

MINOR CONNECTOR

Definition:

**“The connecting link between the major connector or base of a RPD
and
other units of the prosthesis, such as the clasp assembly, indirect retainers,
occlusal rests, or cingulum rests.”**

Requirements:

- Rigid to distribute stress between linked components**
- Must not impinge on underlying mucosa; tissue relief is needed in the mandibular arch**
- Mucosal surface should be highly polished to prevent plaque accumulation**

Functions

- 1. Connects components to the denture parts
- Major connector
 - Direct retainer
 - Indirect retainer
 - Denture base



Functions

- 2. Transfers functional stress to abutment teeth and throughout the dental arch
(PROSTHESIS TO ABUTMENT FUNCTION)
- Occlusal forces on artificial teeth is transferred to:
 - Base to underlying ridge
 - Abutment teeth through rest

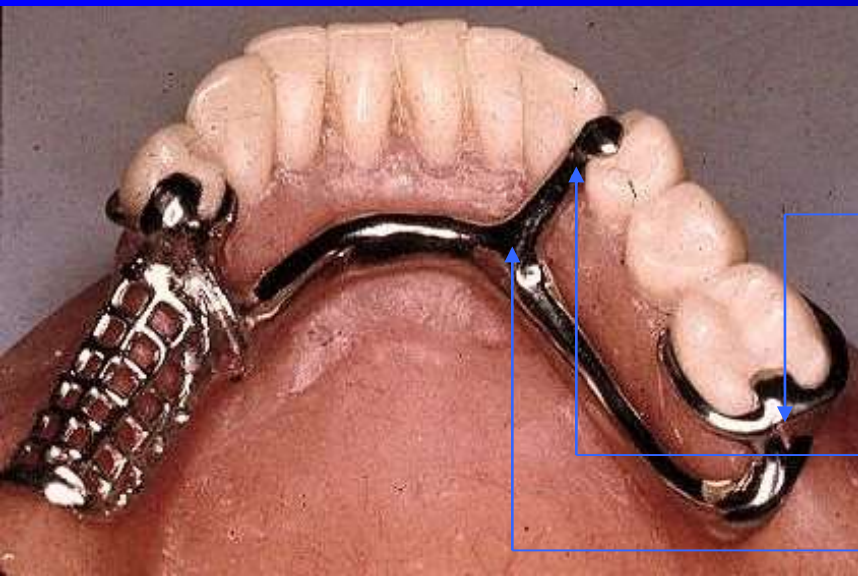
Functions

- 3. Transfers effects of retainers, rests and stabilizing components throughout the prosthesis
- (ABUTMENT TO PROSTHESIS FUNCTION)
- The forces applied on one portion/one side of denture may be resisted by other components placed elsewhere in the arch

Form and location

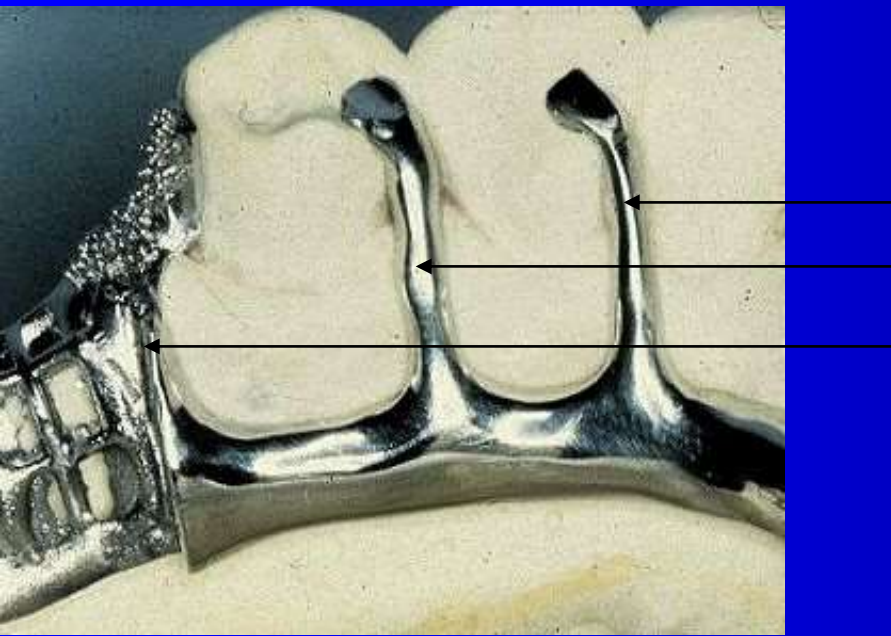
- Sufficient bulk to be rigid.
- Minor connector contacting axial surface of abutment teeth should not be located on convex surface, instead should be located on the embrasure.
- Should conform to the interdental embrasure.
- Should be thickest towards the lingual surface, tapering towards the contact area.





