



ANTI-SNORING SOLUTIONS



DENTAL TECHNICIAN
FABRICATION INSTRUCTION MANUAL

MSi
Mandibular Snoring Inhibitor



WE ALL DESERVE A GOOD NIGHT'S SLEEP



The MSi snoring appliance is the next generation of anti-snoring dental appliances, providing outstanding performance, comfort, durability and compliance. Although usually associated with snoring, the MSi snoring appliance is also a recognised and effective treatment for OSA particularly for patients who are unable to tolerate CPAP.

The MSi (Mandibular Snoring Inhibitor) allows patients to self-adjust their appliance to an exact, individual position to limit soft tissue deformation in the throat and restriction of the airway. The MSi snoring appliance has also been specifically designed to be straight-forward to make, to ensure consistent manufactured performance and high clinical results.



HOW DOES THE LAB BENEFIT FROM PROVIDING THE MSi?

- Growth opportunity with minimal investment
- Uncomplicated and timely fabrication
- Long-term durability, even with severe bruxist patients
- Modern and up to date sleep disorder therapy provision
- Free marketing material
- Excellent support available from DB Lab Supplies

THE KEY BENEFITS OF MSi FOR YOUR CLIENTS



Extremely strong and hard wearing – engineered to withstand any degree of bruxism, clenching and parafunction.



Minimal plaque traps and maximum hygiene - open design makes cleaning simple and effective.



Reliable first time fit - the MSi offers an impressive 10mm of adjustment to ensure reliable fitting and effective use.



Exceptional patient compliance - facilitates normal breathing, with or without the mouth closed.



Detachable and free moving upper and lower splints - to reduce claustrophobia and maximise comfort.



Compliance that is second to none due to exceptional patient comfort and efficiency



Patients are able to self-adjust their appliance - minimising additional chairside time.



100% component replacement - increases product longevity and reduces landfill.

MSi KIT CONTENTS

Your kit should contain:

- MSi components
- Bite Right
- Retainer box
- Patient Instructions

DOWNLOAD INSTRUCTIONS

Patient Instructions



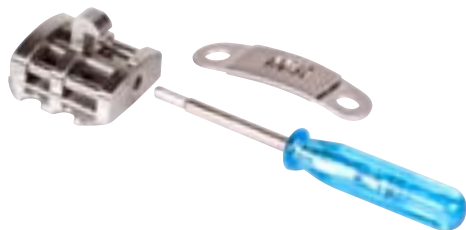
Clinical instructions



BiteRite instructions



Product Code	Description
DBL2-0090	MSi Kit (consisting of one of each of the components listed below)
DBL2-0091	MSi Snoring Appliance - Class I Medical Device; under Rule 5
DBL2-0092	MSi Excursive Plate - Class I Medical Device; under Rule 5
DBL2-0098	MSi Adjustment Screwdriver – Non-Medical Device – for extra oral use.



MSi Components



Bite Right



Retainer Box



PRIMARY FEATURES



EXCURSIVE PLATE



Anti-deflection leading edge

Profiled internal surface for added retention

SCREW ASSEMBLY

Three-bar hook support for outstanding strength and smooth screw adjustment

Robust screw 30% stronger than comparable appliance

Burr stop shelf, front and back to aid accurate acrylic trimming

Increased surface area to aid retention

Additional guide rails for added strength and longevity



For added comfort patients can move freely laterally and disengage the upper and lower splints if required

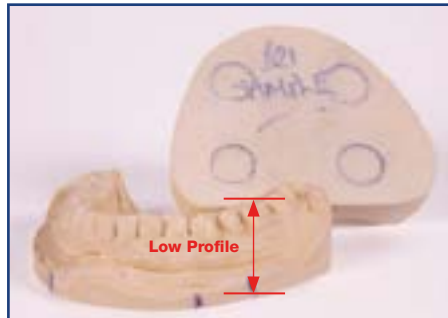
MSI SNORING APPLIANCE FABRICATION INSTRUCTIONS BY PHIL CHAPMAN, DENTAL TECHNICIAN AND MSI DESIGNER

The MSi snoring appliance is not a complex device to make and doesn't involve any tricky procedures or specialist tools. Even if you are new to the MSi snoring appliance and things go a bit wrong, there is always the option to remove the hardware and start again.

