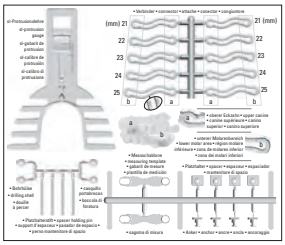
Silensor-sl • Fabrication instructions

Materials

Fabrication:

- Erkodur, 2.0 mm, hard, in case of poor retention this type of material should be used at least for the lower jaw
- Erkoloc-pro, 3.0 mm, soft/hard, double-layered, stress-relieved fit, this type of material can always be used for the upper jaw and for the lower jaw only in case of enough retention in the molar area
- Silensor-sl connection parts*
- HSS twist drill 1.4 mm (110 871)
- Erkogum-color (110 847)
- if available, construction bite with the sl-protrusion-gauge

*



Model preparation:

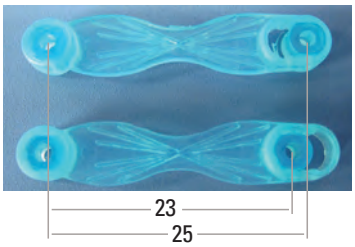
- Erkogum-color (110 847) for blocking out, high-fusing wax (725 055 lilac) for filling bubbles in the plaster
- Erkoskin (625 050) to relieve the gingival margin

.Finishing:

- Recommendation: finishing set Quick 2 (110 877) with fissure bur, rightward cutting, left spiral (110 836) for rough cutting out, HSS-twist drill (110 876) to cut the desired form, crosscut tungsten carbide bur (110 837) for fine grinding, Lisko-S (223 200) to prepolish the borders and Liskoid (223 205) for narrow interdental spaces • polishing set (110 878) to polish

Important hints

- The **most far-reaching consequence** of all lower jaw protrusion splints, thus also of the Silensor-sl, is **tooth migration**. It is therefore mandatory to integrate all existing teeth in the splints. It is recommended to keep a **duplicate of the initial situation** to counteract, if necessary, a possible tooth migration with a simple correction splint.
- If a construction bite with the sl-protrusion-gauge is available, the models will be articulated with the help of this, otherwise in the final bite position.
- **The Silensor-sl can be fabricated in normal bite position or as in most cases with protruded lower jaw. The results of the questionnaire will help in finding a solution.**
- The measuring template can be used with 23 or 25 mm length. The length of 25 mm should be preferred as in this case longer connectors with a better wearing comfort can be used. Only in case of very small jaws the drilling shell is put in the 23 mm entry and measured with this one.
- If a construction bite with the sl-protrusion-gauge is available, it is measured with 25 mm and the 25 mm long connectors are used. Without construction bite it is measured in the normal bite position with 25 mm and the 24 mm long connectors are used. In case of very small jaws, the measurements are reduced by 2 mm each.
- The pivot point of the connectors in the upper jaw generally is located on the vestibular incisal edge of the canine. The lower pivot point results from measuring and should be as occlusal as possible.



- The ready-made Silensor-sl shall offer balance contact points. If this is not possible by grinding, it should be adjusted by addition with Resilit-S (817 501) (817 503).
- The connectors are easily exchangeable, for example if more protrusion is required for a sufficient effect.

Fabrication

The sl-protrusion-gauge offers in a simple way the possibility to register on the patient the desired or recommended advancement for the Silensor-sl (see separate instructions).

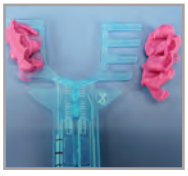

Insert the sl-protrusion-gauge.


Mark the habitual bite situation.


Mark the max. protrusion.

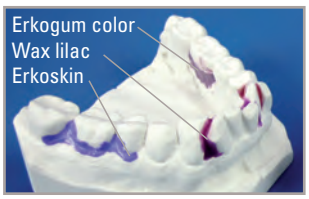

Adjust gauge to the half ...


... and registrate.


Gauge with removed registration.

Model preparation:

In case of a very retentive teeth situation, the marking of the prosthetic equator is recommended. With the exception of the fixation points, the splint ends in case of large undercuts on the equator, otherwise 1-2 mm below.



In case of using Erkodur (hard), relieve tension from the four upper front teeth by applying Erkoskin.

