Choose the digital option for your custom-made oral appliances

By integrating intra-oral scanning into its already computer-aided design and manufacturing (CAD/CAM) process, Narval CC can now be made 100% digitally. This digital workflow aims to provide an even higher level of quality and service to dental practitioners with ResMed’s mandibular repositioning device for the treatment of obstructive sleep apnoea (OSA) and snoring¹.

*From IOS to CAD/CAM

ResMed.com/Dentists
ResMed pioneered the use in Europe of **CAD/CAM with 3D printing** to create high-precision oral appliances to match the patient’s specific mouth anatomy.

Now, we’ve taken innovation one step further by integrating digital impressions into our manufacturing process. Dentists can use an intra-oral scanner from 3Shape, Dentsply Sirona or Carestream Dental to order a Narval oral appliance. The rapid, efficient digital workflow saves time by eliminating the need to pour models and send impressions by post and by speeding up the manufacturing process.
100% digital: take advantage of IOS technology in your dental sleep practice

**IOS Intra Oral Scanning**

IOS technology in dental sleep delivers strong benefits for your everyday practice:

- **Faster turnaround**
  Receive your Narval appliance in just 10 working days!

- **Reliable scans**
  Digital impressions eliminate the risk that imprint material will expand during transport.

- **Time & cost efficiency**
  Highly-accurate IOS for better device fitting resulting in less adjustment time and less chair time overall.

- **Simplified logistics**
  Streamline logistics by eliminating the burden of posting impressions and archiving physical models.

- **Improved patient data management**
  Access all your patient scans at any time from your computer.

- **ResMed Live assistance**
  ResMed will provide live assistance for your first 3 cases to ensure you have good quality scans before your patients even leave the chair.

The manufacturing process for the Narval appliance is compatible with intra-oral scanners from our 3 partners: 3Shape TRIOS®, Dentsply Sirona CEREC Omnicam and Carestream Dental CS3600.
In 2008, ResMed launched the Narval appliance, the world’s first CAD/CAM mandibular repositioning device. Since then, we’ve been constantly innovating and improving our manufacturing and design techniques. In a multicentre clinical trial, Narval devices conceived with CAD/CAM process have proven to be more effective in reducing sleep apnoea than non-CAD/CAM Narval devices. The result is a custom-made oral appliance that genuinely improves patient experience and quality of life.

**CAD** computer-aided design

**High degree of customisation**
Multiple design variations to fit patients’ specific needs and anatomical constraints.

**Consistent accuracy**
Standardised processes and digital technology to result in high-quality appliances.

**Smart clipping retention method**
CAD software accurately calculates the retention forces required by your patient and distributes them along the undercut zones, avoiding the gum and anterior teeth.

**A virtual articulator**
CAD software includes an idealised model simulating mandibular movements based on Quick Master B2 from Fag (France).

**CAM** computer-aided manufacturing

**Biocompatible**
The Narval appliance is made of a laser-sintered biocompatible polymer to minimise the risk of allergies.

**Durable**
The device is designed to be durable and strong enough to use in patients with bruxism.

**Lightweight**
CAM manufacturing minimise the bulk of the device and optimises tongue space.

**Traceable**
Each device has a unique serial number to facilitate patient traceability and follow-up.

Inside the 3D printing machine with laser sintering.
Positive results from European evaluations\textsuperscript{1,2}

The Narval 100% digital pathway has been assessed by two European evaluations conducted using 3Shape and Dentsply Sirona intra-oral scanners\textsuperscript{1,2}. Evaluations were conducted with 13 dentists from across Europe and included satisfaction questionnaires from 104 patients. Patients and dentists expressed high levels of satisfaction with the digital pathway.

**BENEFITS FOR DENTAL PRACTITIONERS**

- **Easy handling**
  98% of practitioners judged the scanning process to be convenient or very convenient\textsuperscript{2}

- **High accuracy**
  81% of Narval appliances made from digital impressions fitted well without any adjustments\textsuperscript{1}

- **High satisfaction**
  92% of dentists were satisfied or very satisfied with Narval appliances made from digital impressions\textsuperscript{1}

- **Improved fit**
  61% of Narval appliances made from digital impressions were judged to fit better than appliances made from conventional impressions\textsuperscript{1}

**BENEFITS FOR PATIENTS**

- **High satisfaction**
  More than 9 out of 10 patients were satisfied or very satisfied with their 100%-digital Narval appliance\textsuperscript{1}

- **Patient comfort**
  92% of patients found the Narval appliance to be comfortable or very comfortable\textsuperscript{1}
  Only 6% experienced a gag reflex\textsuperscript{2}
Extracts from this ResMed internal report:

1. In 92% of cases, the practitioner was satisfied or very satisfied with the device (N=40).
2. In 81% of cases, the device fitted well without any adjustment (N=102).
3. 93% of patients were satisfied or very satisfied with their device (N=40).
4. 92% of patients judged their device comfortable or very comfortable (N=92).
5. In 98% of cases, the practitioner found the scanning process convenient or very convenient (N=47).
6. A gag reflex was reported in 6% of cases (N=47).

3 to 6 months follow up results:

- Success rate (reduction of initial AHI ≥50%) of the Narval CC CAD/CAM MRD: 79% (CI 95%: 74-83 %) regardless of the initial severity of initial OSAHS; for the non CAD/CAM MRD: 61% (CI 95%: 47-72%) ; p=0.0031
- Significant improvement in quality of life: +24% increase in the Quebec sleep questionnaire (p<0.0001)

Appropriate level of biocompatibility demonstrated by tests based on indications in ISO 10993-1:2009.

Data on file, confidential: Narval aging test and material degradation assessment.

Data on file, confidential: Computer mechanical strength simulation study – Narval splints are able to withstand compression forces superior to 500N.