



macromedics

SOLUTIONS IN RADIOTHERAPY

MANUAL 113000
Instructions for use
English Instructions

MacroMedics® DSPS-Prominent®



MacroMedics BV

Oostbaan 670
2841 ML Moordrecht
The Netherlands
+31 (0) 182 389 777

info@macromedics.com
www.macromedics.com

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1. Warnings



- Inspect the device thoroughly before use. Do not use the device if damaged or incomplete.
- Check individual components on MR-Safety when used together in a patient positioning system.
- Verify the device's attenuation characteristics before clinical use when the device is intended to be in the incoming radiation treatment-beam pathway.
- Do not use the thermoplastic mask after its expiry date.
- The thermoplastic masks are for single patient use.
- In case of facial swelling, use the designated shims and clips, as appropriate.
- Do not stack different shims on top of each other.
- When only the 'occipital mask' is used for treatment, it is recommended to apply the shoulder profiles during mask moulding, treatment-planning and treatment itself.
- Make sure that the device is securely fixed before positioning the patient.
- For both user and patient, do not lean on the cranial side of the cradle.
- Do not use excessive force on the cantilevered frame during mask moulding, after the mask is set, or otherwise.
- Do not exceed the allowable maximum patient weight of 150 kilograms.
- Ensure all the plungers are locked before use.
- Ensure all the sliding clamps are tightened before use.
- Ensure that the patient's hands, arms and limbs do not hang over the side of the baseplate to avoid potential pinch points.
- Do not try to remove the cradle from the baseplate/OmniBoard when the C-clamps/clips or quickfasteners/ plungers are in locked position.
- For the DSPS-Prominent® Cradles, ensure that there is sufficient clearance between the cradle clamps/ clips and the inside of the bore before use.
- The mask heating times for an oven are recommendations only as the appropriate times depend on the individual oven. It is the user's responsibility to determine the appropriate heating times.
- Ensure that the mask is not too hot for skin contact before placing it on the patient.
- Do not remove the mask from the patient until the material cools completely. Removing the thermoplastic mask before it has set may result in the mask's deformation.
- Handle with care to prevent damage.
- Store the products with quickfasteners/ plungers in the released position to prevent grommet deformation.
- In the USA, federal law restricts this device to sale by or on the order of a licensed healthcare practitioner.

2. MRI Safety Information

MR Safe

113090 DSPS-Prominent® SH profile set/2
113230 DSPS-Prominent® Cradle-VI MR
113250 DSPS PRO Mask Shim Set HNS
113270 DSPS PRO Mask Shim Set HO
113290 DSPS-Prominent® Cradle-IXMR
113760 Mask DSPS®-PROSCVRL set/5
113770 Mask DSPS®-PROSC set/5
113780 Mask DSPS®-PROSCVR set/5
113790 Mask DSPS®-PROSCL set/5
113820 DSPS-Prominent® baseplate, MR
113840 DSPS-Prominent® Cradle-I MR
113850 DSPS-Prominent® Cradle-II MR
113860 DSPS-Prominent® Cradle-V MR
113870 DSPS-Prominent® Cradle-III MR
113880 DSPS-Prominent® Cradle-IV MR
113890 Mask DSPS®-PROSHVRL set/5
113910 Mask DSPS®-PROSH set/5
113920 Mask DSPS®-PROSHL set/5
113930 Mask DSPS®-PROH, set/5
113990 Mask DSPS®-PRO, set/5

113940 Mask DSPS®-PROSHVR set/5
113950 Mask DSPS®-PROSVRL, set/5
113960 Mask DSPS®-PROS, set/5
113970 Mask DSPS®-PROSVR, set/5
113980 Mask DSPS®-PROSL, set/5

MR Unsafe

111730 Handgrips HNS, set/2
113120 DSPS-Prominent® baseplate
113140 DSPS-Prominent® Cradle-I
113150 DSPS-Prominent® Cradle-II
113160 DSPS-Prominent® Cradle-III
113170 DSPS-Prominent® Cradle-IV
113180 DSPS-Prominent® Cradle-VI
113190 DSPS-Prominent® Cradle-V
113210 DSPS-Prominent® Cradle-VIII
113260 DSPS-Prominent® Cradle-VII
113280 DSPS-Prominent® Cradle-IX
113710 DSPS®-PRO Coil Ref Tool



3. Intended Use/Indications for Use

Handgrips HNS, set/2: Positioning of the patient during radiotherapy and radiodiagnostics, including MR where indicated.

