

Impressions and impression trays

A **dental impression** is the negative form of the teeth and / or other tissues of the oral cavity. Made in a plastic material, which becomes relatively hard or set while in contact with these tissues.

One makes an impression in order to produce a positive form or a cast of the recorded tissues. Impression trays are the containers that are used to carry impression materials into the recommended field of work.

A tray: is a device used to carry, confine & control the impression material from the patient's mouth. During impression making the tray, facilitate insertion & removal of impression material from the patient's mouth.

A dental digital impression is typically made using an intraoral wand that is inserted into the patient's mouth and moved over the surface area of the tooth or teeth. Most digital impression systems use a chairside monitor to display the impression image as it is captured.

Parts of the tray: it consist of

- 1- Body: which consist of A. floor. B. flanges.
- 2- Handel.

- There are uppers tray to make impressions of upper arch & lower trays to make impressions of lower arch.
- The difference between them is that in the upper tray, there is the palatal portion we called (vault) & in the lower tray there is the lingual flanges.
- The handle is an extension from the union of the floor & labial flange in the middle region (midline), it's (L) in shape so that it will not interfere with lip during impression procedure.

According to the intended purpose of it, trays are classified as :

Stock trays: used for primary impression procedure.

Special (custom) trays: used for final impression procedure.

Stock tray: This type of the trays can be used for several patients & used for making primary impression.

They are made of different materials such as Al, Tin, Brass or Plastic, in variety of shapes, size to fit different mouth.

Types of stock trays according to patient dental status:

- 1- Stock tray for dentulous patient.



Parts of the tray



2- Stock tray for edentulous patient.

*We can distinguish between them by: stock trays for dentulous patient have long flanges, wide and flat floor, while the other have short flanges, oval and narrow floor.

Types of stock trays according to impression materials intended to be used:

1. Perforated stock tray used for example with alginate impression material.
2. Non- perforated stock tray, used for example with impression compound.

Factors effect in selection of stock tray:

- 1- The type of material used in the primary impression procedure. E.g. impression compound we used non-perforated tray, because it will be stick on the tray. Moreover, if we use alginate material we should use perforated stock tray.
- 2- Size of the arch.
- 3- Form of the arch. (Round, square, taper).
- 4- The stock tray must covered all the anatomical landmarks needed in complete denture.
- 5- Stock tray should give a sufficient space to impression material in all direction (4-5 mm).

Special tray (Individual or custom tray):

An individualized impression tray made from a cast recovered from primary impression. It is used in making a final impression.

On the primary cast, special tray is constructed as edentulous ridge show variations of shape & size, some have flattened ridges & other have bulky ridge, so stock tray can fit the ridge only in an arbitrary manner, so special tray is constructed.

Advantages of special trays:

- 1- Economy in impression material (used less impression material required in special tray).
- 2- More accurate impression.
- 3- Special tray provides even thickness of impression material. This minimize tissue displacement & dimensional changes of impression material.
- 4- The work with special tray is easier & quicker than modifying stock tray to provide accurate impression.
- 5- Special tray is more accurately adapted to the oral vestibules, this helps in better retention of denture.
- 6- Special tray are less bulky than stock tray which is more comfortable for the patient.

Materials used for construction of special tray:

1. Cold cure acrylic
2. Shellac base plate.
3. Impression compound (sometimes).
4. Heat cure acrylic (rarely).
5. Light cured resin (prepared using light chamber).
6. 3D printed resin (basically light, laser or U.V. cured resin).
7. CAD-CAM milled resin.

Types of special tray according to space provided:

- 1- Spaced special tray (with stopper or without stopper).
- 2- Closely fitted special tray.

Criteria for Special tray construction for a complete denture impression:

- 1- The impression tray must not impinge upon movable structures.
- 2- The borders must be under extended (2mm).
- 3- The posterior limits of the impression tray should be slightly over- extended to ensure inclusion of the posterior detail for development of the post-dam area in upper tray.
- 4- The tray should be rigid & of sufficient thickness that it will not fracture during its use.
- 5- The tray must have a handle for manipulation & the handle must not interfere with functional movement of the oral structures.
- 6- The tray must be smooth on its exposed surfaces, and should have no sharp corner or edges, which would harm the patient.