

Solutions for  
patient positioning  
and immobilization  
in proton therapy

**orfit** The  
precision  
expert



This product catalog will introduce you to **proton positioning and immobilization** that ensures accurate daily positioning, minimal patient motion and increased patient satisfaction.

---

We help to overcome daily positioning uncertainties

---

Minimal motion, maximum comfort

---

Special focus on pediatric solutions

---

Customer care from identifying your needs to helping you get the most value out of the product.

---

For more than 30 years, Orfit Industries has been providing solutions for immobilizing and positioning patients in Radiation Oncology.

Based on an in-depth knowledge of the market, our team of engineers and product designers has developed adaptive solutions that correspond with the requirements of ever increasing precision in radiation therapy.



# AERIAL

PROTON COUCH TOP | ORFIT

Discover Aerial®, a revolutionary proton couch top that optimizes the impact of the proton dose.

Combined with our unique Nanor® masks we bring more comfort to the patient while safeguarding stability and reproducibility.

---

Homogeneous over the entire treatment area

---

Radiolucent

---

Reproducible patient positioning

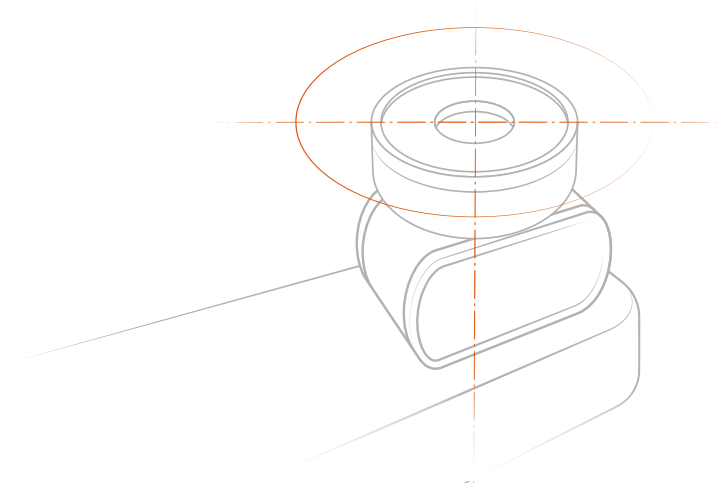
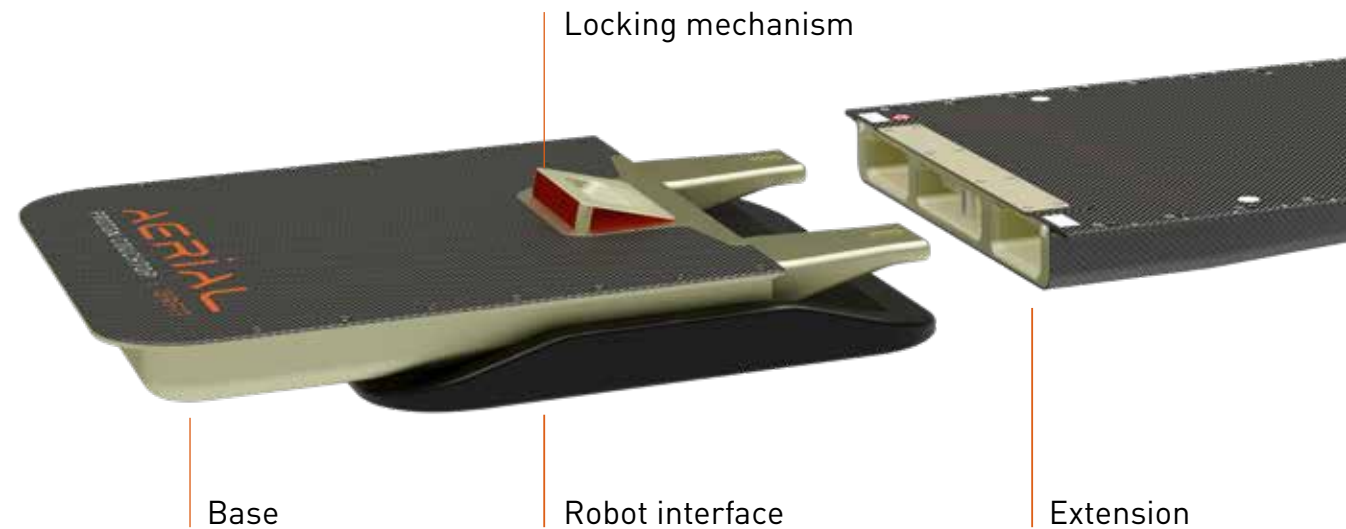
---