Block out undercuts and spaces with Erkogum, block out bubbles of plaster with high-fusing wax. Relieve tension from the gingival margin in the area where the splint has contact.

If the measuring point is located on an edentulous area, this must be filled with plaster. In case of a free-end situation, a plaster wall is put on the ridge.

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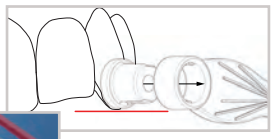
If a construction bite (following abbreviated cb) is available with the sl-protrusion-gauge, the Silensor-sl can be fabricated according to a recommendation or an already known advancement of the lower jaw. Measuring length (25 or 23 mm) and connector length are the same. The sl-protrusion-gauge also compensates the opening rotation of the connectors caused by the foil thickness. By this, discrepancies to the registration are avoided to a greatest possible extent. If no construction bite is available, the models are measured in the final bite position, the advancement is achieved by different length of measurement (25 or 23 mm) and connector length (24 or 22 mm) plus opening rotation (mostly + 2 mm).



Arrangement of the drilling shell and measuring template to the occlusal plane.

Fabrication with construction bite

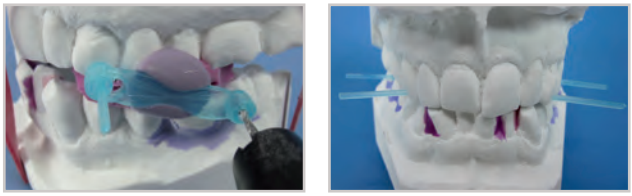
1. Cut the drilling shells off and put them in the measuring templates. The measuring template can be used with 23 mm or 25 mm length, see hints.

2. Articulate the models with a rubber band and with the cb removed from the sl-protrusion gauge and cut to size.

to 2. Fix the measuring template with Erkogum-color. Initial point is the buccal-incisal edge of the upper canine or canine area. The lower pivot point results from measurement (see hints).

3. Cut the spacer holding pins. Drill with the 1.4 mm bur (**10 000 rev./min.!**) through the drilling shell, first in the canine area into the model (3 mm depth of hole or more).

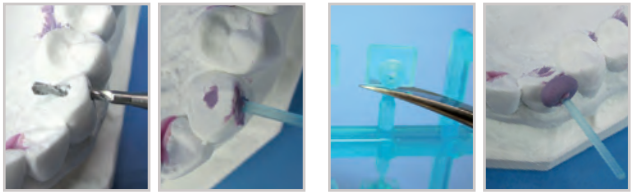
4. Before the hole in the lower jaw is drilled, put a spacer holding pin in the canine area through the drilling shell. Drill the lower jaw hole in the same manner.



5. The models can now be separated.

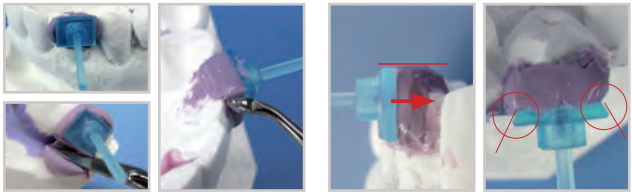
Models with spacer holding pins put in place.

to 3. - 5. If the model has been drilled through, fix the spacer holding pin with Erkogum. If a larger plaster piece chipped off, fix it as well as the spacer holding pin if necessary with quick acting glue.



6. Cut the spacers.
Put a poor quantity of Erkogum-color onto the pins.

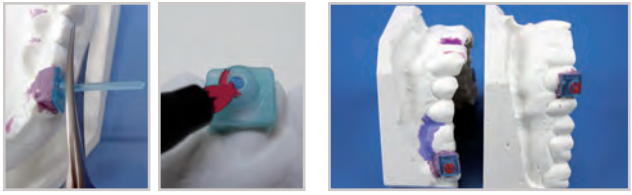
7. Put a spacer onto each pin, the shorter broad side shows to the mastication surface. Remove excessive Erkogum first with a fine spatula or knife.



to 7. The Erkogum should be modelled in a way that the spacer can later be pressed out of the splint towards the inner side and that the retentive undercuts for the anchor are free.

