

## ***Record Base and Occlusion Rims***

**Record base:** an interim denture base (temporary denture base) used to support the occlusal rim (record rim) material during recording maxillomandibular relation.



### **Requirements of record base:**

1. Must have rigidity.
2. Must have accuracy and stability.
3. Should be smooth, round and polished (without sharp edge).
4. Its borders should be developed in the same manner as borders of finished denture.
5. The crest, labial and buccal slopes (flanges) should be thin to provide space for teeth arrangement.

### ***Types of record bases:***

**A-** Temporary record base:

They are discarded and replaced by denture base material, their role is to establish jaw relation, teeth arrangement and try in of wax denture.

## B- Permanent record base:

They are not discarded and become part of the actual base of the finished complete denture.

### ***Types of materials used in construction of temporary record bases:***

1. Shellac base plate
2. Reinforced shellac base plate.
3. Cold cure acrylic resin.
4. Visible light cure acrylic resin.
5. Vacuum formed vinyl and polystyrene.
6. Base plate wax (rarely used because it lacks rigidity and dimensional stability).



### ***Types of materials used in construction of permanent record bases:***

1. Heat cure acrylic resin.
2. Metals: A- Gold.  
B- Chromium-cobalt alloy.  
C- Chromium-nickel alloy.



## **Occlusion Rims (record rim or bite rim):**

Is the occlusal surfaces fabricated on a record base for the purpose of making maxillomandibular relationship records and teeth arrangement.



## **Requirements of occlusal rim:**

1. The position should be in the anticipated position of the artificial teeth.
2. It must be securely attached to the base.
3. The occlusal surface must be smooth and flat.
4. It should be contoured to support the lip and cheeks accurately.
5. All the surfaces should be smooth.

## ***Materials used in construction of occlusal rims:***

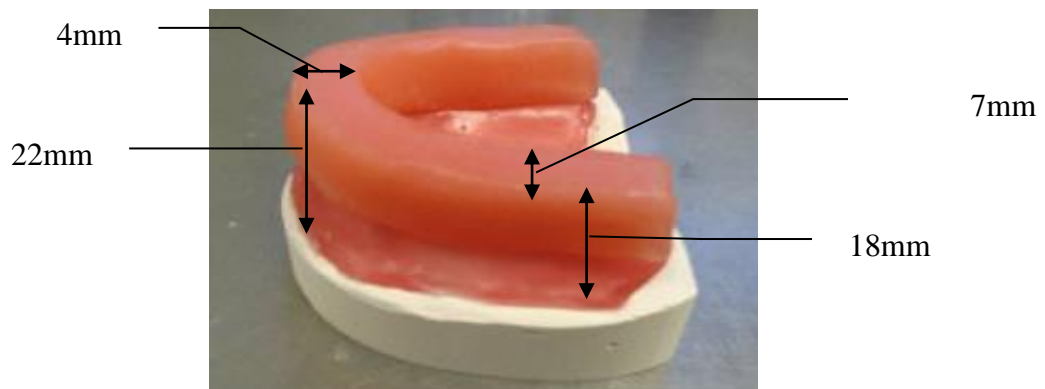
1. Wax:
  - a. Bite blocks wax (readymade occlusion rim).
  - b. Base plate wax sheets or paraffin wax (hand made occlusion rim).
2. Modeling compound.

Wax is used more frequently, since it is easier to manage in the registrations and in the arrangement of teeth.

## ***Measurements of maxillary occlusion rim:***

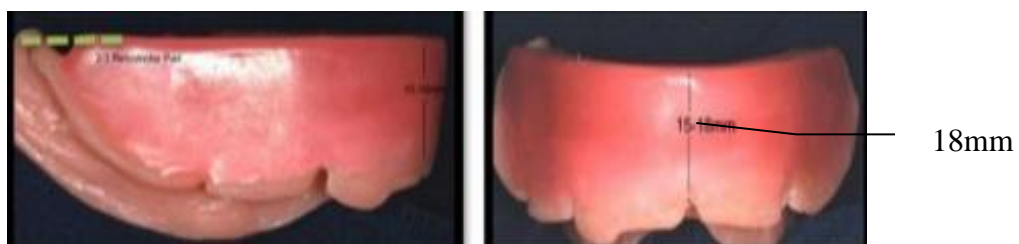
1. The maxillary rim should have a slight labial inclination and the maxillary labial surface should be 7mm anterior to the line bisecting the incisive papillae.

2. They should be directly over the crest of the residual ridges.
3. The final wax rims should be 4mm wide anterior and gradually, become wider posterior to measure 7mm.
4. The occlusal height of maxillary rim should be 22 mm from the labial flange lateral to the labial frenum and 18 mm from the buccal flange to the tuberosity area.