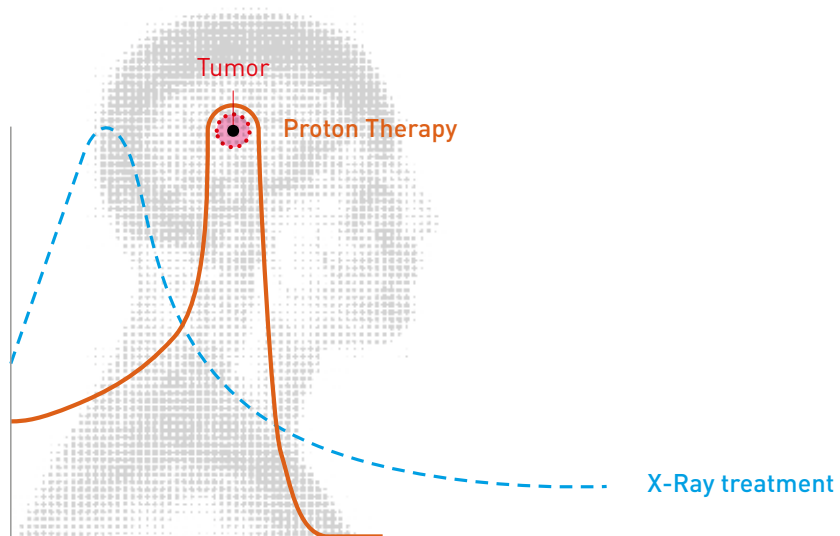
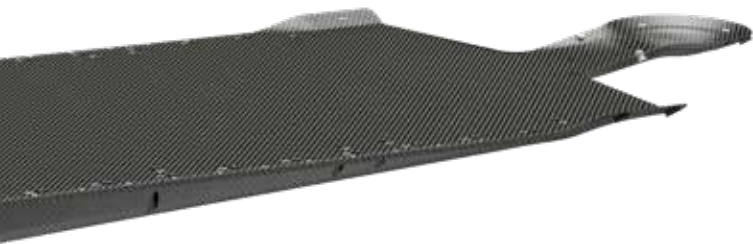
Precise patient immobilization

---

Safety and ease-of-use

---





Source: <http://www.samsunghospital.com/home/proton/en/whatIsProtonTherapy/principle.do>

Changes in absolute Wet values are limited,  
with an observed variation of less than 0.5 mm,  
over 100 mm distance in longitudinal direction.

The Aerial Couch Top consists of  
a base and a variety of extensions  
(available in different lengths)

• HP PRO



• Rectangular



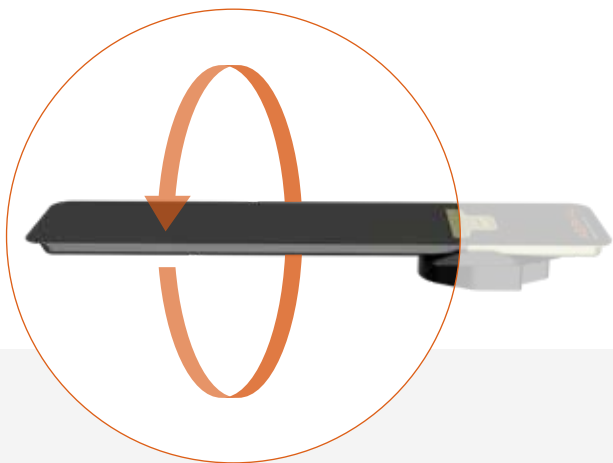
• HP Pro Pediatric

(available for different ages)



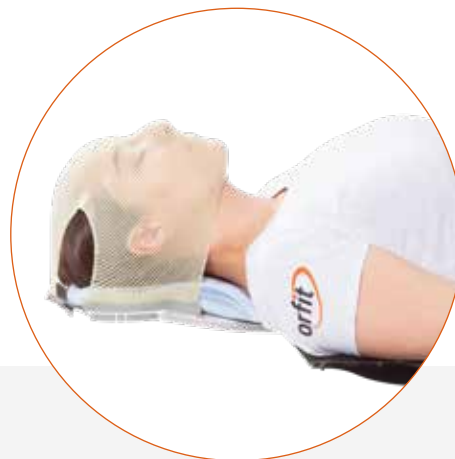


## Unique features, important benefits



### Homogeneous treatment area

The couch top floats in the air without rails or other obstructions underneath.



### Optimal mask stability and patient position reproducibility

The use of Orfit HP PRO masks results in the high level of reproducibility and precision that proton therapy demands.



### Safe locking mechanism

A patented dual locking mechanism with visual control that adheres to the highest standards.



► **235 kg**

Supports patient load up to 235 kg (518 lb), limiting the effects of couch sag on treatment delivery accuracy.



**WET value < 0.5 mm**

Changes in WET value in the couch top are limited to less than 0.5 mm WET variation over a 10 cm distance in longitudinal direction.



