



NOVATECH® 3D

Individualized  
Silicone Airway Stent



a bess group company



3D custom-made implants

NOVATECH

# Because Life is Precious.

Founded in 1986, we have been producing silicone stents developed by Dr. Dumon for over 30 years. In order to improve patient care, we have added many developments over the years, such as STERITALC® and various instruments for bronchoscopy.

Since 2003 we have been part of bess group in Berlin, Germany – a family-owned and managed medical device company with more than 30 years of expertise in medical device technology.



*NOVATECH office, production and warehouse in La Ciotat, south of France*

## Quality Made in Europe

Our high demand on quality, function and cost-effectiveness along with the ability to react quickly to individual needs, has earned us the trust of physicians worldwide



**NOVATECH**

Finest Products for Interventional Pulmonology



NOVATECH and AnatomikModeling

# Partners in Innovation.



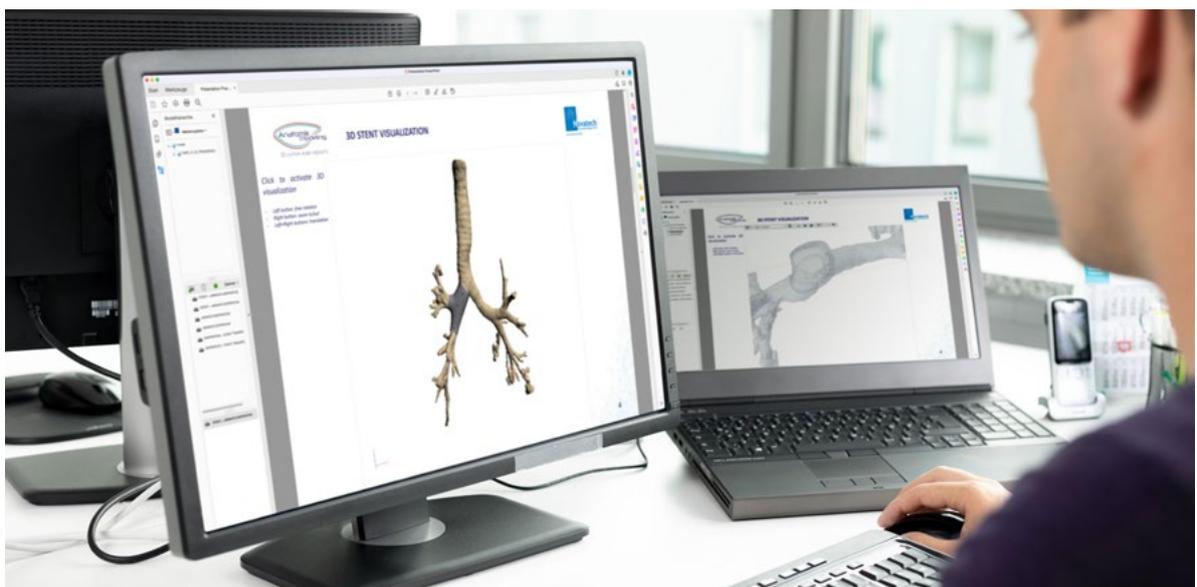
a bess group company



3D custom-made implants

AnatomikModeling is the result of 10 years of research and development in collaboration with Rangueil University Hospital and Larrey Hospital in Toulouse, France. Its particularly innovative technology of computer-aided design (CAD) enables the creation of personalized 3D implants.

AnatomikModeling continuously researches for innovative solutions to specific pathologies, using 3D technologies. Partnering with Novatech means the combination of high-end 3D-technology with profound expertise in pulmonology and manufacturing of silicone airway stents. The result is the **NOVATECH® 3D stent** — precisely adapted to the patient's individual anatomy, with the proven quality of a Novatech silicone stent.



# Fully individualized Airway Stent

## — a new approach

In cases of complex anatomy of the airways, common stent shapes may not fit or fix a patient's specific problem. Together with researchers from the Pulmonology department at Toulouse University Hospital, France, AnatomikModeling has successfully developed customized stents that correspond exactly to the patient's trachea and/or bronchi.