### **Measurement of mandibular occlusion rims:**

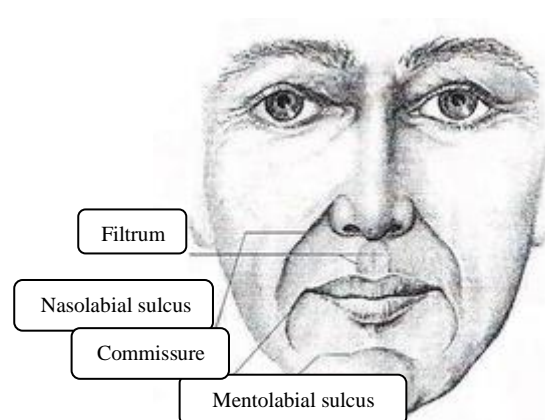
1. It should occupy the space over the crest of the residual ridge.
2. The labio-lingual thickness should approximately 4mm anteriorly and also increase posteriorly to be 7mm in molars area.
3. The occlusal height should be 18 mm from the labial flange lateral to the labial frenum and should be level with the acrylic base posteriorly.



- ✚ All above points regards in the laboratory work, while in patient mouth we have other guides used in occlusion rims construction.

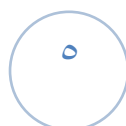
***The best anatomic guides to aid in determining the proper contouring of anterior section of upper and lower occlusion rims:***

1. The naso-labial sulcus.
2. The mento-labial sulcus.
3. The philtrum.
4. The commissure of the lips.



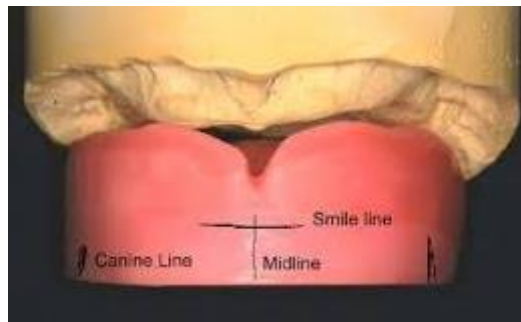
**Uses of occlusion rims:**

1. In determination of jaw relation which include:
  - a. Determination of the vertical dimension.
  - b. Determination of the centric and eccentric jaw relation.
2. In selection of teeth:
  - a. The position of midline can be determine.
  - b. Canine line (cuspid line) is drawn on occlusal rim at the corner of mouth on each side when occlusion rims seated in mouth and in occlusion. Width of 6 anterior teeth is equal to distance between the 2 canine lines. Width of posterior teeth is equal to distance between the canine line and end of wax rim posteriorly.
  - c. The high length of anterior teeth is determined by drawing high lip line (gum line, or smiling line) When patient smiling the whole of anterior incisor should be seen.



d. The low lip line (speaking line, or relaxed lip line) is line drawn on wax rim when lip is relax, in this case 2 mm of anterior teeth should be seen.

3. Setting up (arrangement) of teeth.
4. Orientation of occlusal plane.
5. Determination the shape of the arch.
6. Support of the facial musculature.



### **Occlusal plane:**

It's an imaginary surface which is related anatomically to the cranium and theoretically attached the incisal edges of the incisors and the tips of cusps of the posterior teeth (The average plane established by the incisal and occlusal surfaces of the teeth).

### **Upper occlusion plane:**

The height of the upper occlusal plane should be 1-2 mm below the relaxed upper lip and this will be different from patient to other and affected by:

1. Age of the patient.
2. Sex of the patient.
3. Type of the lip.

Generally there are 1-2 mm showing from the upper incisors in the average dentulous patient but each case should be considered separately in relation to the height of the lip, age of the patient and

sex of the patient, e.g. for the patient that have long lip the height of the occlusal plane should be with the border of the upper lip, while for the patient with short lip there is more than 2 mm showing from upper occlusal plane. So each case should be considered separately for best appearance.



### **Fox bite (Fox plane guide):**

An appliance used to check the parallism of the maxillary wax occlusal rim anteriorly and posteriorly.



- A- The anterior part of the wax rim should be parallel to the inter-pupillary line (this is an imaginary line running between the centers of the 2 pupils of the eyes when the patient is looking straight forward).
- B- Posteriorly the occlusal plane starting from the canine region backward should be parallel to the Camper's line.

**Camper's line:** It is a line running from the ala of the nose to the superior border of the tragus of the ear (ala- tragus line).



### **Lower occlusion plane:**

In the mandible the level of occlusal plane established anteriorly by the cusp height of lower canine near the commissure of the mouth and established posteriorly with the level of retromolar pad.

The curvature of the anterior portion must simulate the curvature of the edentulous arch



### **Technique of construction upper occlusion rim:**

Acrylic record base first constructed then the bite rim made.

Base plate or paraffin wax used in bite rim construction (hand made occlusion rim).

#### Technique:

1. Place acrylic maxillary record base on the cast.
2. Heat a sheet of baseplate wax in the Bunsen burner until the wax is





very pliable (soft).

3. Roll the wax into long tube.
4. Starting wax adaptation at the tuberosity, press the roll of wax against the crest of the ridge (over the record base).
5. Seal the wax to the record base with a hot wax knife. If necessary, fill in voids with additional wax.(Lower occlusal rim the same technique)