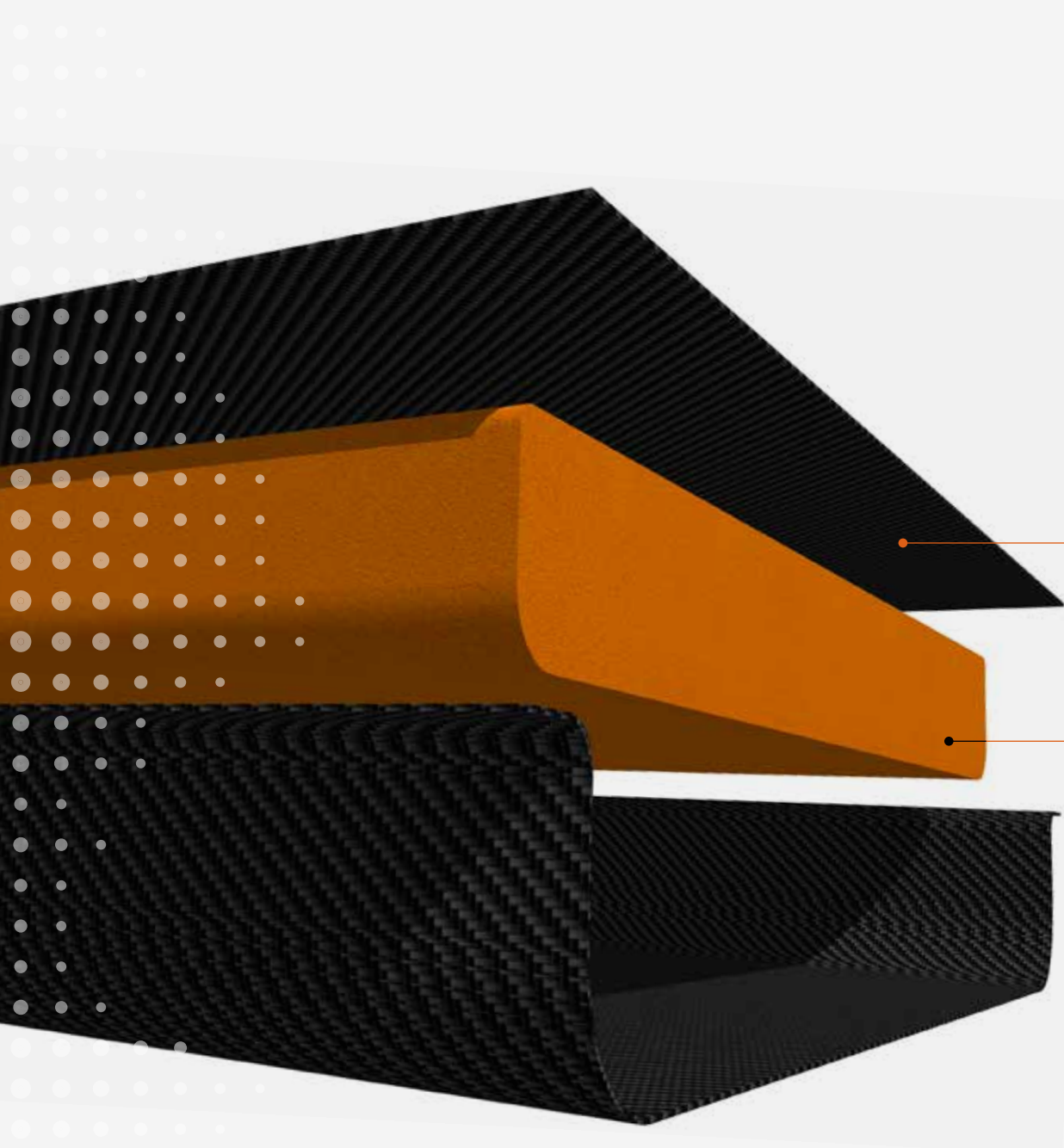
→ **1mm** ←

3-points single layer HP PRO masks allow for a PTV margin of 1 mm.



**CE-marked and FDA listed**

Aerial is CE-marked and received 510(k) Clearance for U.S. Sales and Clinical Use.



## Premium choice of materials

The right material selection augments the product's durability, increases the load carrying capacity and reduces overall weight of the couch top.

### Premium Carbon Fiber

By selecting a carbon fiber with a very high bending stiffness, we are able to produce a light and rigid structure that supports high loads.

### Uniform Low-Density Foam Core

The secret behind the lower final part weight is a fine cell structure foam in combination with optimal fiber and resin addition.



## A note from our product design engineers

Orfit's product design engineers envisioned a couch top that seemingly floats in the air.

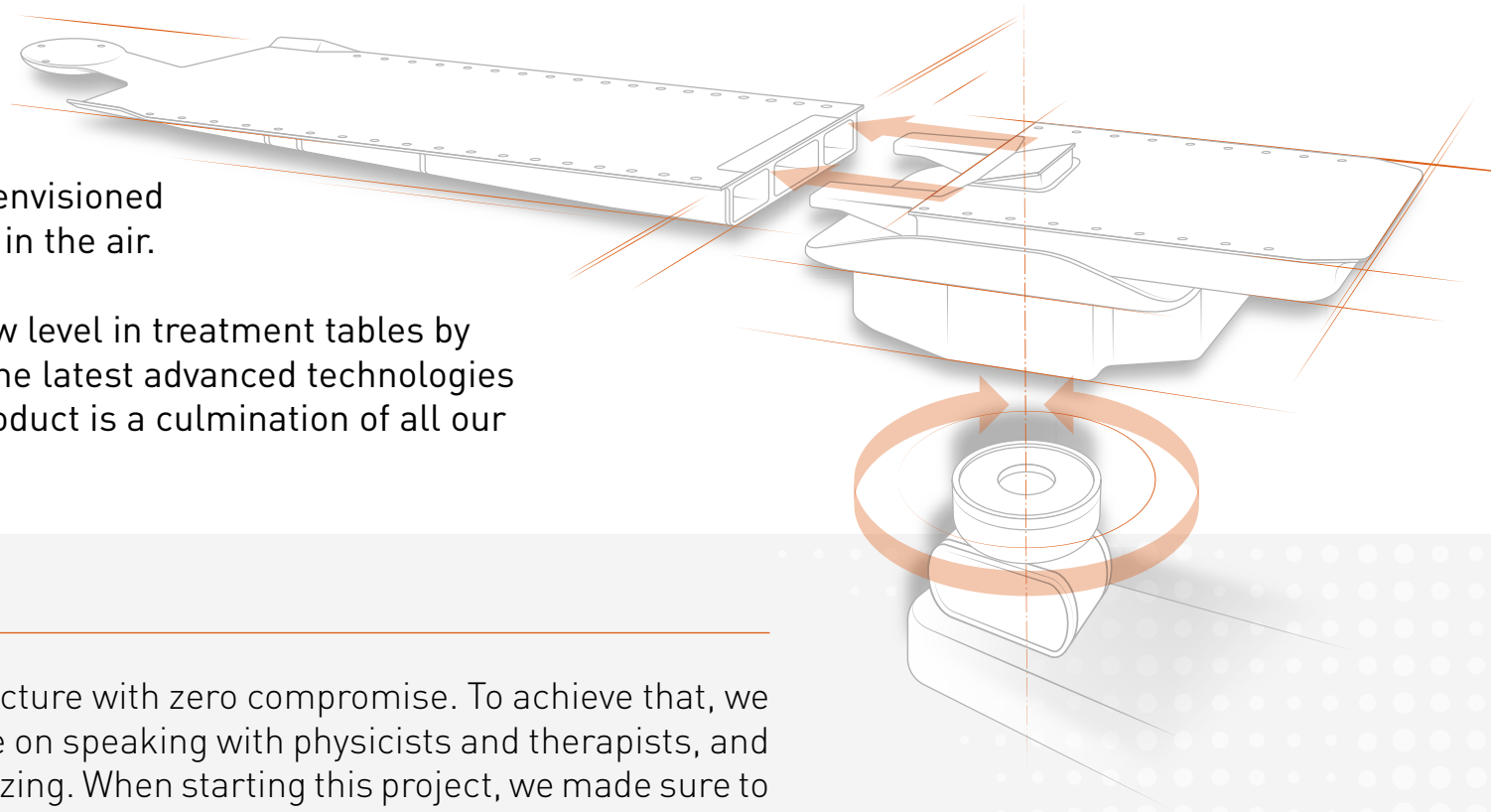
The Aerial couch introduces a new level in treatment tables by using the newest materials and the latest advanced technologies in its production process. This product is a culmination of all our design and engineering efforts.