8. Shorten the spacer holding pins.

Mark the outer surface of the four spacers with a flipchart pen.



9. Marked spacer

In the following the models are articulated in the Occluform. The upper jaw is in the model pot, the upper swivel screw is screwed in.

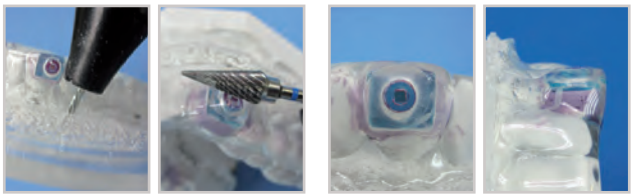
10. Articulate the models with the construction bite (Erkoform-3d/3/RVE). Leave the area below the spacer at least 6 mm free of granules.

11. Open the Occluform and remove the cb. Lower the opened bite by app. 1 mm at the supporting pin. Keep the cb for the second thermoforming process.

12. The Occluform is opened, now thermoform, immediately put a 1 mm thick Erkolen plate onto the model and close the Occluform.

13. A plane occlusal surface is created to avoid a later opening rotation of the connectors by the foil thickness (the Erkolen plate can be reused).

14. Take the models out of the device and roughly cut out before removing the splint from the model (fissure bur > 20 000 rev./min.). **Carefully** grind through the plate until the coloured marking on the spacers ...



15. ... is just abraded, **not more and not less** (tungsten carbide bur > 20 000 rev./min.). Ensure a plane surface. Now remove the splint from the model.

16. Readjust the supporting pin of the Occluform to the broad marking.

17. Articulate the models in the device, the lower jaw model is now in the model pot of the Occluform. The lower swivel screw is screwed in (arrow), observe Occluform instructions.

18. Open the Occluform and remove the construction bite. Put the already roughly worked out upper splint jaw onto the upper jaw model. Leave the area below the spacer at least 6 mm free of granules.

19. Open the Occluform and press the UZF-Plus with the sticky side onto the mastication surface of the splint. For this also rests of insulating foil can be used (for ex. Erkoflex, Erkoloc-pro, not Erkodur).

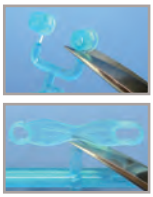
20. Now execute the second thermoforming step. As soon as the plate has been formed close the Occluform. Let the Occluform closed until the material has cooled down.

21. The occlusal conditions correspond now to the cb taken with the sl-protrusion-gauge.

... continue at point 34.

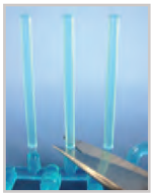
Fabrication without construction bite

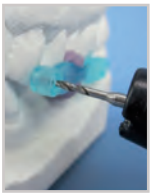
22. Cut the drilling shells off and put them in the measuring templates. The measuring template can be used with 23 mm or 25 mm length, see hints.



23. Articulate the models with a rubber band in the final bite position.

to 23. Fix the measuring template with Erkogum-color. Initial point is the buccal-incisal edge of the upper canine or canine area. The lower pivot point results from measurement (see hints).





24. Cut off the spacer holding pins. Drill with the 1.4 mm bur (**10 000 rev./min!**) through the drilling shell into the model, first in the canine area (3 mm depth of drilled hole or more)

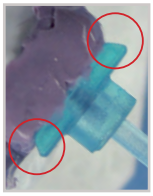
25. Before the hole in the lower jaw is drilled, put a spacer holding pin in the canine area through the drilling shell. Drill the lower jaw hole in the same manner.

26. Remove the measuring templates, the models can now be separated. Put the spacer holding pins into the drilled holes.
See further hints for drilling under „to 3. - 5."

27. Cut off the spacers.
Press a poor quantity of Erkogum-color onto the pins.

28. Put a spacer onto each pin, the shorter broad side shows towards the mastication surface.
Remove excessive Erkogum first with a fine spatula or knife.

to 28. The Erkogum should be modelled in a way that the spacer can later be pressed out of the splint towards the inner side and that the retentive undercuts for the anchor are free.



29. Shorten the spacer holding pins.

Mark the outer surface of the four spacers with a flipchart pen.

30. Thermoform the models one after the other. To avoid severe premature contacts, it is recommendable, as soon as the plate has been formed ...