All other devices: Positioning and immobilization of the patient during radiotherapy. This includes positioning and immobilization of the patient during image acquisition to support treatment.

4. Baseplate and Cradle set-up

4.1 Securing the DSPS-Prominent® baseplate to the couchtop

- I. Position the two appropriate DSPS-Prominent® couchstrips on the couchtop.

For use in MR, use the dedicated glass fiber, MR Safe 3-Pin couchstrip.
Note: Both carbon fiber and glass fiber DSPS-Prominent® baseplates only accommodate low-pivot couchstrips. For more information, refer to IFU147100 - CouchStrips and Sidepieces.

- II. Position the DSPS-Prominent® above the couchtop. Then, align the slots at the bottom of the baseplate with the two couchstrips and carefully place the baseplate on the couchstrips.



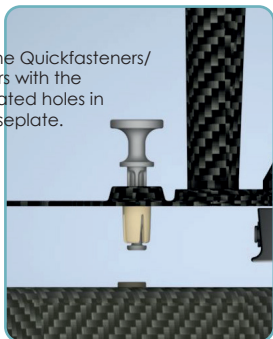
4.2 Removing the DSPS-Prominent® baseplate from the couchtop

Hold the baseplate firmly on the lateral sides and lift it upward, removing it from the couchtop. Now remove the two couchstrips from the couchtop.

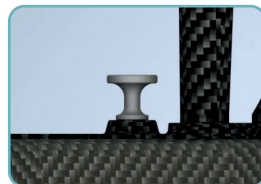
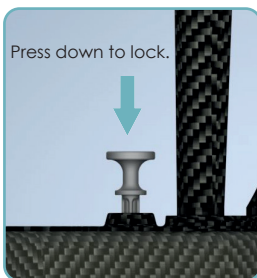
4.3 Securing the DSPS-Prominent® Cradle to the baseplate

- I. Secure the Cradle with the Quickfasteners/Plungers as shown below:

Align the Quickfasteners/
Plungers with the
designated holes in
the baseplate.

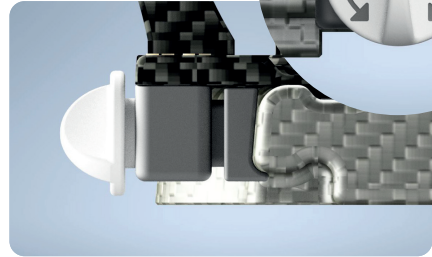
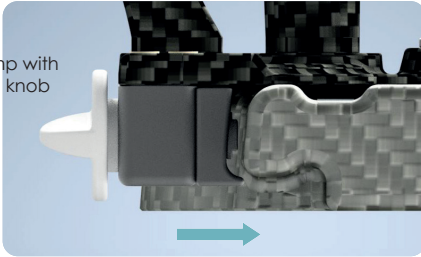


Press down to lock.



- II. Secure the 2 C-clamps of the Cradle to the baseplate. Hand-tighten both turning knobs on each side firmly until they securely lock onto the baseplate. Turn clockwise to lock.

C-clamp with
turning knob

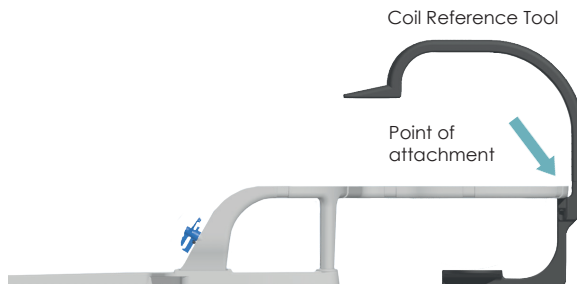


4.4 Removing the DSPS-Prominent® Cradle from the baseplate

First, release the Quickfasteners/Plungers by pulling them upwards. Do not pull too hard as this will lock the grommets (refer to section 8 for an illustration). Secondly, unlock the C-clamps by turning the knob in counter-clockwise direction.