---

“Our aim is to design and manufacture with zero compromise. To achieve that, we spent an extensive period of time on speaking with physicists and therapists, and by prototyping, testing, and analyzing. When starting this project, we made sure to create a device that is in line with the highest technical standards, without being overly complex, so that it helps in assuring the best possible clinical outcome for patients. The combination of technology and human factors is the sweet spot of a truly successful design.”

– Aerial product designer –

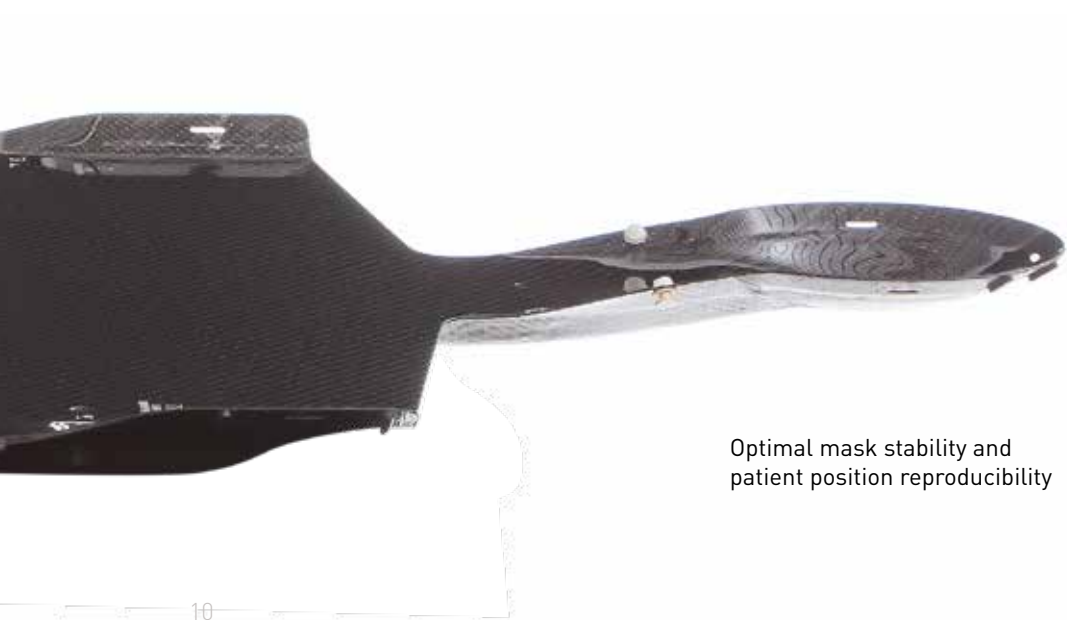
---



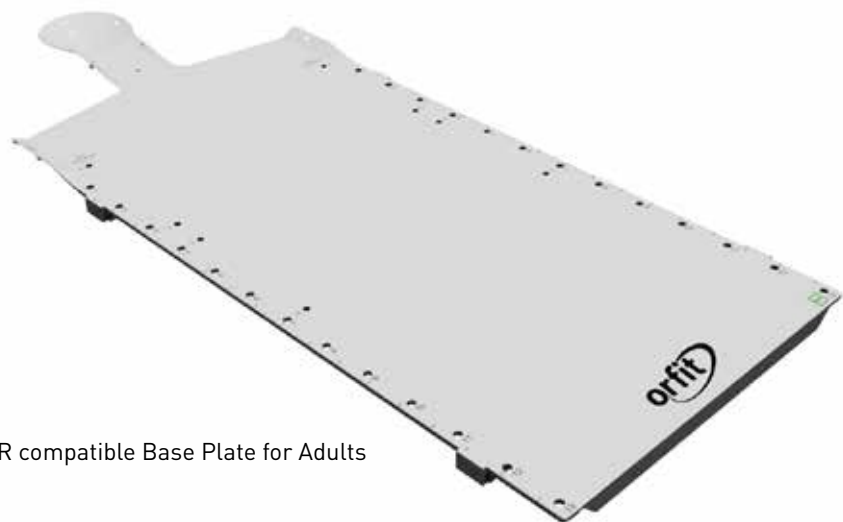


## Positioning solutions HP PRO Base Plates

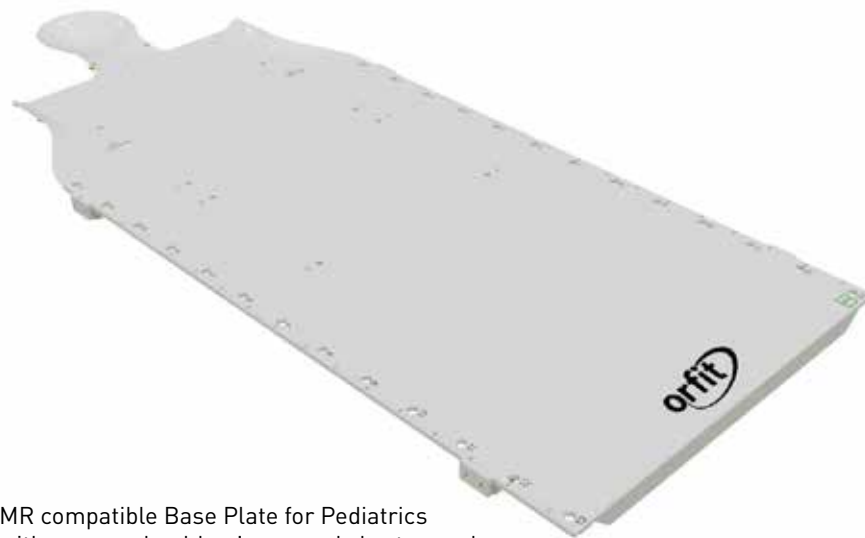
HP PRO Base Plates have been designed to meet the specific standards proton therapy demands. A homogeneous, low density base plate with a narrow head and neck area allows the gantry to come close to the patient and minimizes the air gap. Each base plate is lightweight, with excellent dosimetric properties.



Optimal mask stability and  
patient position reproducibility



MR compatible Base Plate for Adults



MR compatible Base Plate for Pediatrics  
with narrow shoulders' area and shorter neck area

## ADULT BASE PLATES

Art. N°	Product Description	Interface	Compatibility
25000/1	Extension and overlay	pin	—
25000/22	Extension and overlay short	pin	—
25000/25	Extension extra long	pin	—
25000/20	Extension Type 1	clamp	—
25000/30	Extension Type 2	clamp	—
25000/18	Overlay	—	—
250000/26	Overlay	—	Elekta Hexa-POD™ evo RT System
25000/31	Rectangular extension	pin	—
25000/1/MR	Overlay	—	MR

## PEDIATRIC BASE PLATES

Art. N°	Product Description	Interface	Compatibility
25000/27	Extension 0-7 years	pin	—
25000/28	Extension 0-7 years, type 2	clamp	—
25000/16	Extension 8-16 years	pin	—
25000/27/MR	Overlay 0-7	—	MR
25000/35	Extension 8-16 years, Type 1	clamp	—
25000/29	Extension 8-16 years, Type 2	clamp	—
25000/36	Extension extra long 8-16 years	pin	—
25000/33	Overlay 8-16 years	—	—
25000/16/MR	Overlay 8-16 years	—	MR
25000/70	Overlay 0-7	—	Elekta Hexa-POD evo RT System