Usage:

- minor connector and rest junction must be at least 1.5 mm thick
- try to place interproximally
- joins major connector at a right angle



- should be located at least 5 mm from other vertical components

TYPES

- Clasp assembly minor connectors
- Indirect retainer or auxiliary rest minor connector
- Denture base minor connector
- Approach arm minor connector

TYPES OF MINOR CONNECTORS



Joins clasp assembly to the major connector



Joins an indirect retainer to the major connector



Serves as approach arm for bar type clasp



Joins resin denture base to the major connector

1. Clasp assembly Minor Connectors

- Located in proximal surface of teeth adjacent to edentulous area
- Embrasure between two adjacent teeth



1. Clasp assembly Minor Connectors

- Embrasure Minor Connectors
 - Triangular shaped in cross section
 - Joins major connector at right angles
 - Relief placed so connector not directly on soft tissue



2. Denture base major connector

- Joins denture base to major connector
- Should have sufficient strength and rigidity
- Must not interfere with teeth arrangement
- Max-should extend to cover tuberosity
- Mand distal extension- $2/3^{\text{rd}}$ of length of residual ridge

Minor connector that join denture base to major connector

May be –

- Of latticework construction
- Of mesh construction
- Bead ,wire,or nail head minor connectors



Latticework

- 2 struts(12-16 gauge) running longitudinally along edentulous space with smaller struts running across crest of ridge connecting them
- Mandibular-two struts buccal other lingual
- Superior retention &strongest attachment
- Interferes with setting of teeth, if struts are too thick
- Indicated for multiple teeth replacement
- Easiest to reline



Meshwork

- Flatter
- Potentially more rigid
- Less retention for acrylic if openings are small
- Difficult to pack acrylic
- For multiple teeth



Tissue stops

- Both the designs require acrylic to flow beneath and around so ,a tissue stop is required
- Provides stability and prevents distortion during packing and curing of resin
- Contacts ridge after casting

Tissue stops

- Integral parts of minor connectors– retention of acrylic resin bases.
- Provide stability for frame work during the stages of transfer and processing.
- Prevents distortion of framework during acrylic resin processing
- Engage buccal and lingual slopes for stability.