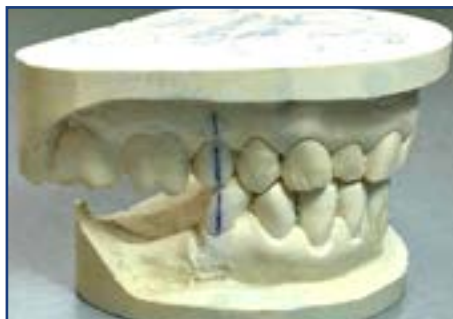
These instructions are intended to provide a basic guide for any technician making an MSi snoring appliance for the first time. There are a few procedures that have been added to make things simple. However, you will likely find your own more efficient strategies, once you are more familiar with the device.

Manufacturing time: 1 to 1.5 hours, dependant on patient morphology and the amount of model preparation required.

1. Trim the impressions to make low profile models or use a vacuum former pellet tray if you have one. Low profile models maximise the thickness of the soft lining in dual laminate that will decrease model damage and improve retention. Trim with an edge shelf of 4-5mm, to ensure the monomer doesn't discolour the soft lining material and the splint remains crystal clear. Block out excessive undercuts; the fit needs to be tight but not excessive, however, good retention is important.



2. Once formed, occlude the models, and draw a thin vertical line down each side (as shown below). Remove the plastic BiteRight jig from the wax bite, to reduce the possibility of anterior model damage, and re-occlude the models with the bite in-between. This should position the lower jaw forward in a protruded position. On either side, add a second mark on the upper model to align with the previously drawn line on the lower (as shown below). The distance between the two, upper model lines, indicates the amount of protrusion captured in the wax bite. If the clinician has provided a protrusive measurement, this distance can identify the need for any additional articulator adjustment. If the bite shows no protrusion and no protrusive measurement is supplied applying an average figure of 5-6mm is advised.



3. Add registration marks to each model; include the pins.



SCREW PREPARATION

4. Screw prep – wind the screw approximately 10 turns back if not prescribed.

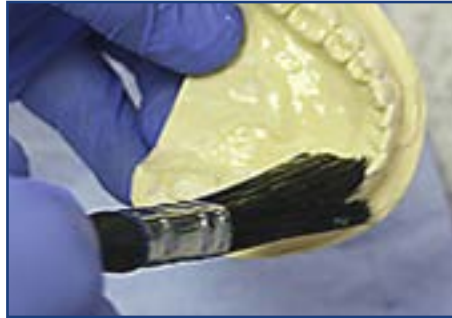


5. To stop unwanted acrylic ingress, cut a strip of wax, heat and squeeze segments into the mechanism and trim off the excess. Fill any gaps and add molten wax to the front and rear surfaces. Remove any excess wax from around the hook and tidy up.



PRESSURE FORMING

6. Liberally add sealer to each model. Once dry, additional silicone spray will also help to maintain clarity and to ease removal of the splint from model.



7. Pressure-form each splint with 3mm dual laminate material. (Coloured laminate will help to disguise long-term discolouration)



FABRICATION

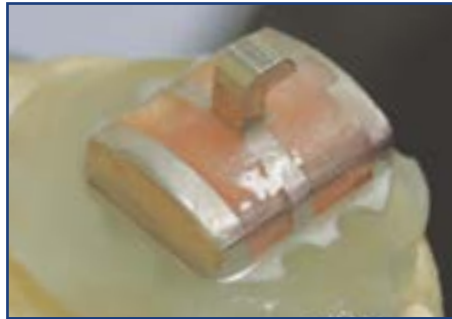
8. Once vacuum formed, cut away the excess blank material.



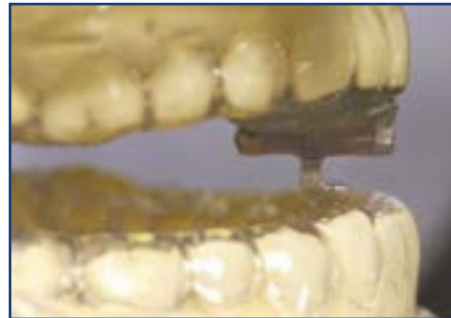
9. Separate the upper articulated arm, invert, and form an acrylic mound to support the screw. Ideally, make these in batches of two, or jump to stage 13, to enable the acrylic to solidify enough to support the screw without excessive slumping.



10. Place the screw on the platform, making sure the resting position is aligned from the side and front view.



11. Add acrylic to either side of the screw, to cover the side wings and blend in with the surrounding acrylic. With the articulator inverted slide in the upper articulator arm and gently close. Check the hook is behind the lower anteriors and centred. If not, gently manipulate the screw so that the hook is comfortably behind the lower anterior teeth, centralised and level and that the articulator can close without obstruction.