25000/71	Overlay 8-16	—	Elekta Hexa-POD evo RT System
25000/75	Overlay 0-7	—	—

## Positioning solutions: Accessories

### T-shaped Vacuum Bag and Moldcare Cushion

A vacuum bag or moldcare cushion gives extra support to your patient's shoulders. Individual shoulder positioning will prevent shoulder sagging.

### Head & Neck Moldcare Cushions

Available in three sizes to create a personalized head rest cushion.

### Hand Holds

Hand holds offer your patient a place to rest their hands during treatment. It will help them feel more relaxed during treatment and has a positive effect on tense shoulders.

### Flexible Shim

A flexible shim is placed on top of the moldcare head rest cushion to counteract patient swelling.



Head Rest Indexing Plate

The Head Rest Indexing Plate is used to attach a personalized head support, such as a Moldcare Cushion, to the base plate.

Cranial back stop

To ensure that the head of the patient is correctly positioned, and prior to the molding of the mask, a cranial back stop can be attached to the cup-like head rest of the base plate.



Accessories

Art. N°	Product	Size	Quantity
25000/6	Cranial Back Stop	—	1
25000/17/A	Hand Hold A	—	1
25000/17/B	Hand Hold B	—	1
18211	T-Shaped Vacuum Bag	595 x 600 mm, 7 liter	1
18094	T-Shaped Moldcare Cushion	—	1
18090	Moldcare	150 x 200 mm	1
18091	Moldcare	200 x 250 mm	1
18092	Moldcare	200 x 450 mm	1
25000/58/20	Adult Head Rest Indexing Plate	—	20
25000/39/20	Pediatric Head Rest Indexing Plate	—	20
25070	Adult Flexible Shim	1 mm	1
25071	Pediatric Flexible Shim	1 mm	1

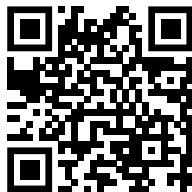


## About patient comfort

A high comfort level may promote patient stability and will contribute to the best possible patient experience, but finding a comfortable treatment position for your patient continues to be a challenge?

Conventional immobilization solutions have limitations regarding patient comfort and some clinicians naturally hold on to the most rigid materials available in the market.

Dive into a Nanor mask and learn how nanoparticles create a strong mask with a thickness of only 1.6 mm.

