

## **MATRIX RETAINERS:**

rings  
springclips  
matrix retainers  
strip holders  
proxicut holders  
matrix pliers  
forceps  
contact formers  
handles

### ***PRECAUTION***

Devices in plastic packages should be stored away from heating devices to avoid packaging damage.

### ***INSTRUCTIONS FOR USE***

#### **Revision 17**

**Revised August 09, 2022**

The devices are for multiple use.

#### **Target groups**

No limitations for target treatment group – dental matrix bands retainers can be used for all groups of patients without restrictions.

#### **Precautions**

- 1) Prior to use dental matrix bands retainers (devices) make sure of integrity of the device and absence of rust on it and that device surface is free from cracks and rough edges.
- 2) The devices are supplied in non-sterile state and are to be sterilized as follows:
  - submerge device in cleaning agent solution with neutral pH for 20 min;
  - rinse the device thoroughly with purified water for 3-5 min;
  - perform standard steam sterilization procedure following the sterilizer instructions.
- 3) When operating avoid device high-speed opening and/or pressing.
- 4) The devices cannot be placed in the inflamed gingiva as it can cause bleeding.

#### **Warnings**

When operating with rings and springclips:

- open the device for a width not more than 10 - 12 mm (between ring / springclip tines);
- open the device for necessary width outside the patient mouth before placing it on a tooth;
- avoid device high-speed opening and/or pressing.

Upon sterilizing:

- 1) do not use cleaning agents with high percentage of chlorine and cleaners containing oxalic acid;
- 2) do not keep instruments in liquid medium for more than 3 hours.

### ***STERILIZATION***

Dental matrix bands retainers (devices) are supplied in non-sterile state and require sterilization to be carried out before each use of the devices.

#### **Presterilizing clearing**

In order to remove any inorganic and organic contaminants (including protein, fat, mechanical and others), including drug residues from medical device and to decrease in general microbial contamination to facilitate subsequent sterilization presterilizing clearing is carried out.

The devices can be cleaned in two ways:

- a) mechanical cleaning;
- b) ultrasonic cleaning.

#### **A. Mechanical cleaning**

- 1) Soak devices with full immersion in the cleaning agent with filling the cavities and channels with cleaning agent right after the use;
  - 2) Wash devices in the same cleaning agent in which it was soaked using a brush;
  - 3) Rinse with running water (channels - using a syringe or electric suction);
  - 4) Rinse with distilled water (channels - using a syringe or electric suction);
- It is up to end user to ensure that cleaning agent is suitable for medical devices mechanical cleaning and use it in accordance with its instruction on use.

#### **B. Ultrasonic cleaning**

- 1) Fill the ultrasonic bath container with the devices (collapsible products were placed in disassembled form; products with locks - open), then the cleaning agent was added to at least 1/3 and not more than 2/3 of the volume of the container of the ultrasonic bath;
- 2) Process in an ultrasonic bath with the temperature of the cleaning agent at least 18°C;
- 3) Rinse with running water (channels - using a syringe or electric suction);
- 4) Rinse with distilled water (channels - using a syringe or electric suction);

It is up to end user to ensure that cleaning agent is suitable for use in ultrasonic baths and use it in accordance with its instruction on use.

#### **Sterilization process:**

##### **Procedure:**

- 1) Disinfect your hands;
- 2) Put on disposable gloves;
- 3) Put the cleaned the devices in the autoclave bag;
- 4) Carry out the sterilization in accordance with the instruction of the autoclave manufacturer at 134°C for 5 minutes.

##### **Warning:**

- 1) Do not use detergents or disinfectants containing strong alkalines (pH>9), strong acids (pH<4), phenols or iodophors, hydrogen peroxide, interhalogenic agents, halogenic hydrocarbons, strong oxidizing agents, organic solvents, aldehydes.
- 2) Dry the devices thoroughly before sterilization.
- 3) Follow instructions of autoclave (sterilizer) manufacturer.
- 4) To avoid corrosion of the metal due to electrolysis, do not place devices in autoclave together with products made of aluminum, brass and copper.
- 5) Do not use / sterilize the devices in case of presence of traces of rust on the surface or traces of surface damage.