5. Mask set-up

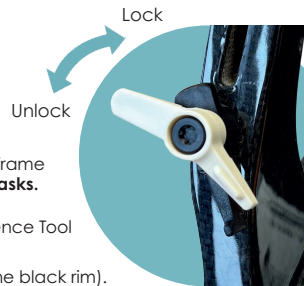
- Follow your department's patient positioning protocol.
- For DSPS® treatments, there should be approximately one finger width in between the cradle rim and the top on the patient's head.
- When using a mask on a patient with long hair, place the hair in a ponytail on top of the patient's head.
- When an MR Head coil will be used in the treatment workflow, the Coil Reference Tool should be attached to the frame during mask moulding to ensure that the formed mask will be able to fit in the MR Head coil.
- The Coil Reference Tool can be screwed to the DSPS-Prominent® frame.



5.1 Moulding the supine occipital mask

(Head only & Head, neck shoulder masks)

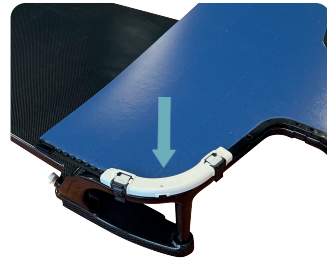
1. Make sure that the rotatable lock pawls (black and white) on either side of the frame are in 'unlocked' positions - **Only applicable for the head, neck and shoulder masks.**
2. When a Coil Reference Tool is being used, Rotate the top part of the Coil Reference Tool to one side so that it is not in the way when the patient has to lie down.
3. Take a new supine occipital mask (dark blue, RayOC thermoplastic mask with the black rim).
- 4.a **When using a Waterbath (for the head, neck & shoulder mask, we recommend using the MacroMedics MacroBath 4 or a bath with min. internal dimensions, in mm: 665w x 575d x 80h)** to heat the mask, set the water temperature between 68°C and 70°C (154.4°F and 158°F). Leave the mask in the water for approximately 15 to 20 seconds until it becomes sufficiently pliable. Take the mask out of the waterbath and dry it between two towels. Check the temperature of the mask before skin contact.
- 4.b **When using an Oven** to heat the mask, set the oven temperature between 68°C and 70°C (154.4°F and 158°F). Leave the mask in the oven for approximately 2 minutes and 50 seconds to 3 minutes, until it becomes sufficiently pliable. Take the mask out of the oven and check the temperature of the mask before skin contact. If the mask is too warm, let it cool down before placing it on the patient.
5. Ask the patient to sit up in the desired position. Place the mask onto the DSPS-Prominent® cradle so that the pins at the bottom of the black mask rim fall into the designated holes in the frame of the cradle/ baseplate.
6. Attach the left and right shoulder profile to keep the mask rim secured to the DSPS-Prominent® frame when the patient lies down.



Warm occipital mask taken out of the MacroBath 4 waterbath



Warm occipital mask positioned onto the DSPS-Prominent® frame



Attachment of the shoulder profiles.

7. Bend both of the ends of the mask rim (at shoulder height) along the slope of the cradle/baseplate's frame, then lock the mask rim on either side with the black rotatable lock pawl by sliding it over the end of the mask rim, as shown below - **Only applicable for the head, neck and shoulder masks.**



Bending of the mask rim at shoulder height



Mask rim unlocked

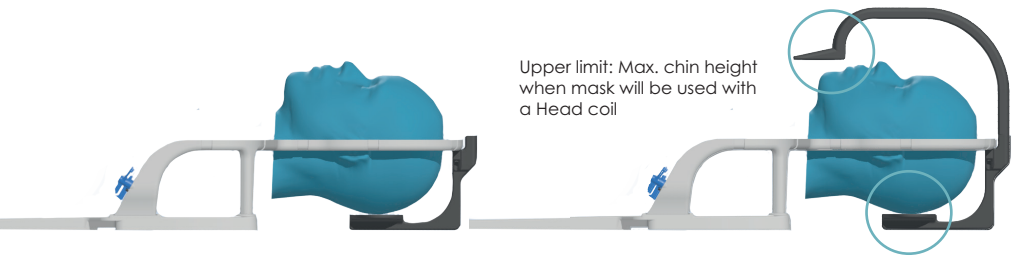


Mask rim locked

8. Ask the patient to gently lie down onto the mask. Gently position the patient's head on top of the mask in the desired position for treatment.