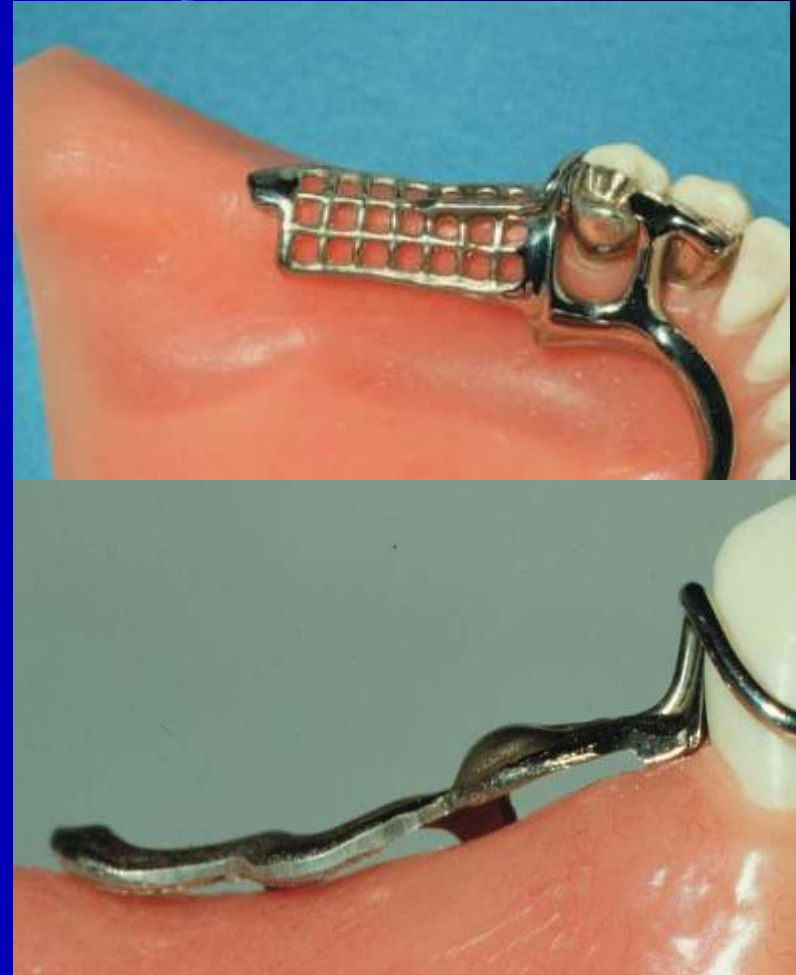
No Tissue Stops In Maxilla

- Maxillary major connector acts as a tissue stop (no relief)



Mandibular Tissue Stops

- Contact of metal with cast at posterior of distal extension gridwork
- Prevents distortion at free end during hydraulic pressure of processing



Relief

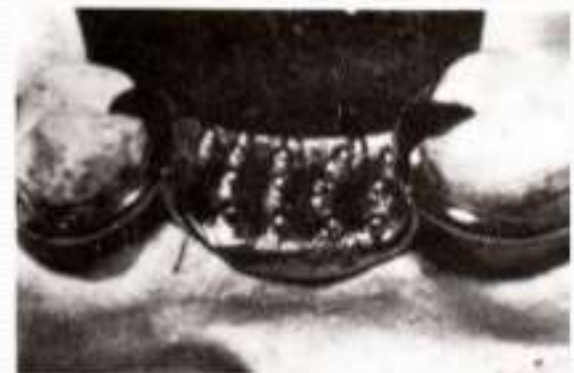
- Mechanical retention of denture base resin
- Allows the acrylic resin to flow under the gridwork
- 2 square mm of relief wax used
- After casting this projection contacts edentulous ridge of cast and prevents distortion of framework during acrylic packing



Bead wire, or Nail head retention

(Minor connector)

- Metal denture base
- No relief provided.
- Attached to outer or superior surface of metal base.
- Retention by projections of metal on this surface.
- Projections may be – beads, wires, or nail heads.
- Denture base – hygenic because of better soft tissue response to metal.



Shortcomings –

- Difficult to adjust metal base.
- Cannot be adequately relined.
- Weakest attachment of 3 types.

“Should be used on tooth-supported, well healed ridges when interarch space is limited.”

Attachment to major connector

- Acrylic resin minor connector must be joined to major connector with sufficient bulk to avoid fracture.
- Must join in a smooth, even joint.
- Irregularity b/w surface irritates tongue or mucosa of the ridge.
- Acrylic resin- butt joint must be made on both internal and external surfaces of the major connector.

- For metal base minor connector – single butt joint .
- Butt joints – finish lines.
- Outer aspect – external finish line.
- Internal or tissue side – internal finish line.



Finish lines

- Finishing line junction with major connector- angle not greater than 90 degree.
- Finish line located too far medially- natural contour of palate altered by thickness of acrylic resin.