##### **Storage:**

Devices in plastic packages should be stored away from heating devices to avoid packaging damage.

Sterilized devices can be stored:

- 1) In the UV-chamber – please refer for the instruction of the UV-chamber for the detailed storage conditions.
- 2) In the autoclave bags - please refer for the instruction of the autoclave bags for the detailed storage conditions. Products sterilized in autoclave bags should be stored in closed cabinets in

clean, dry rooms, preferably at a temperature of 15-30°C and a relative humidity of 33-50%, avoiding exposure to direct sunlight. Unauthorized access to these rooms should be excluded.

## ***OPERATING INSTRUCTIONS***

### **RINGS**

#### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

#### **Operating procedure**

#### **Rings № 1.099A, № 1.099c, № 1.199, № 1.199b, № 1.199c, № 1.166, № 1.166b, № 1.166c, № 1.177, № 1.177b, № 1.177c, № 1.167, № 1.167(4), № 1.167(6), № 1.167b, № 1.167c, №1.088**

1. Place the matrix (strip) and the fixing wedge on the prepared tooth.
2. Using the forceps outside the oral cavity spread the ring and fix it in the extended state.
3. Insert the tines of the forceps with the ring into the oral cavity to the prepared tooth.
4. Install the ring so that its tines are located at the vestibular and lingual surfaces of the tooth, fixing the matrix (strip).
5. Release the handles of the forceps, while the tines of the ring cover the tooth.
6. Disengage the tines of the forceps from the ring and remove the forceps from the oral cavity.
7. Carry out the necessary manipulations.
8. Remove the ring from the oral cavity using forceps, observing the sequence of actions opposite to the described sequence of actions for setting.

#### **Rings № 1.299, № 1.299b, № 1.299c, № 1.499, №1.599**

1. Install matrix and fixing wedge (if appropriate) onto the tooth under restoration.
2. Using forceps outside the mouth open the ring so that distance between ring tines does not exceed 10-12 mm.
3. Put add-on wedges on the tines of the ring.
4. Insert forceps with the ring with add-on wedges into the mouth.
5. Install the ring with add-on wedges onto the matrix.
6. Withdraw forceps from the mouth.
7. Perform restoration.
8. Remove the ring with add-on wedges from the mouth using forceps.

#### **Rings № 1.033, № 1.033A, № 1.033c, № 1.022, № 1.022b, № 1.022c, № 1.044, № 1.044b, № 1.044c**

1. Outside the oral cavity, the matrix (strip) is connected to the ring.
2. Insert the tines of the forceps with the ring and matrix into the oral cavity to the tooth.
3. Cover the tooth with the matrix.
4. Release the handles of the forceps, while the matrix should tightly cover the tooth, isolating its inner surface.

5. Disengage the jaws of the forceps from the ring and remove the forceps from the oral cavity.
6. Carry out the necessary manipulations.
7. Separate the ring from the matrix and remove from the oral cavity using the same setting forceps.

### **Warnings**

When operating with rings:

- open the device for a width not more than 10 - 12 mm (between ring tines);
- open the device for necessary width outside the patient mouth before placing it on a tooth;
- avoid device high-speed opening and/or pressing.

## **SPRINGCLIPS**

### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use.
4. Use only after sterilization.

### **Operating procedure**

#### **Springclip №1.002**

1. Install perforated matrix and fixing wedge (if appropriate) onto the tooth under restoration.
2. Outside the mouth draw apart tines of the springclip.
3. Insert springclip into the mouth thus that edges of its tines fit in appropriate holes of perforated matrix.
4. Perform restoration.
5. Remove springclip with matrix from the mouth.

#### **Springclips №1.003, №1.005**

1. Outside the mouth draw apart tines of the springclip.
2. Take saddle matrix of the necessary type.
3. Insert tines of springclip into the side tubes of saddle matrix.
4. Insert springclip with saddle matrix into the mouth.
5. Install the system onto the tooth under restoration.
6. Perform restoration.
7. Remove springclip with saddle matrix from the mouth.