The mask will sink due to the weight of the patient. When an MR Head Coil will be used, the head should be positioned between the lower and upper limit of the Coil Reference Tool. The back of the head may touch the bottom of the Coil Reference Tool but should not rest on it.

If the depth of the impression is not deep enough, gently apply pressure with the palm of your hands on the patient's forehead to achieve the prescribed position and depth for the mask. Swing the top part of the Coil Reference Tool above the patient's head to check if the chin fits underneath it. If it does not, reposition the angle of the head slightly while the occipital mask is still mouldable. If the patient's chin exceeds the maximum height, the mask/ patient will not be able to fit in the Head coil.



9. Use your hands to mould the mask to the side of the neck and the cranial area, including the occipital bone. The ventral inferior line of the base of the skull is an optimal landmark to mould. Hold the mask in position for 10-20 seconds to ensure an impression is formed.
10. When the mask material starts to harden, you can use cold packs or cold wet towels to cool the mask and speed up the setting process.
11. While keeping the patient in the same position, let the mask cool and set for at least 5 minutes. After 5 minutes, the mask should have fully set.
12. Remove the shoulder profiles.



5.2 DSPS-Prominent® Occipital mask with SGRT for Head and Neck “Maskless” Radiotherapy.

Ensure the use of an appropriate Surface-Guided Radiation Therapy (SGRT) system for patient monitoring when treating with an occipital shell alone. Follow your departments' patient positioning protocol and set your ROI and tolerances for your surface guided system based on your department protocols.



I. Moulding the occipital mask

Follow the guidelines in Section 5.1 for moulding the DSPS-Prominent Occipital Mask.

Ensure the patient's head remains in a neutral position while moulding the mask to allow the SGRT cameras to accurately capture the patient's surface.

Keep the shoulder profiles attached to the mask rim and frame during the moulding, treatment planning, and treatment phases.

II. Removing the occipital mask

Follow the steps outlined in Section 5.5 for safe removal.

III. During treatment

Patient Awareness of Gantry Movements (for C-arm Linac):

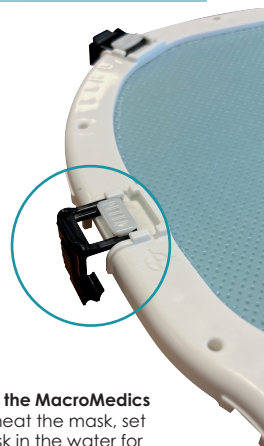
Notify the patient about possible gantry movements during treatment. This prevents them from instinctively following the movement. Advise the patient to keep their eyes closed during treatment to reduce the likelihood of tracking the gantry's rotation.

Compliance with Clinical and Surface-Guided Protocols:

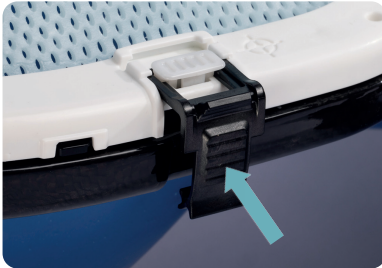
Adhere to your department's clinical practices and SGRT protocols for patient monitoring and safety. For system-specific guidance, consult your SGRT vendor.