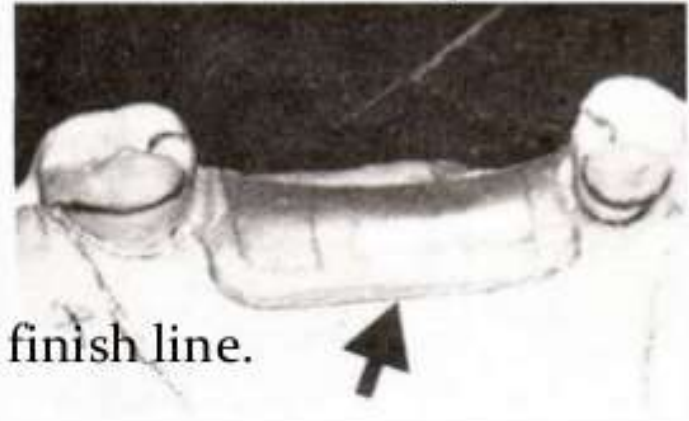


- Too far buccally- difficult to create a natural contour of acrylic resin on lingual surface of artificial teeth.
- 90 degree butt-type joint given for junction of minor connectors and bar-type direct retainers.



Internal finish lines

- Formed from relief waxes used over edentulous ridge on master cast.
- 24-26 guage thick.
- Margins of relief wax – internal finish line.
- Ledge created by wax – sharp and define



Relief

- Relief wax is placed in edentulous areas
- 1 mm of relief

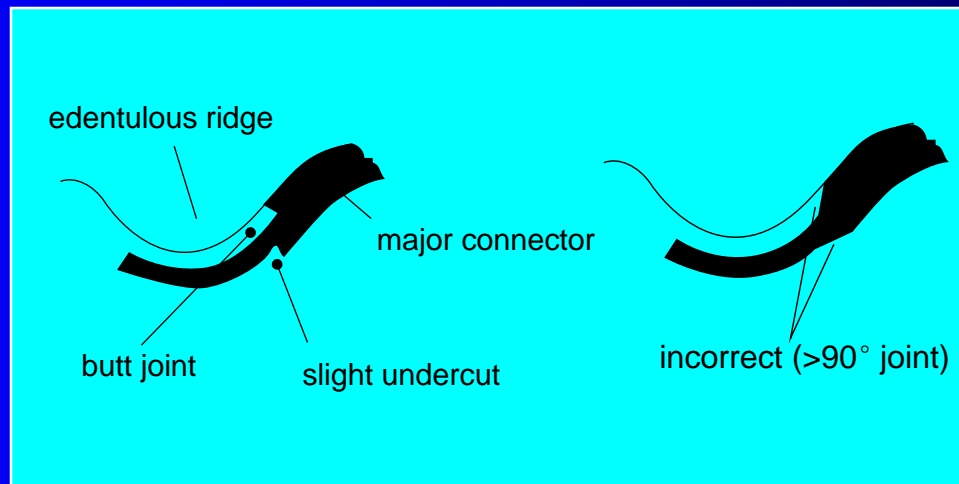


External finish lines

- Sharp and definite and should be slightly undercut to help lock acrylic resin securely to major connector.
- Angle the finish line forms with major connector – less than 90 degree.