12. Once satisfied all is correct, separate from the lower articulator arm and add more acrylic where necessary. Add a drop of monomer to the acrylic, either side of the screw and with a mixing spatula flatten and reduce the acrylic thickness. Add additional acrylic around the screw where necessary and blend in with the splint material. Move on to the lower. If at this stage you are concerned about porosity, you can pre-cure the upper before continuing with the lower.



13. Make two acrylic pads where you expect the lower excursive plate to sit, try not to flood these with excessive monomer.



14. When the acrylic is firm enough to support the plate, click the upper and lower articulator arms together and gently close the articulator whilst sliding the excursive plate to engage the back of the hook.



15. Make sure the plate is level and add acrylic in the holes and around the plate, the less monomer the better. Unclip the articulator toggles and carefully slide the upper articulated away without changing the plate position.



16. With the upper removed, add more acrylic to the top of the plate and around the peripheral edges, add some monomer and push the acrylic flat from the centre of the plate flat and out to each side. This should produce an overhang of material around the plate edges. Infill these with additional acrylic.



17. Make sure the acrylic is added in the corners of the excursive plate. This will ensure the hook can move from side to side smoothly when trimmed.



18. Reintroduce the upper and visually check the plate and screw are located properly. Check the plate hasn't tilted, or changed position, then cure.



TRIMMING

19. Once cured, steam clean to remove the wax from the screw.



20. Remove the excess laminate and trim, as you would, a standard retainer. It is common to provide upper and lower 2-2 or 3-3 to improve the path of insertion or reduce excessive retention but capping of the last posterior teeth is to be avoided.



21. Carefully lever the splint from the model either side and front to ease off the model. Try not to damage the teeth (usually 3-3) as it will make it difficult to access the fit. However, it may be an indication that anterior relief is required; although bear in mind that once trimmed, the fit will always be less tight.



22. Once removed, wind the screw fully back. Using a flat top bur, work around the screw area, making sure to keep the bur end at 90 degrees to the screw. The use of a scalpel to remove acrylic flashings prior to the burr can be helpful.



23. Depending on the arch and the bur used, you may need to grip the bur in the hand piece with a longer shaft than normal, to sweep along the full length of each side of the screw unhindered.



24. Remove unwanted acrylic and blend in. Finish off with silicone cone. Using an abrasive wheel pad, work around the edges until smooth. Make sure to work from the inside edge of the splint to the outer edge to reduce long-term soft/hard delamination; this is also advisable when polishing.



The lower is trimmed and finished in the same way as the upper; however, the area under the excursive plate needs particular attention, as this area can only be partially polished. Use of a fine, rounded end, bur and a worn, pointed, silicone cone for this area is ideal.



25. Smooth and finish the edges in the same way as the upper.



POLISHING

26. If possible, pumice with the mop pushing the soft laminate against the hard outer material to reduce the possibility of long-term delamination (Calico mop, coarse pumice recommended).



27. Use a palate brush to repeatedly pumice under the plate. This area can only be partially polished, so it needs to be as smooth as possible.



28. Buff with acrylic polishing compound.



CLEANING OF THE MSI SNORING APPLIANCE

The MSi snoring appliance is intended to be cleaned by the Dental Technician.

We recommend that the finished custom made appliance is disinfected with antibacterial nitride tablets before it is supplied to the clinician and patient.

29. Congratulate yourself on a job well done!



USING THE MSI:

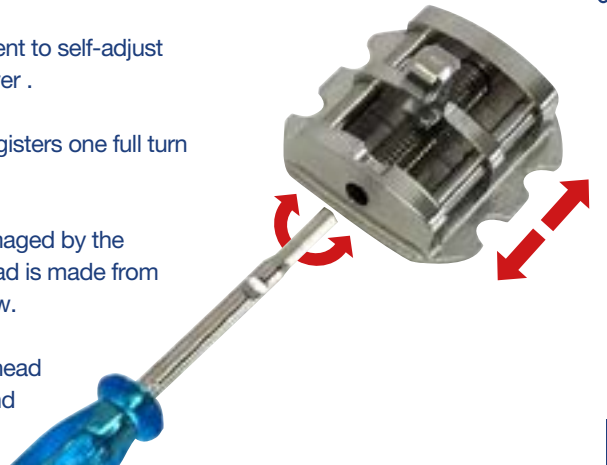
If new to MAS appliances, it is important for patients to allow some time to get used to the feel of the MSi snoring appliance in the mouth as initially, it will likely feel a little strange and unfamiliar for the first couple of weeks. For this reason, it is advised that the patient wears the appliance without any advancing of the screw for two weeks.