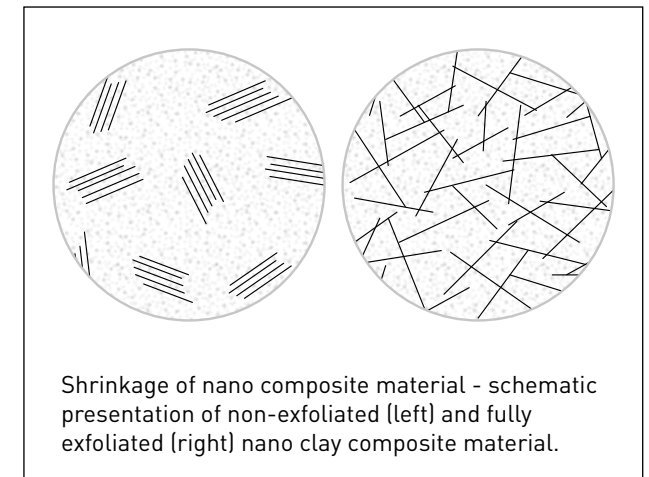


To better understand, let's dive into a conventional thermoplastic mask. Its internal structure consists of a non-exfoliated polymer matrix, where polymer layers are completely separated. Once the mask has cooled down to room temperature, these polymer layers will shrink, creating a mask that feels too tight and that brings physical discomfort.

Nanor masks, that consist of a polymer matrix reinforced with nanoparticles, form a cluster network that keeps the micro volume sizes more stable. It results in a mask with **less shrinkage** and **less pressure** on the patient's face.

These same nanoparticles establish a unique internal structure that create a very strong mask with a thickness of only 1.6 mm.

With Nanor we focus on the impact a mask can have on a positive patient experience. It's about how your patients feel. Do they feel calm? Are they able to control their breathing? Does he or she feel fine lying immobilized on the treatment couch? **Optimizing patient experience during simulation and treatment plays an important role in achieving a better overall experience, with better care as the final outcome.**





## Immobilization Solutions

Orfit masks for proton therapy are available for brain; head, neck and shoulders; and abdomen-pelvis.

All cranial mask profiles are designed without sharp corners or edges to achieve an optimal interaction between the immobilization equipment and the proton beam. The patented mask locking mechanism clicks on the base plate in two steps and can be quickly released in case of emergency. The masks contribute to minimal patient motion, and maximum comfort by using Nanor thermoplastic materials.

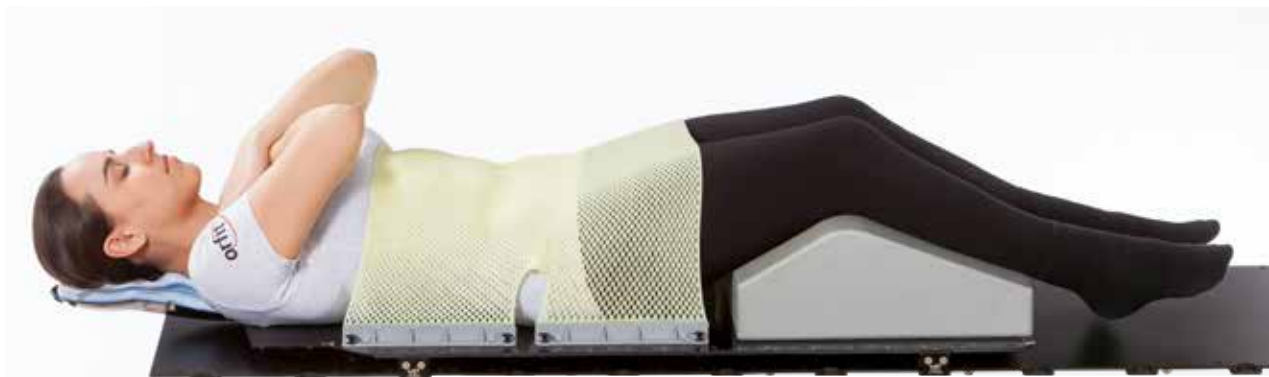
Abdomen-pelvic masks are used for patient immobilization for extracranial proton treatments, and are easily attached to the base plate with push-pins.

---

**Head-only single layer masks allow for a PTV margin of 1 mm.**

Source = MAASTRO (NL)  
[www.orfit.com/blog/proton-compatible-immobilization-tested](http://www.orfit.com/blog/proton-compatible-immobilization-tested)

---







## ADULT MASKS

Art. N°	Application	Opening	Size	Thickness	Perforation	Material
25100/16MI+N/NH	Head	—	—	1.6 mm	microplus	Nanor
25100/16MI+N	Head	with nose hole	—	1.6 mm	microplus	Nanor
25105/2MI+N/NH	Head, neck and shoulders	—	—	2 mm	microplus	Nanor
25105/2MI+N	Head, neck and shoulders	with nose hole	—	2 mm	microplus	Nanor
25108/2MI+N/NH	Head, neck and shoulders	—	large	2 mm	microplus	Nanor
25113/24MI+N	Head	no hole	—	2.4 mm	microplus	Nanor
25113/24MI+N/NH	Head	with nose hole	—	2.4 mm	microplus	Nanor
25114/24MI+N	Head	Open face	—	2.4 mm	microplus	Nanor
25115/24MI+N	Head, neck and shoulders	no hole	—	2.4 mm	microplus	Nanor
25115/24MI+N/NH	Head, neck and shoulders	with nose hole	—	2.4 mm	microplus	Nanor
25116/24MI+N	Head, neck & shoulders	Open face	—	2.4 mm	microplus	Nanor
45204/32MA/EFF	Pelvis mask adult	—	—	3.2 mm	maxi	Efficast