First results from a clinical trial with this new generation of stents have been published in *Thorax*, one of the world's leading respiratory medicine journals.<sup>1</sup>

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<sup>1</sup> Nicolas Guibert, Alain Didier, Benjamin Moreno, Benoit Lepage, Pierre Leyx, Gavin Plat, Laurent Mhanna, Marlene Murriss, Julien Mazières, Christophe Hermant  
Treatment of complex airway stenoses using patient-specific 3D-engineered stents: a proof-of-concept study. – *Thorax* 2018.



## Complete expert service

In difficult cases where standard stents are not suitable, our experts are at the physician's disposal to discuss, assist and find an individualized stenting solution.

There is no need for the physician to operate a design software. NOVATECH® 3D customized stents are entirely designed and manufactured by our engineers, based on the patient's CT data. A detailed description of the case will help to precisely identify the requirements.

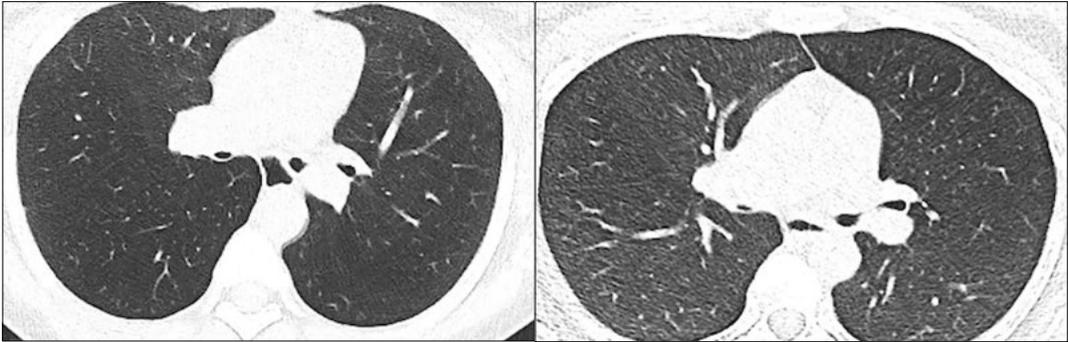


# Steps in creating a NOVATECH® 3D stent

## CT Data

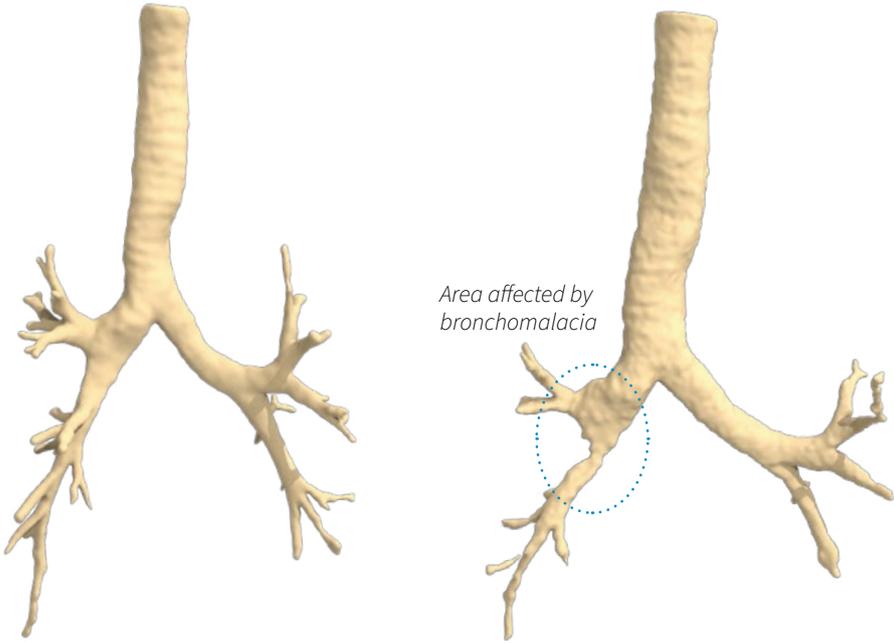
The patient's CT data is the starting point for creating a NOVATECH® 3D stent.