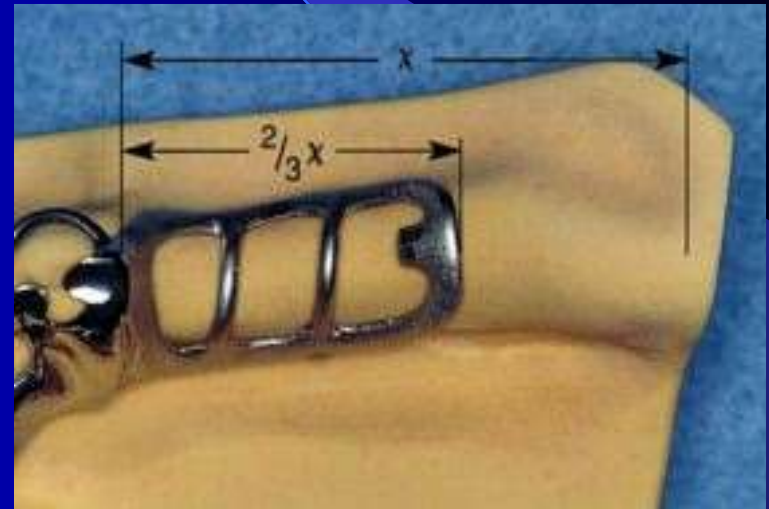
Junction With Major Connector

- Butt joint with slight undercut in metal
- Maximum bulk of the acrylic resin
- Prevents thin, weak edges fracturing



Mandibular Design

- Extend $\frac{2}{3}$ of the way from abutment tooth to retromolar pad
- Never on the ascending portion of the ridge



Stewart's, Fig. 2-55

Maxillary Design

- Gridwork
 - 2/3 of the length of from abutment to the hamular notch
- Major connector
 - extends fully to the hamular notch
- Gridwork
 - Should not interfere with opposing denture base/tissue



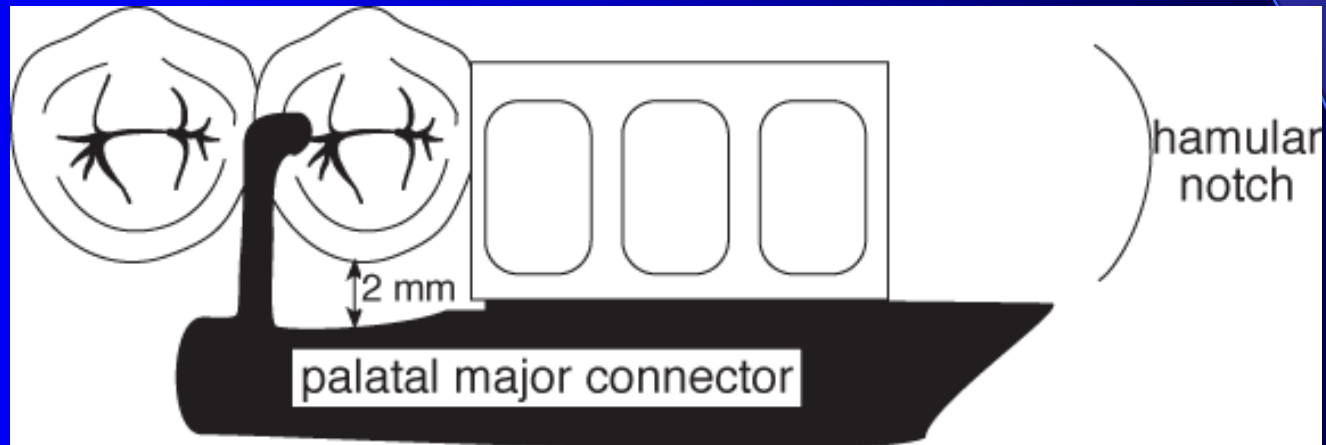
Gridwork Design



Facially just over the crest
of the residual ridge

Position of Major Connector Junction

- Should be ≈ 2 mm medial to lingual surface of denture teeth



Position of Major Connector Junction

- Ensures bulk of resin around teeth



Minor connector that serve as approach arm for vertical projection or bar-type clasp.

- Only non rigid minor connector.
- Supports a direct retainer that engages an undercut on a tooth from below.
- Approaches tooth from gingival margin.
- Should be smooth, even and taper from its origin to its terminus.

- Must not cross a soft tissue undercut.
- Considered in great depth when direct retainers are used.



4. Indirect retainer or auxiliary rest

- Connects indirect retainer and auxiliary rest to major connector
- Should form right angle with major Connector but junction should be gentle curve
- Lies in embrasures