## PEDIATRIC MASKS

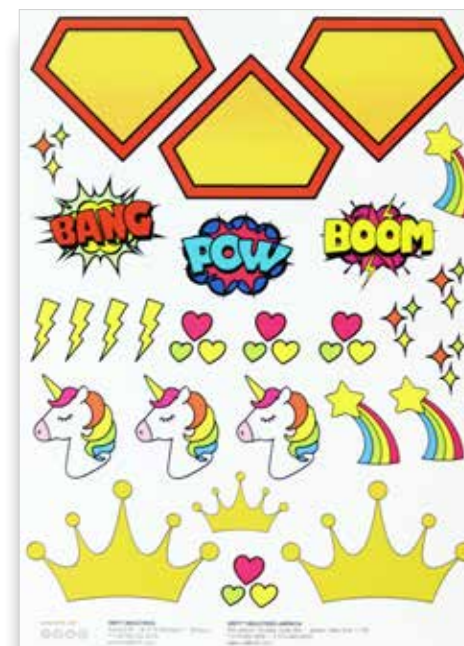
Art. N°	Application	Opening	Size	Thickness	Perforation	Material
25101/16MI+N/NH	Head	—	medium	1.6 mm	microplus	Nanor
25101/16MI+N	Head	with nose hole	medium	1.6 mm	microplus	Nanor
25103/16MI+N/NH	Head	—	small	1.6 mm	microplus	Nanor
25107/2MI+N/NH	Head, neck and shoulders	—	small	2 mm	microplus	Nanor
25106/2MI+N/NH	Head, neck and shoulders	—	medium	2 mm	microplus	Nanor
25106/2MI+N	Head, neck and shoulders	with nose hole	medium	2 mm	microplus	Nanor
25110/24MI+N	Head	Open face	medium	2.4 mm	microplus	Nanor
25112/24MI+N	Head, neck & shoulders	Open face	medium	2.4mm	microplus	Nanor

Various masks available to accommodate all head sizes.

## Solutions for pediatric patients

A radiotherapy mask becomes a close companion during treatment, often threatening and scary, but also cheering on to push through. We hope these colorful princesses and super hero themed stickers will give your pediatric patients the confidence and courage they need to push through treatment.

One free sticker sheet offered in each box of pediatric masks.



Are you an artistic Radiation Therapist or do you have a creative patient? Use our step-by-step painting guide to get started.







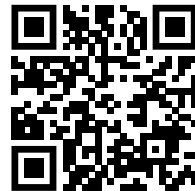
Customer Service is the backbone of our relationship with every Orfit client. Over the last 30 years, we have built a solid reputation for being a service-led company – delivering high quality products to meet all of your clinical needs and to exceed your expectations for ongoing support.

Wherever you are, you can count on the professionalism of the entire Orfit organization and our network of distributors.



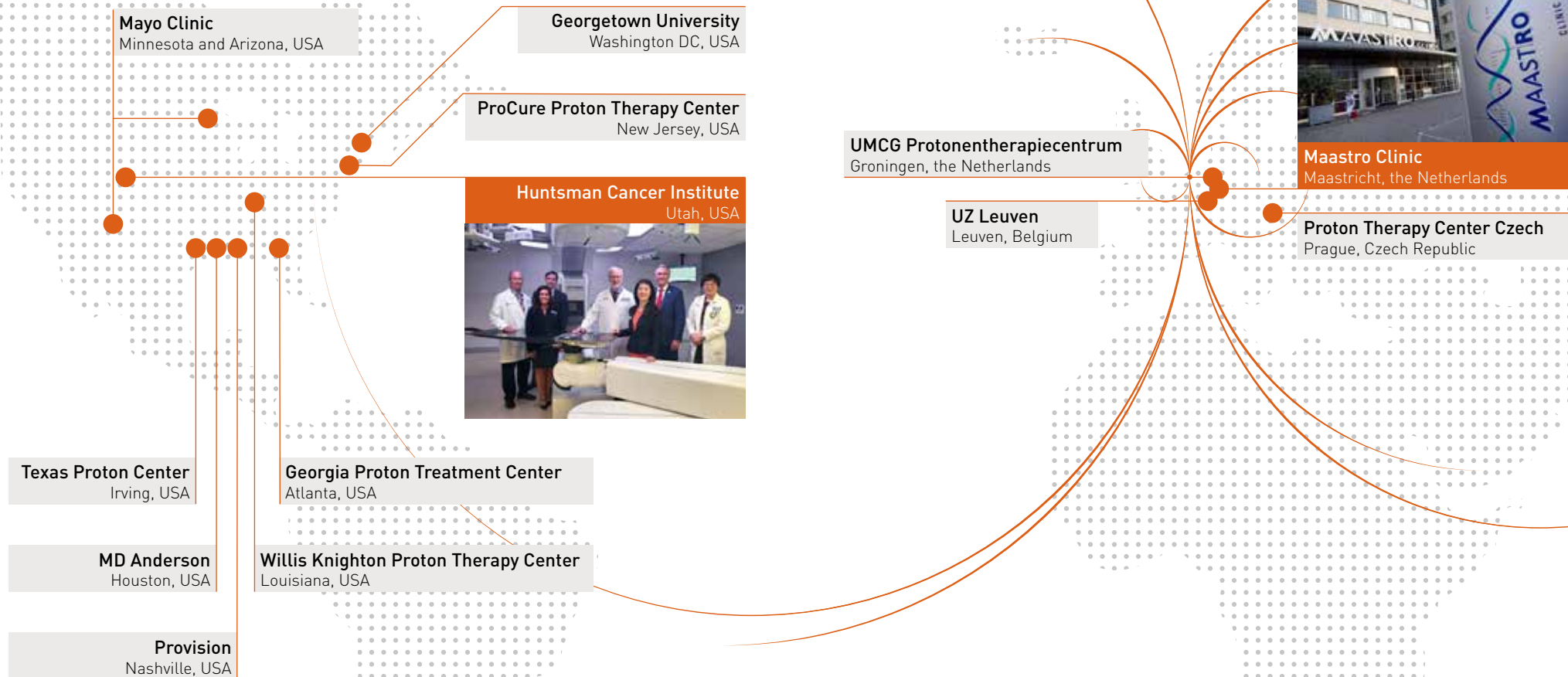
Go to [www.orfit.com/proton](http://www.orfit.com/proton) for more information.