5.3 Moulding the facial mask

1. If using a Coil Reference Tool, rotate the top part of the Coil Reference Tool to one side again so that it is not in the way when the patient has to lie down.
2. Instruct the patient to lie down in the supine position with the head and neck or head, neck and shoulders resting on the occipital DSPS mask, previously made.
3. Take a new facial mask (perforated RayPRO thermoplastic mask with the white rim).
4. Make sure that all the black sliding lock pawls are in 'unlocked' position as shown here so that it can be locked to the frame immediately during moulding.
- 5.a **When using a Waterbath (for the head, neck & shoulder mask, we recommend using the MacroMedics MacroBath 4 or a bath with min. internal dimensions, in mm: 665w x 575d x 80h)** to heat the mask, set the water temperature between 68°C and 70°C (154.4°F and 158°F). Leave the mask in the water for approximately 1 to 2 minutes until it becomes sufficiently pliable. Take the mask out of the waterbath and dry it between two towels. Check the temperature of the mask before skin contact.
- 5.b **When using an Oven** to heat the mask, set the oven temperature between 68°C and 70°C (154.4°F and 158°F). Leave the mask in the oven for approximately 4 minutes to 4 minutes and 30 seconds, until it becomes sufficiently pliable. Take the mask out of the oven and check the temperature of the mask before skin contact. If the mask is too warm, cool it down before placing it on the patient.
6. Position the mask above the patient's face, with the MacroMedics logo on the rim facing upwards.
7. The nose hole should be positioned on the superior tip of the nose first. Stretch the mask down slowly to the cradle/baseplate's frame in a smooth, continuous movement for even stretch of the material.
8. When using a long hair mask, position the ponytail through the gap in the top of the mask rim.



9. Push the white facial mask rim slowly towards the black occipital mask rim. Once both rims touch, secure the mask to the cradle/baseplate's frame by pushing the sliding lock pawls into locked position. Be careful not to pinch the patient's ears or skin around the neck between the mask rims.



10. Now secure the ends of the facial mask rim to the cradle/baseplate's frame as well, just as described in step 7 of chapter 5.1, by locking the second (white) rotatable lock pawl - **Only applicable for the head, neck and shoulder masks.**



11. If using a Coil Reference Tool, swing the top part of the Coil Reference Tool above the patient's head again to check if the chin still fits underneath it.
12. Use both hands to mould the structures of the face like the nose bone, orbitae, chin, and forehead.
13. After moulding the facial region of the mask, proceed with moulding the mask around the neck and shoulders - **Only applicable for the head, neck and shoulder masks.**



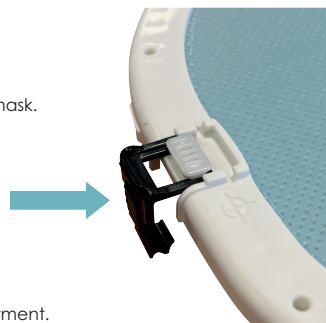
14. To speed up the setting process, you can use cold packs or cold, wet towels to cool the mask. Cure and cool the mask for at least 5 minutes.
15. Label the mask(s) with the patient's name/ identifier.

5.4 Removing the facial mask

1. Unlock the two white rotatable lock pawls at both sides of the frame - **Only applicable for the head, neck and shoulder masks.**
2. Unlock the black sliding lock pawls. Place your thumb on top and your index finger at the bottom of the black lock pawl. With care, gently push a little upwards with your index finger to unlock it and then pull with both fingers in the horizontal direction, into unlocked position.



3. Remove the facial mask.
4. The patient can now get up.
5. Push the sliding lock pawls back into locked position for storage of the mask.



5.5 Removing the occipital mask

1. Unlock the two black rotatable lock pawls at both sides of the frame.
2. Remove the shoulder profiles if only the occipital mask was used during treatment.
3. Lift the mask from the DSPS-Prominent® frame.

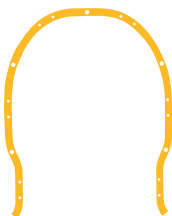
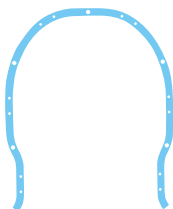
6. Using Shims

To maintain patient comfort in cases of facial swelling, you can increase the separation between the lower and upper masks by inserting a dedicated shim between them. There are two types of shim sets available: one for the head, neck, and shoulder masks, and another for head-only masks. The thicknesses of each set are as follows:

The shim set for DSPS-Prominent® head-only masks includes:

Blue: 1mm

Yellow: 1,5mm

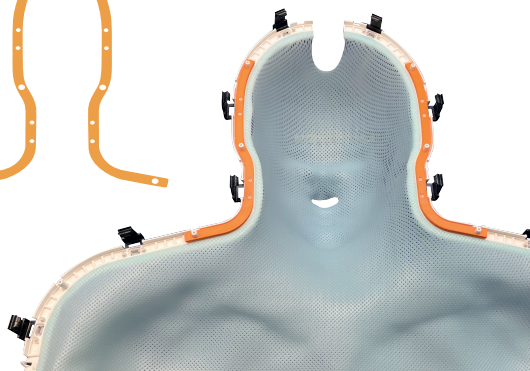


The shim set for DSPS-Prominent® head, neck and shoulder masks includes:

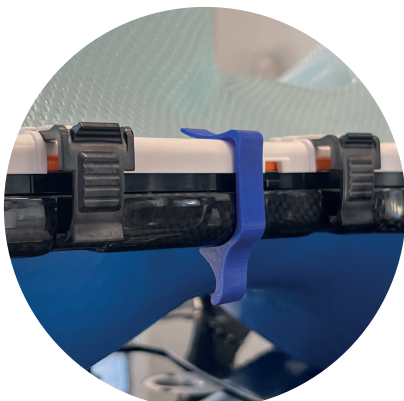
Purple: 2mm

Green: 3mm

Orange: 4mm



***Do not stack different shims on top of each other.**

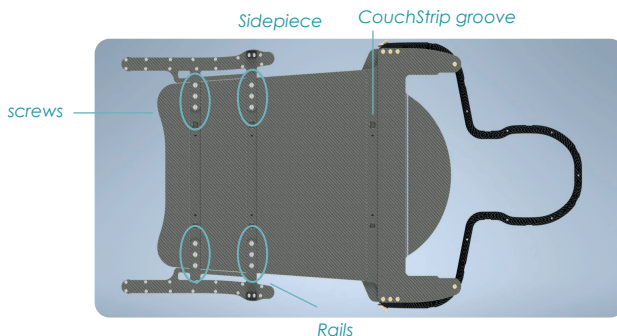


Using shims will increase the space between the mask rims. As a result, the black sliding lock pawls may not close properly. To secure the masks to the frame, please use the supplied blue clips. The pin on the clips will lock securely into the holes in the frames, ensuring a stable attachment.

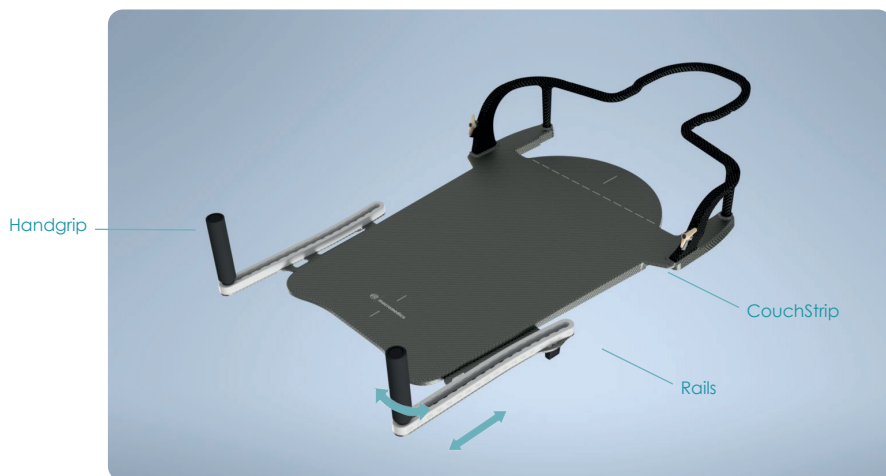
7. Attaching handgrips to the CF baseplate

The handgrips are optional accessories to the carbon fiber DSPS-Prominent® baseplate or other carbon fiber RealEase and S-Type baseplates with which the DSP-Prominent® carbon fiber Cradles are being used.

- I Screw the rails to the bottom of the baseplate. Make sure that all 12 screws are tightened.