#### **Springclip №1.004**

1. Outside the mouth draw apart tines of the springclip.
2. Take matrix of the necessary type.
3. Insert matrix edges into the slots of the springclip.
4. Insert springclip with matrix into the mouth.
5. Install the system onto the tooth under restoration.
6. Regulate matrix length and fix it by curving matrix edge.
7. Perform restoration.

### **Springclips №1.009, №1.103, №1.293, №1.295**

1. Place the matrix (strip) and the fixing wedge on the prepared tooth.
2. While pressing the handles of the springclip, dilute the springclip outside the oral cavity.
3. If necessary install add-on wedges №1.861, №1.866 or tubes №1.862 on the tines of springclip.
4. Insert the springclip into the oral cavity to the prepared tooth.
5. Install the springclip so that its tines are located at the vestibular and lingual surfaces of the tooth, fixing the matrix (strip).
6. Release the springclip knobs, while the tines of the springclip encircle the tooth.
7. Carry out the necessary manipulations.
8. Remove the springclip from the oral cavity using forceps, observing the sequence of actions opposite to the described sequence of actions for setting.

#### **Warning:**

When installing the springclip:

- carry out all dilution manipulations outside the patient's oral cavity,
- avoid sharp dilution of the springclip,
- do not allow the tines of the springclip to spread over a distance of more than 10-12 mm.

### **MATRIX RETAINERS**

#### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

#### **Operating procedure**

### **Slot retainers № 1.014, № 1.104, № 1.114, №1.124, №1.144**

1. Insert the edges of the strip outside the mouth into the slot of the retainer.
2. Adjust the size of the formed loop.
3. Bend the free ends of the strip or matrix.
4. Put the loop on the tooth.
5. If necessary, fix the strip (matrix) with a fixing wedge or a ring.
6. Carry out the necessary dental procedures.
7. Separate the slot retainer from the strip (matrix).
8. Remove the strip (matrix) by hand or with crimp-on type forceps.

### **Matrix retainer № 1.006**

1. Open the package.
2. Make sure there are no:
  - signs of violation of integrity of products - cracks, scratches on the surface;
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization in conventional steam autoclave or dry heat sterilizer.
4. Use right after sterilization.

5. Install perforated matrix and fixing wedge (if appropriate) onto the tooth under restoration.
6. Outside the mouth draw apart tines of retainer by driving the screw.
7. Insert retainer into the mouth thus that edges of its tines fit in appropriate holes of perforated matrix.
8. Fix matrix by driving the screw of the retainer.
9. Perform restoration.
10. Ease off the screw of retainer and remove retainer with matrix from the mouth.

### **Matrix retainers № 1.007, № 1.008**

1. Outside the oral cavity, combine the matrix retainer with the matrix.
2. Install the system on the restored tooth.
3. Carry out the restoration procedure.
4. Remove the matrix-retainer system from the oral cavity.

## **STRIP HOLDERS**

### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device(including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

### **Operating procedure**

### **Strip holders №1.106, №1.106A, №1.106B, №1.106C, №1.106D**

1. Outside the patient's mouth, insert the strip, stepping back from the edge of 2-3 mm, into the shaped slot of the holder until it stops.
2. Fold the short end out of the holder.
3. Fold the long end towards the second leg of the holder.
4. Squeeze the holder by hand to the required width.
5. Insert the strip into the second shaped slot until it stops.
6. Fold the free end out of the holder.
7. Stretch the strip by releasing the holder (№1.106), or by moving the bracket (№1.106A), or rotating the nut (№1.106B, №1.106C, №1.106D).
8. Check the reliability of fixing the strip.
9. If necessary, cut off the long edge of the strip, leaving 2mm of the strip beyond the break.
10. Insert the holder with the strip into the interdental space.
11. Move the holder with the strip back and forth to clean the interdental space from tartar or filling material.
12. Remove the holder with the strip from the oral cavity.
13. Compress the holder by hand (№1.106), or by moving the bracket (№1.106A), or by rotating the nut (№1.106B, №1.106C, №1.106D).
14. Sequentially pull the edges of the strip out of the slots.