1. After two weeks, the patient can start the process of gradually advancing the screw to find the optimum position (one turn a week - 0.5mm) This isn't a simple matter of the further forward the better, it's about finding the optimum position for maximum effect and maximum comfort, which is unique to every patient.
2. The MSi adjustment screwdriver is used to move the hook backwards and forwards; clockwise to advance, anti-clockwise to retreat. A small indentation on the metal shaft has been added to help the user keep track of the number of turns applied.
3. If a large amount of advancement is applied during the initial fit, only to be made by a clinician, it is recommended this is completed with the patient so that they can try the MSi snoring appliance to ensure the adjustment doesn't exceed a point that is comfortably safe.

USING THE MSI ADJUSTMENT SCREWDRIVER

Apart from the initial setup, the MSi snoring appliance is designed for the patient to self-adjust their device with the specially designed and easy to use adjustment screwdriver .

- The indentation on the shaft of the MSi adjustment screwdriver clearly registers one full turn of 360 degrees and a subsequent 0.5mm of adjustment.
- To ensure the main screw of the MSi snoring appliance will never be damaged by the adjustment screwdriver if over tightened. The adjustment screwdriver head is made from sacrificial material, specifically designed to fail before damaging the screw.
- The MSi adjustment screwdriver tip, provides greater durability than flat head drivers and allows the counting indentation to always be visible before and adjustment is applied.



Recommended Products

Acrylic						
Monospray Plus Liquid 500ml DBL9-0012			Monospray Plus Powder 1kg DBL9-0101			
Block out wax for undercuts						
Thermowax 100g LR3714-00						
Instruments						
Cement Spatula DB05-0325			Wax Carver No 5 DBL5-0112			
Iconic Dual Laminate						
3mm 120mm DBL3-0119		3mm 5"Square DBL3-0117			3mm 125mm DBL3-0118	
Rotaries						
Atomium Burs Medium DBL4-0101	Atomium Burs Fine DBL4-0105	Coated Tricutter DBL4-101/1063	Dome Shape Silicone Mounted Polisher LR3426-00	Flat ended Bur DBL4-0008	Pointed Shape Silicone Mounted Polisher DBL4-9573	Iconic Polisher Fine 4S04-1381

Trouble shooting

Achieving Additional Retention

The MSi snoring appliance is no different to any other MAS regarding retention. In most cases blocking out will be required to reduce retention, but occasionally obtaining sufficient retention can be a challenge. In such cases it is recommended to:

- Cap the rear teeth and don't relieve the anteriors.
- Define all the gingival margins with a pointed tool to a depth of approximately 0.5mm
- Shave the sides of side of specific teeth to make them slightly narrower prior to vacuum forming, usually no more than 0.5mm

- Use boiling water to heat one side of an arch, slightly compress with fingertips and cool under cold water. Repeat with the other side, check the fit on the model, repeat if necessary. This technique is called ‘Nipping’ and is also for reducing retention, place it on the model hot and remove, repeat this process until cool.
- If you think nipping may be required when accessing a model, adding acrylic to the surface of the splint during manufacture, will add rigidity and help to maintain the nipped adjustment. You can also use a 2mm thick blank instead of the usual 3mm.

Yellowing / decolourisation

This is usually a result of monomer and the soft inner lining making contact this is always to be avoided. Excessive amounts of monomer particularly in interproximal areas of the splint will often result in yellowing. Try to keep things neat.

Bite registration

The BiteRight jig will ensure you are always provided with a usable bite. It has been designed to replicate the vertical dimension needed to house the MSi screw, excursive plate, and splint material. As the height of the cast model and the thickness of the vacuum formed material over the model may vary slightly in thickness, minor articulator height adjustment may still be needed.

Please note: the BiteRight jig is not an assurance of a protruded bite. The amount of protrusion in the bite should always be assessed by the technician. Asking the clinician to provide a measure of patient protrusion is always useful.

Excessive acrylic slumping

Acrylic and monomer combinations can have very different characteristics. If components move dramatically during manufacture, you may need to allow more time for the acrylic to ‘gel’, or choose a different acrylic product.

Educational Courses

Get in touch to register your interest in the MSi fabrication courses as well as other DB Lab Supplies Courses.
Call Karen Hiscoe on **01535 650579** or visit **www.dbortho.com**



