excess putty from around the sprue area.

Note: Do not move position of sprue.



13. Remove sprue.

Once the putty has completely set and is hard, carefully remove the metal sprue.

Note: The opening can be distorted and cause material to back-flow during injection if the sprue is removed before the putty is hard.



14. Boil-out.

Completely submerge the JP90 Flask in boiling soapy water for approx. 15 minutes for a thorough boil-out.

Note: Place the flask with the sprue opening facing up during boil-out.



15. After boil-out.

Once boil-out is complete, remove excess water using air.

Note: Do not apply too much air pressure as this may cause teeth to shift.

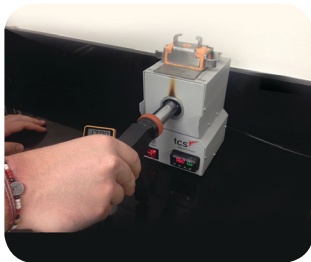
Place the flask on top of the furnace for approx. 15 min to keep it hot. This is conveniently done while the thermoplastic is melting.



16. Prepare JP90 Injector.

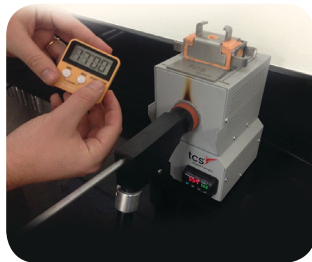
(Refer to page 3, "Loading JP90 Injector").

If you have not done so, preheat the furnace to recommended temperature. It is recommended that the furnace be at desired temperature for approx. 30 min before use to ensure that the entire mechanism is at temperature.



17. Insert into furnace.

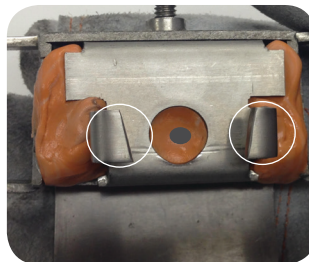
Insert the loaded JP90 Injector all the way into the furnace until the orange silicone/rubber creates a seal. (Creating the seal eliminates heat from escaping).



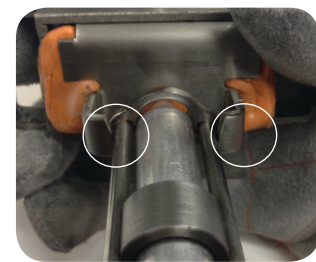
18. Set timer.

Immediately set the timer. Unbreakable™ 16 min, iFlex™ 12 min, Karadent™ 15 min.

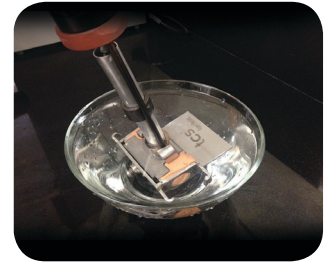
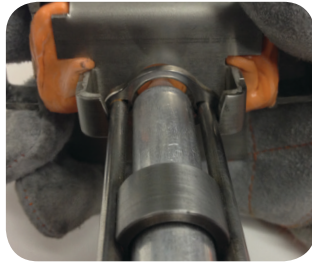
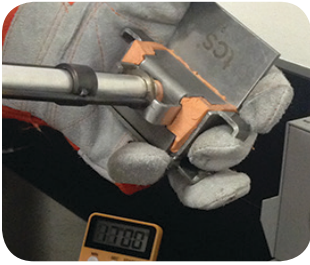
Note: Small and large bullets use the same time and temperature.



Note: Notice that the tip of the JP90 Injector sits on the angles of the JP90 Flask guide. The angles serve as support for the JP90 Injector during injection.



The following needs to be done carefully yet quickly as you are dealing with molten material that is quick to cool down.
USE GLOVES AND GOGGLES FROM THIS POINT FORWARD



19. Inject.

Hold the flask securely with one hand (use heat resistant gloves), making sure that the angles of the flask guide are properly positioned. Refer to note on previous page. Using your other hand remove the JP90 Injector from the furnace, keeping it in a horizontal position. Place the tip of the JP injector through the flask guide until it is in position. Quickly position the tip in the sprue opening and squeeze the trigger gently, once the tip of the bullet is inside the sprue hole squeeze faster. At first you will not feel resistance, when you start to feel resistance the material is flowing inside. At this point you will notice that you are pushing the trigger much slower and with more pressure than the first few squeezes. When you feel that no more material is flowing, hold the trigger in place, but do not apply more pressure. Holding it in place will prevent the material from backing up and causing air bubbles in the sprue area. Hold under pressure for approx. 2-3 minutes.

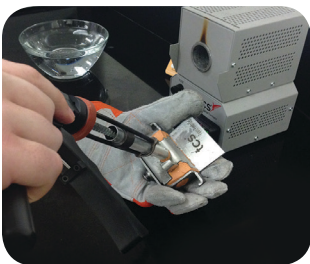


Tip: During injection it is not necessary for the trigger to be completely released before squeezing again. The faster you squeeze the trigger the better.

Tip: When you feel that no more material is flowing, hold the trigger in place, but do not apply more pressure. Applying too much pressure may cause open bites and/or distorted cases.

20. Cool down.

Hold trigger under pressure for approx. 1 min. Place the flask in room temperature water for another 1-2 minutes for cool down while still holding under pressure.



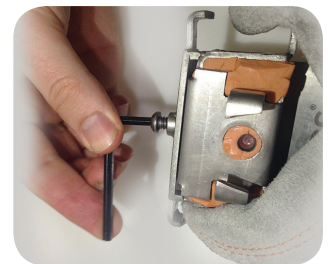
21. Remove JP90 Injector.

Rotate the JP90 Injector as you pull it out of the flask. The JP Bullet will stay on the flask.



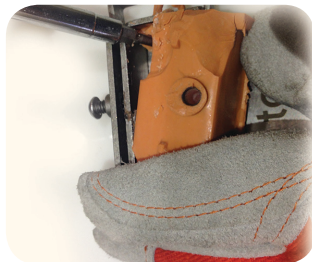
22. Remove JP Bullet.

Remove the JP Bullet by turning as if you were unscrewing it.



23. Open flask.

Use Allen Key to open the flask.



24. Separate flask.

Use a flat head screw driver or similar object to separate the flask from matrix.



25. Remove case.

Carefully remove the case from the matrix.



26. Finish and polish.

Proceed to finish and polish.



Tips

- Read all instructions prior to use.
- Use waxed cases included in kit to practice first few injections.
- When using the JP Large Bullets, make sure the bullet is fitted into the groove of the orange rubber/silicone seal.
- Flask case so that the wax is parallel to the base. Use common sense to determine the best flow of material.
- Be sure to boil-out completely.
- Be sure to put flask on the furnace so that it is hot when injecting, this helps with the flow of material.
- Time and temperature are very important.
- Act carefully yet quickly when injecting. The trigger needs to be pulled at a rapid speed.
- It is helpful to rest your arm or hand (that is holding the flask) on a hard surface for stability during injection.
- Do not apply excess pressure once trigger stops during injection, this may distort or open the bite of the case. This is a technique that you will acquire after a few injections.

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