Based on CT-scan images of the patient's airways, provided by the physician via server upload or data carrier, a virtual 3D reconstruction of the patient's airways is produced.



Inspiration

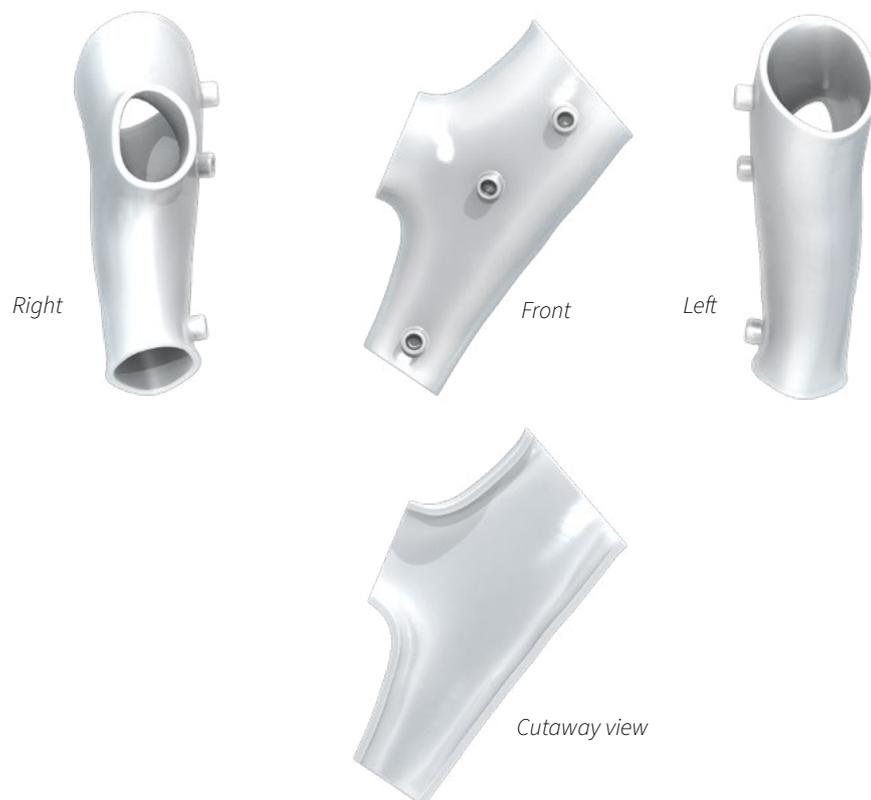
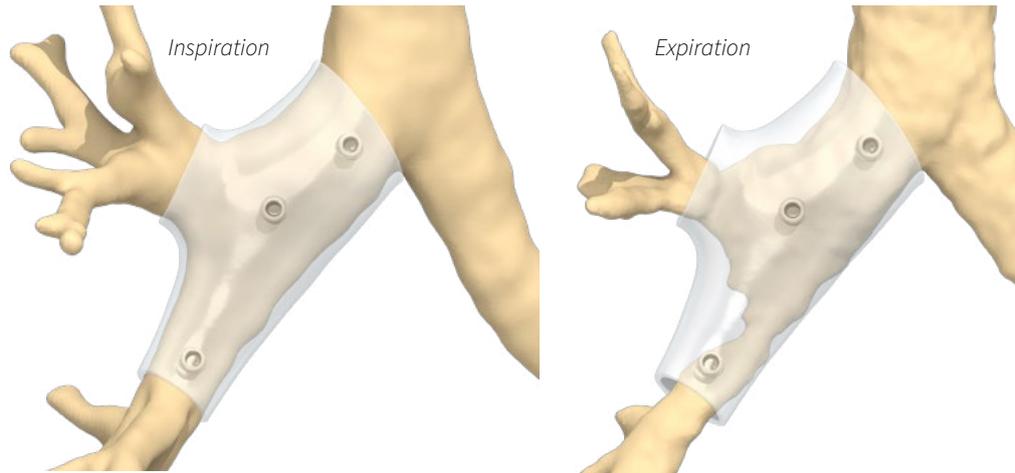
Expiration



## Design proposal

Based on the CT data, engineers create a stent design proposal.