- II Carefully align the DSPS-Prominent® baseplate with the CouchStrip and gently slot into place.
- III Place the handgrips into the rails and slide them into the required position. Turn the handgrips clockwise to tighten them and counterclockwise to loosen them.

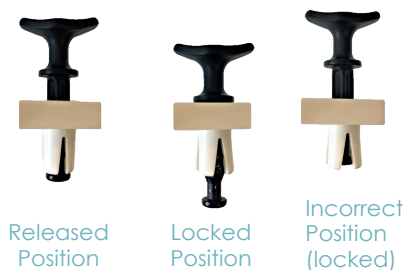


IV DETACHING THE HANDGRIPS

Loosen the handgrips by rotating them counterclockwise. Slide the handgrips off the rails. Carefully flip the baseplate over to access the screws. Remove the 12 screws securing the rails to the baseplate. The rails will now detach.

8. Cleaning, Storage and Disposal

- Clean the device (and accessories) thoroughly before and after every use with 70% Isopropanol or soapy water, applied with a soft cloth. Rinse with water and dry properly. Follow the cleaning precautions detailed on the bottle of the cleaning agent.
- Having cleaned the device, perform a visual inspection of the device to ensure that it is thoroughly clean. If it is not, either repeat the cleaning process described above until the device is thoroughly clean upon visual inspection or dispose of the device to prevent the use of a soiled device.
- If unsure about the cleaning fluid, do not use it. Never use Ethanol (Ethyl alcohol), aerosol sprays, corrosive cleaning agents, solvents or abrasive detergents.
- Store the thermoplastic masks in a dry place, away from direct sunlight.
- Store the products with the black sliding lock pawls in locked position.
- Store the products with the C-clamps in locked position.
- Dispose of the device in accordance with the local laws and regulations applicable to your country.
- Store the products with the Quickfasteners/Plungers in the released position to prevent grommet deformation.



9. Warranty

The MacroMedics products are warranted to be free from defects in manufacturing, material and construction. The warranty is for 1 year starting from the date of delivery.














Product warranties remain valid provided the product was installed and/or used according to the instructions. Defects, malfunctions or failures caused by nature, misuse, abuse and unauthorised alteration or repair are not warranted.

This warranty is limited to the repair and/or replacement at the sole discretion of MacroMedics.

10. Notices

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user or patient is established.

11. Glossary of Symbols

Symbol	Symbol Name	Description of Symbol
	European Conformity	EC declaration of conformity by manufacturer.
	Manufacturer	Indicates the medical device manufacturer.
	Catalogue Number	Indicates the manufacturer's catalogue number so that the medical device can be identified.
 GS1 Code: (10)	Batch Code	Indicates the manufacturer's batch code so that the batch or lot can be identified.
 GS1 Code: (21)	Serial Number	Indicates the manufacturer's serial number so that a specific medical device can be identified.
	Consult Instruction for Use	Indicates the need for the user to consult the instructions for use.
	Caution	Indicates the need for the user to consult the instructions for use for important cautionary information such as warnings and precautions that cannot, for a variety of reasons, be presented on the medical device itself.
Rx ONLY	Prescription Only	Devices for sale to physicians or trained healthcare providers only.
	Keep Dry	Indicates a medical device that needs to be protected from moisture.
	Keep Away from Sunlight	Indicates a medical device that needs protection from light sources.
	Use-by-Date	Indicates the date after which the medical device is not to be used. When the graphical symbol is used, the date is expressed in the format: YYYY-MM-DD. On the other hand, when expressed next to the GS1 Code (17), the date is in the format: YYMMDD.
	MR Safe	An item that poses no known hazards resulting from exposure to any MR environment. MR Safe items are composed of materials that are electrically nonconductive, nonmetallic, and nonmagnetic.
	MR Unsafe	An item which poses unacceptable risks to the patient, medical staff or other persons within the MR environment.
	Single patient multiple use	To indicate that the medical device may be used multiple times (multiple procedures) on a single patient.



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SOLUTIONS IN RADIOTHERAPY

MacroMedics BV

Oostbaan 670
2841ML Moordrecht
The Netherlands



+31(0)182 389 777
info@macromedics.com

www.macromedics.com

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18122025V9IFU113000