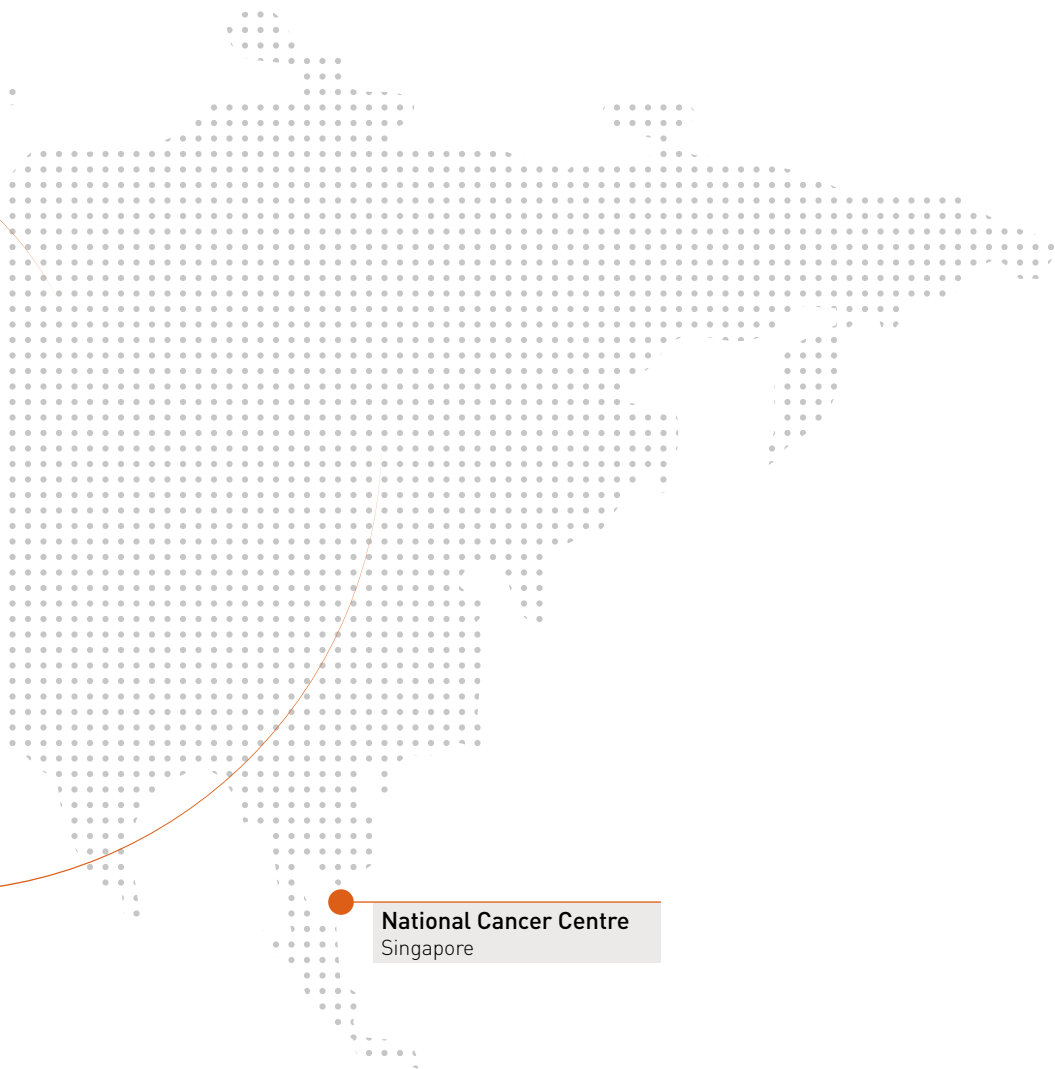
Contact us for an in-person or remote presentation  
▶▶ [welcome@orfit.com](mailto:welcome@orfit.com)











**National Cancer Centre**  
Singapore

Equipment installed in  
the respective locations  
on this map

Aerial Couch Top

HP PRO immobilization devices



Watch the video 'Proton Therapy  
Comes to Utah | Huntsman Cancer  
Institute' by scanning the QR code.





## About ORFIT

Orfit Industries brings high precision and comfort to the positioning and immobilization of cancer patients in proton therapy with solutions that perfectly pair with advanced proton therapy delivery techniques.

© 2021 Orfit Industries. All mentioned trademarks and registered trademarks are the property of Orfit Industries. All Rights reserved. No part of this document may be reproduced in any form without written permission of the copyright holder.

Visit

**WWW.ORFIT.COM/PROTON**  
for more information.

**www.orfit.com**



---

### ORFIT INDUSTRIES

Vosveld 9A  
B-2110 Wijnegem | Belgium  
T (+32) (0)3 326 20 26  
welcome@orfit.com

### ORFIT INDUSTRIES AMERICA

810 Ford Drive | Norfolk  
Virginia 23523 | USA  
T 516-935-8500  
welcome@orfit.com

25-01-2023  
Art. N° 51028/1