### **Recommendations for work**

When installing the saw strip №1.384 (1), orient the saw edge away from the holder plates.

### **Strip holder №1.105A**

1. Outside the patient's mouth, insert the strip into the slots of the holder.
2. Tighten the clamping screws with a 1.369K key.
3. Stretch the strip by rotating the nut between the arches of the holder.
4. Insert the holder with the strip into the interdental space.
5. Move the holder with the strip back and forth to clean the interdental space from tartar or filling material.
6. Remove the holder with the strip from the oral cavity.
7. Loosen the strip tension by turning the nut.
8. Sequentially pull the edges of the strip out of the slots.

#### **Recommendations for work**

When operating with key №1.369K avoid excessive force upon tightening.

### **Strip holder №1.105 (1.105B)**

1. Outside the patient's mouth, by rotating the nut, set the required distance between the holder slots.
2. Insert the strip, stepping back from the edge 2-3mm, into the shaped slot of the holder until it stops.
3. Fold the short end out of the holder.
4. Fold the long end towards the second leg of the holder.
5. Insert the strip into the second shaped slot until it stops.
6. Fold the free end out of the holder.
7. Turning the nut, tighten the strip. If necessary, use the key 1.369K.
8. Insert the holder with the strip into the interdental space.
9. Move the holder with the strip back and forth to clean the interdental space from tartar or filling material.
10. Remove the holder with the strip from the oral cavity.
11. Loosen the strip tension by turning the nut.
12. Sequentially pull the edges of the strip out of the slots.

#### **Recommendations for work**

When installing the saw strip №1.384 (1), orient the saw edge away from the holder plates.

When operating with key №1.369K avoid excessive force upon tightening.

## **PROXICUT HOLDERS**

### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device(including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

### **Operating procedure**

#### **Proxicut holder №1.369B, 1.369C, 1.369D**

1. Outside the patient's mouth, insert the strip into the slots of the holder.
2. Tighten the clamping screws with a 1.369K key.
3. Stretch the strip by rotating the nut between the arches of the holder.
4. Insert and fix the holder in the handle №1.107, or №1.108, or №1.109.
5. Insert the holder with the strip into the interdental space.
6. Move the holder with the strip back and forth to clean the interdental space from tartar or filling material.
7. Remove the holder with the strip from the oral cavity.
8. Loosen the strip tension by rotating the nut, remove the strip, separate the holder and the handle.

#### Recommendations for work

When installing the saw strip №1.384 (1), orient the saw edge away from the holder plates.

**When operating with key №1.369K avoid excessive force upon tightening.**

#### **Proxicut holder №1.389**

1. Outside the patient's mouth, place the strip with a hole on the finger of the holder arc (the serrated edge of the strip should be oriented away from the holder arches).
2. Wrap the strip around both arcs of the holder with a figure eight.
3. Place the strip with the second hole on the pin of the opposite arc.
4. Stretch the strip by turning the handle of the holder.
5. Insert the holder with the strip into the interdental space.
6. Back and forth to clean the interdental space from tartar or filling material.
7. Remove the holder with the strip from the oral cavity.
8. Release the tension by rotating the holder knobs and remove the strip.

#### Recommendations for work

When installing the saw strip №1.384 (1), orient the saw edge away from the holder plates.

#### **Matrix pliers №1.154, №1.164**

##### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

##### **Operating procedure**

#### **Matrix plier №1.154**

1. Select a matrix, wedge, cotton roll holder or any other dental accessory (accessory).
2. Outside the oral cavity, unclench the matrix plier / tweezer and place the accessory with the hole on the holder pin (plier) or ridged edges.
3. Fix the accessory by releasing the pressure on the arches of the matrix plier / tweezer.
4. Place the accessory with the plier / tweezer in the oral cavity.
5. If necessary, use the plier / tweezer to change the position of the die.
6. Remove the matrix plier / tweezer from the oral cavity.
7. Perform the necessary dental procedures.



8. Remove the accessory using the plier / tweezer.
9. Outside the oral cavity, separate the accessory and matrix plier / tweezer.