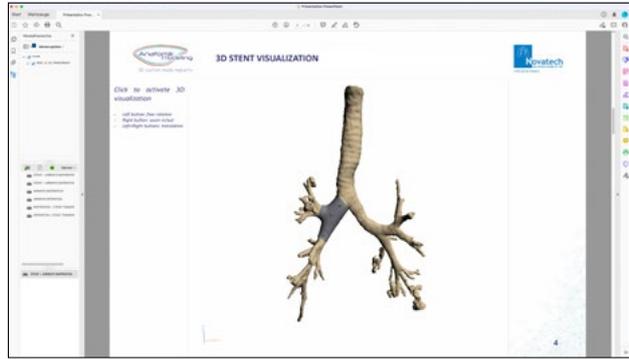
By means of the volumetric image of the affected airway region, the physician defines a perfectly fitting silicone stent. A stent is virtually designed, exactly adapted to the patient's anatomy. The physician receives an interactive 3D-pdf with the proposed stent-design via e-mail or download.



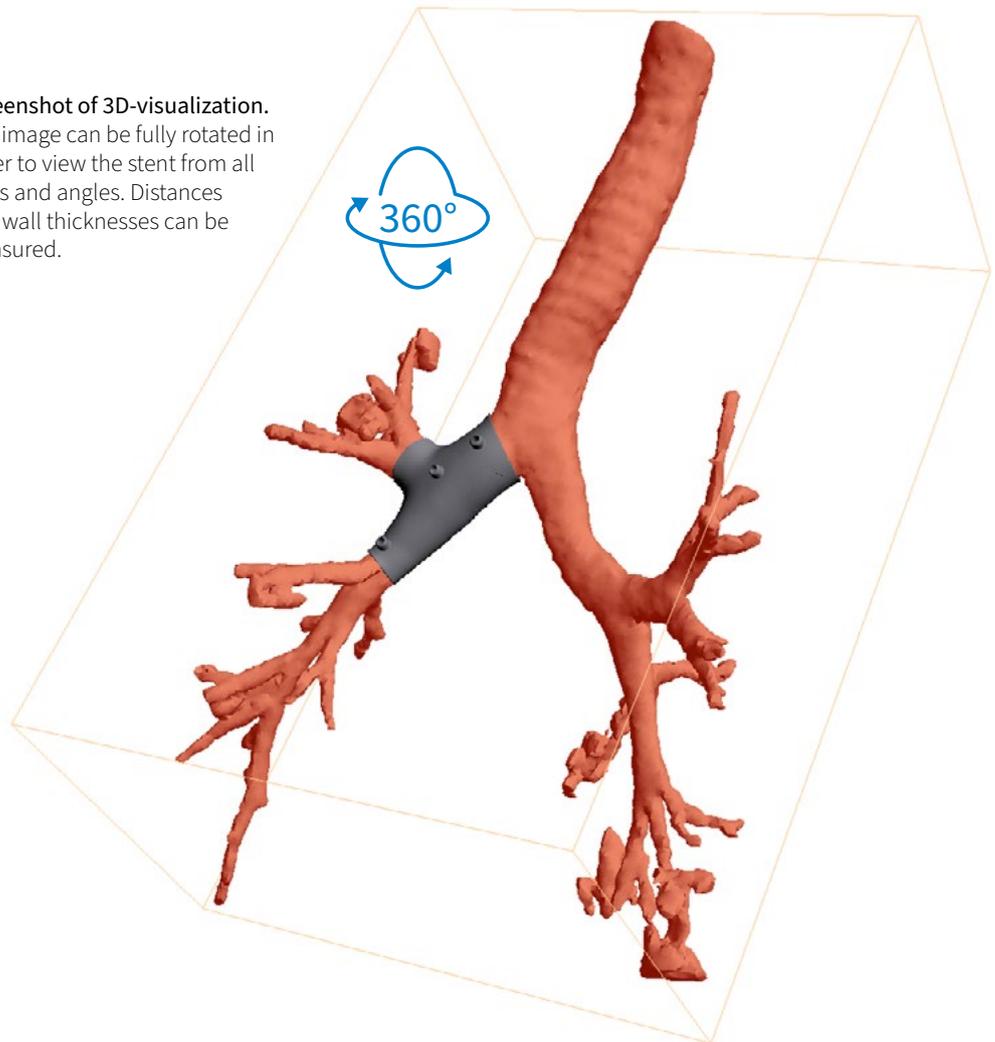
## Review and approval

An interactive 3D-pdf allows in-depth analysis of the proposed stent design.

The interactive 3D-pdf serves as an analysis tool for the physician. It visualizes the patient's anatomy and shows the proposed stent inside the patient's anatomy. By allowing to **view the stent from all perspectives** and to **measure distances and wall thicknesses**, the physician can make an informed decision on the suitability of the stent design. Once the stent design is final, the physician submits his approval for manufacturing the NOVATECH® 3D stent.



Screenshot of 3D-visualization. The image can be fully rotated in order to view the stent from all sides and angles. Distances and wall thicknesses can be measured.



## Stent fabrication

After the physician's approval, the design is used to manufacture the actual **NOVATECH® 3D** stent out of transparent silicone - in the familiar high quality of Novatech stents.



*NOVATECH® 3D stents*



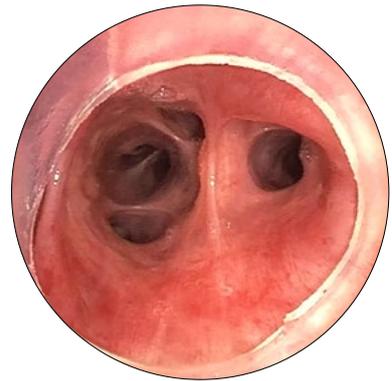
## Implantation

Successful implantation of a **NOVATECH® 3D** stent in a patient suffering from bronchomalacia in the right bronchus.



*Images kindly provided by  
PD Dr. Daniel Franzen, Zurich.*

before implantation ▲  
after implantation ▼



For more information and a video visit

