Establishment and instrumentation of the dental clinic

Semmelweis University Faculty of Dentistry
General Dental Preclinical Practice

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Dental Office

- Simple
- Ordered (uncluttered)
- Good ventilated
- Easy to clean
- Curved edges
- 9 m² / dental chair
- 2.5 m headroom
- 2.1 m high tiled
Dental treatment
THE DENTAL UNIT
Hand pieces (different driving force: manual, foot, electric, air)

- Driving force:
  - manual and foot driving handpieces: 1871 Morrison
  - electric driving: micromotor
  - air driving: turbine

- Hard tissue preparation (enamel, dentin); caries preparation, preparation for crowns, bridges, inlay, onlay, etc. denture correction, dentolaveolar surgeries
Handpieces

- **TURBINE**

- There are paddles in its head
- **AIR** or **BALL BEARINGS** turbine (ceramic balls)
- During the turbine’s working, the air goes between the paddles and opens a channel for outgoing. If we stops the handpiece, the paddle closes the coming air.
- 450.000-500.000 rpm/min
- Compressed air
- Ball bearings
- Friction grip attachment
- Performance related!
- Connected to the clutch
Light

• Become popular over the last 20 years
• Illuminating the treatment site
• Fiber optic system
• LED or halogen lamps

Cooling

• Prevent overheating of the pulp.
• The abraded material is removed
2. Micromotor handpieces „Groove design”

A. Electric driven
- 40,000 max rpm/min
- Constant power

B. Air driven
- 20,000 max. rpm/min
- Constant power

➢ Direction of rotation can be changed
Micromotor’s speed can be changed by accelerators or reductors

<table>
<thead>
<tr>
<th>Ring Type</th>
<th>Electric driven</th>
<th>Air driven</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blue ring 1:1</strong></td>
<td>4.000-40.000</td>
<td>5.000-20.000</td>
</tr>
<tr>
<td><strong>Red ring 1:5</strong></td>
<td>20.000-200.000</td>
<td>25.000-120.000</td>
</tr>
<tr>
<td><strong>Green ring 5:1</strong></td>
<td>800-8.000</td>
<td>1.000-4.000</td>
</tr>
</tbody>
</table>

Cooling: inner/outer
Straight handpiece
Burrs

- Head
- Connector
- Shank

Metals

Diamonds
- Four different diamond grits
  - Extra coarse
  - Coarse
  - Medium
  - Fine
  - Extra Fine

COLOR CODE
### Burrs
**ISO (International Organization for Standardization)**

- **ISO 806 314 033 526 031**
- **A B-C D E F**

<table>
<thead>
<tr>
<th>A: material of the head (gyémánt: 806)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: length of the handle</td>
</tr>
<tr>
<td>C: length of the bur</td>
</tr>
<tr>
<td>D: form/shape of the head</td>
</tr>
<tr>
<td>E: grit</td>
</tr>
<tr>
<td>F: diameter of the head</td>
</tr>
</tbody>
</table>

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**Table:**

<table>
<thead>
<tr>
<th>Größe/Size/taille ø 1/10 mm</th>
<th>021</th>
<th>027</th>
<th>027</th>
</tr>
</thead>
<tbody>
<tr>
<td>Länge-Length in mm-longueur</td>
<td>6.5</td>
<td>7.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

**Shank ISO REF**

- FG 806 314 033 524... 899-... M-FG 021
- FG 806 314 033 544... 899-... SC-FG 021
- FG 806 314 033 534... 899-... C-FG 021
- FG 806 314 033 514... 899-... F-FG 021
- FG 806 314 033 504... 899-... SF-FG 021
Attachment: Friction grip (FG)
Attachment: latch type (LT)
Foot control
Dental operating Light

- regulation of luminous intensity
- 5000 LUX 1 m far from the surgical area
Assistant side

- Curing light
- Oral vacuum
- Saliva ejector
- Touch pad
- Cuspidor
- (Air water syringe)
Dental chair

- Ergonomic formation
- Assistant’s chair is 10 cm higher for the better view
- Footrest
- Armrest
Possibilities

- Monitor
- Oral camera
- Sandblow/Airflow
- Endodontic handpiece
Hand Instruments

- Materials:
  - Stainless steel
  - sharpening
  - Carbon steel
    - corrosion
  - Curette, excavate, carving
Hand Instruments Design

- "C" Handle
  - Portion of the instrument where the operator grasps.

- "B" Shank
  - Part of the instrument that attaches the working end to the handle.

- "A" Working end
  - Portion of the instrument with a specific function.
Dental Mirror

- Used to view areas of oral cavity, reflect light on dark surfaces, and retract lips, and so forth for better visibility
- Used in every basic tray set up
- Available in various sizes and with plain or magnifying ends
Explorer, probe

- Used to examine the teeth, detect carious lesions, and note other oral conditions
- Available in many shapes and sizes
- May be single or double ended
Cotton pliers

- carry objects such as cotton pellets or rolls to and from the mouth
- Also called operating pliers or college pliers
Periodontal probes

- Used to measure the depth of the gingival sulcus (space between the tooth and free gingiva)
- Has round, tapered blade with a blunt tip marked in millimeters (mm)
Hand instruments for composite fillings

• Double ended
• Use it for compress and shaping the material
• Can use for cement fillings
Single use disposable instruments
Thank you for the attention!