### **Matrix plier №1.164**

1. Select a matrix of size and shape corresponding to the size of the tooth and cavity in it.
2. Outside the oral cavity, take the matrix with the matrix plier.
3. Fix the matrix by pressing the matrix plier's handles and fix the plier.
4. Place the matrix with the plier in the oral cavity.
5. To remove the plier from the fixation - press the plier's handles.
6. If necessary, use the plier to change the position of the die.
7. Remove the matrix plier from the oral cavity.
8. Perform the necessary dental procedures.
9. Remove the matrix using the matrix plier.
10. Outside the oral cavity, separate the matrix and matrix plier.

## **FORCEPS**

### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use.
4. Use only after sterilization.

### **Operating procedure**

1. Outside the oral cavity insert forceps tines into the ring, open the ring and fix it in the extended state.
2. Insert forceps with the ring into the oral cavity to the tooth, on which the matrix or strip and the fixing wedge are previously installed.
3. Place the tines of the ring at the vestibular and lingual sides of the outer surface of the matrix or strip and release the handles of the forceps, while the tines of the ring should cover the tooth.
4. Disengage the tines of the forceps from the ring and remove the forceps from the oral cavity.
5. Carry out the necessary dental procedures.
6. Remove the ring from the tooth using forceps, observing the sequence of actions opposite to the described sequence of actions for setting.

### **Warning:**

In order to avoid premature failure of the forceps and the ring, the ring opening with the forceps must be performed to the minimum required level that ensures the setting and removal of the ring (up to a distance between the tines of no more than 11 mm).

## **HANDLES**

### **Preparation**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips, rupture of arcs in any of the places)
  - traces of rust or dirt on the surface.

3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

### **Operating procedure**

1. Outside the mouth, connect the holder with the required element.
2. Fix the required element in the handle.
3. Insert the holder with the required element into the patient's mouth.
4. Carry out the necessary dental procedures.
5. Remove the handle-holder with the required element from the oral cavity.
6. Release the required element.
7. Disconnect the holder from the required element.

## **CONTACT-FORMERS**

### **Preparation and sterilization**

1. Open the packaging.
2. Make sure that there are no:
  - signs of violation of the integrity of the device (including cracks and chips),
  - traces of rust or dirt on the surface.
3. Carry out disinfection, pre-sterilization cleaning and sterilization according to current instruction for use
4. Use only after sterilization.

### **Operating procedure**

#### **Contact-formers № 1.941, № 1.942, № 1.943, № 1.944, № 1.945, № 1.946, № 1.947**

1. Choose a contact-former, the working part of which is capable of providing pressure on the matrix in the required direction and with the required distribution over the matrix area when placed in the cavity of the tooth, isolated by the matrix.
2. Connect the contact-former with a threaded connection to the holder handle (when using a detachable version).
3. Put the silicone tip on the contact-former (if necessary, modify the working part of the contact-former).
4. Insert the working part of the contact-former into the cavity and squeeze the matrix towards the adjacent tooth until the cavity assumes the correct anatomical shape.
5. Start the filling procedure by periodically applying pressure to the matrix in the desired direction.
6. After the matrix has reached a stable and correct position, remove the contact-former from the isolated zone and from the oral cavity.

#### **Contact-formers № 1.1901, № 1.1902, № 1.1903, № 1.1904, № 1.1905, № 1.1906, № 1.1911, № 1.1942, № 1.1943, № 1.1944, № 1.1945, № 1.1946, № 1.1947**

1. Choose a contact-former, the working part of which is capable of providing pressure on the matrix in the required direction and with the required distribution over the matrix area when placed in the cavity of the tooth, isolated by the matrix.
2. Put the silicone tip on the contact-former (if necessary, modify the working part of the contact-former).
3. Insert the working part of the contact former into the cavity and squeeze the matrix towards the adjacent tooth until the cavity takes the correct anatomical shape.

4. Begin the filling procedure by periodically applying pressure to the matrix in the desired direction.
5. After the matrix has reached a stable and correct position, remove the contact-former from the isolated zone and from the oral cavity.