31. ... to immediately put a 1 mm thick Erkolen plate onto the hot splint and to press the occlusal surface flat with little pressure especially in the front area. This creates a plane occlusal surface.

32. Take the models out of the device and roughly cut out before removing the splint from the model (fissure bur > 20 000 rev./min.). **Carefully** grind through the plate until the coloured marking on the spacers ...

33. ... is just abraded, **not more and not less** (tungsten carbide bur > 20 000 rev./min.). Ensure a plane surface. Now take the splint off the model.

... continue at point 34.

34. Cut the final form with the HSS twist drill (without pressure, >20 000 revs./min.), leave sufficient material (min. 3 mm) around the fixation points.

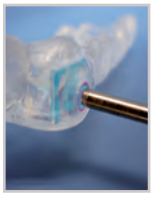
35. Grind the borders with the tungsten carbide bur (>20 000 rev./min.).

36. Smooth the borders - grinded areas with Lisko-S, narrow zones and interdental spaces with Liskoid (both 10 000 rev./min.).

37. Hart materials can be polished to high gloss.

Finished splints.

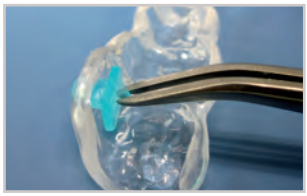
38. Press spacers inwards out of the splint, if necessary press strongly.



39. Remove the insulating/shrink compensation foil.

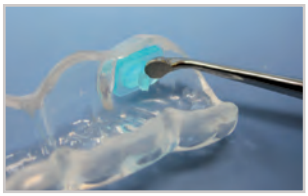
40. Cut the anchors as shown on the picture.

Take the anchors at the retaining lip and ...



41. ... put them into the splint as replacement for the spacers.

42. Firmly press into position.

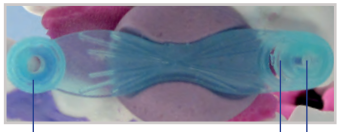


43. Cut the connectors. Opposing connectors have the same length. The cut side of the connectors is later hinged in the canine area.

Choose the connector length:

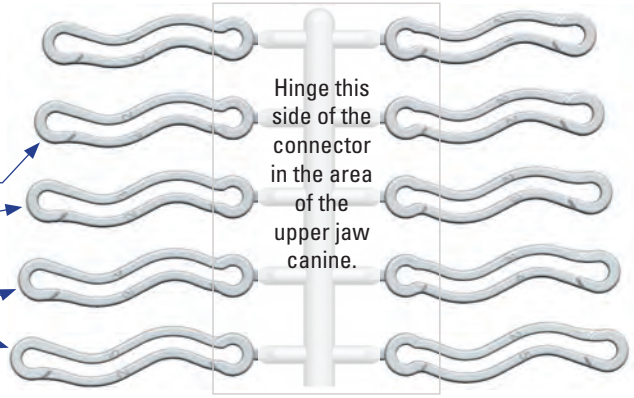
The connectors are easily exchangeable, for example if more protrusion is necessary for a sufficient effect.

The shorter the connector is chosen in comparison to the measurement, the larger is the advancement of the lower jaw.

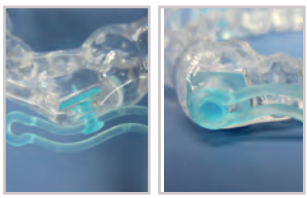


23 mm measured
- without cb choose 22 mm connector
- with cb choose 23 mm connector

25 mm measured
- without cb chose 24 mm connector
- with cb chose 25 mm connector

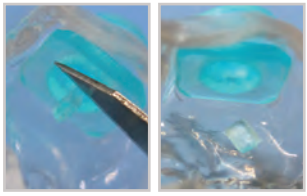


44. Remove sharp cutting edges!



45. Hinge the connectors into the long slot. Observe upper jaw canine side of the connector.

46. Hinge the connector into the other splint.



47. Now remove the retaining lips with a scalpel.

48. Please check correct positioning of the connectors. In case of propulsion movements (feed), the connector shall slide out of the anchor of the lower jaw, if not, as shown on the picture ...

... hinge the connector about-face.

Silensor-sl