**[www.novatech.fr/en/3D](http://www.novatech.fr/en/3D)**



## Proven features – and a multitude of options

Individualization of an airway stent comes along with a multitude of stent design options that can be realized. Thanks to Novatech's decades long experience in stent manufacturing, the individual **NOVATECH® 3D** stent combines this versatility with the proven Novatech quality - featuring the advantages of the renowned **NOVATECH® GSS™**.

### Shapes and Angles

NOVATECH® 3D stents can be realized in almost any requested shape.

### Wall thickness

Its wall thickness can be defined according to the physician's indications, variably along the stent contour.

### Long term implantable silicone

NOVATECH® 3D stents are made of the same high quality silicone as NOVATECH® GSS™.

### Studs

NOVATECH® 3D stents optionally feature studs to prevent stent migration. The location of the studs is fully variable.





### **Radiopacity**

Studs can be filled with gold and/or barium sulphate allowing X-ray visibility. X-ray markers can also be integrated into the stent wall.

### **Anti-Adherent surface**

A special silicone-based surface treatment provides an anti-adherent surface that reduces obstruction risks.

### **Sterility**

NOVATECH® 3D stents are manufactured and packaged under clean room conditions and are supplied sterile.

### **Placement**

Usually, it will be possible to load the NOVATECH® 3D stent into the TONN™ NOVATECH® Stent Applicator. Optionally, a second example of the stent can be manufactured for testing previous to placement.



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Silicone Airway Stent



NOV-MIR-PCA-3D-EN-Rev.2



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