IES MEDICAL
Innovation for better care

innovación
en la vía aérea



Tenax®

Laser Resistant Endotracheal Tube
Soft, flexible and DualCuff™

Designed to minimise vocal cord trauma

Tenax® combines high-precision laser surgery with exceptional airway care

Tenax® is designed to provide laser resistance together with a soft, flexible silicone surface.

Laser resistance

Reinforced tube body with an aluminium spiral to help reduce the risk of airway fire.

Soft outer surface

Flexible, soft silicone covering designed to minimise damage to the vocal cords and mucosa.

Flexible, preformed design

Adapts to the trachea and facilitates placement.

Low-profile design

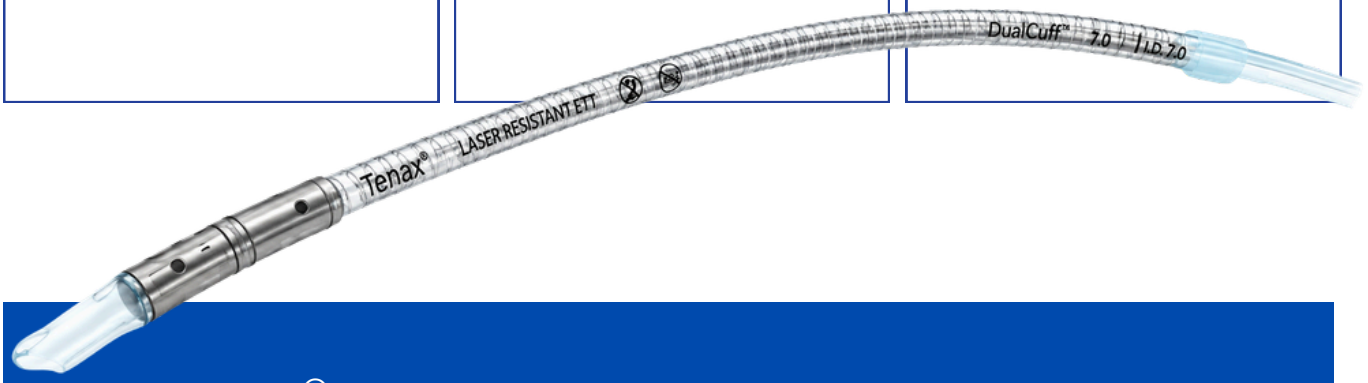
When deflated, the cuffs sit close to the tube body, maintaining a narrow profile.

Latex-free

Manufactured without latex.

Stylet included

Every Tenax® tube is supplied with a stylet.



Tenax® applied biomedical engineering combining thermal laser resistance and biocompatibility with the laryngeal mucosa.

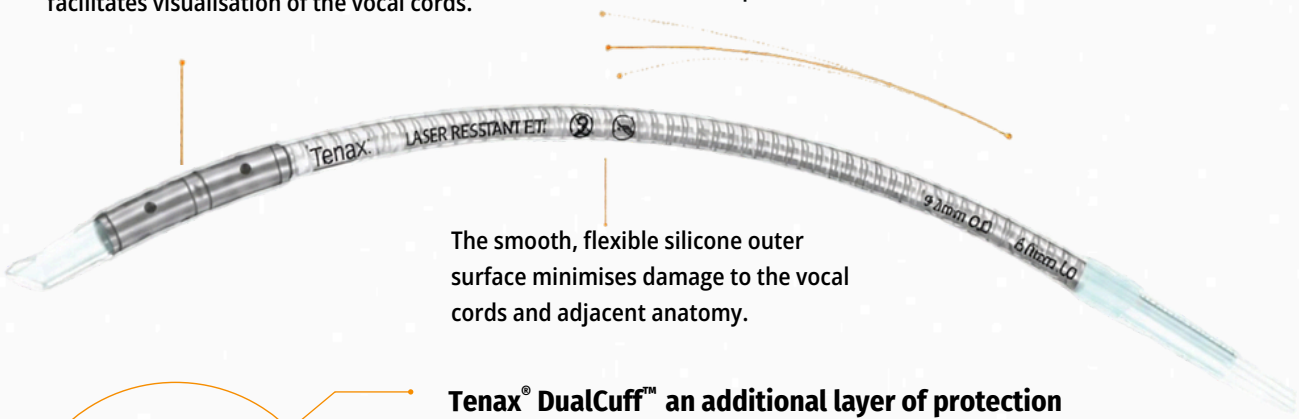
Designed to minimise airway trauma

More than 92% of surgeons rated Tenax® as excellent for helping to reduce the risk of airway fires during the procedure. (1)

Tenax® was developed by clinical experts to reduce inadvertent tissue trauma

When deflated, the cuffs sit close to the tube body, providing a narrow profile that facilitates visualisation of the vocal cords.

The flexible, preformed design adapts to the trachea.



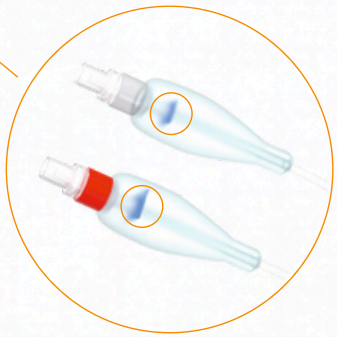
The smooth, flexible silicone outer surface minimises damage to the vocal cords and adjacent anatomy.

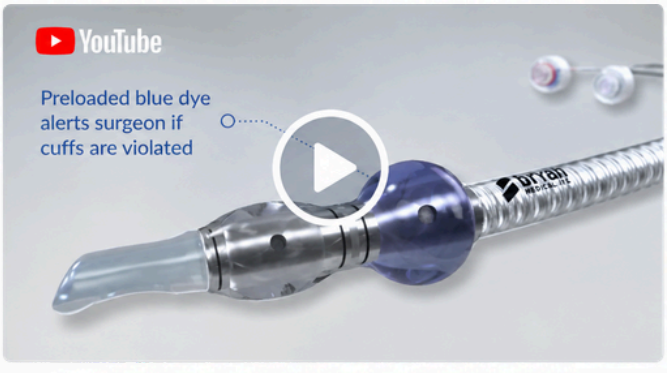


Tenax® DualCuff™ an additional layer of protection

Tenax® DualCuff™ provides a double seal to help reduce the risk of perforation and fire caused by scattered laser radiation.

The blue dye alerts the surgeon if a cuff is accidentally punctured or damaged.





WATCH THE VIDEO

Discover Tenax® in action

Scan the QR code

Indications for use and clinical applications

Laser-resistant endotracheal tubes are commonly selected for surgical procedures in which laser energy is applied close to the airway. Typical applications include:

Laser procedures involving the airway

- Laser laryngoscopy
- Microlaryngoscopy
- Transoral laser microsurgery (TLM)
- Vocal cord surgery
- Laryngeal surgery
- Procedures for airway stenosis
- Papilloma removal
- Laser head and neck surgery
- Upper airway reconstructionr

Compatible laser systems

✓ CO_2 laser (10.60 µm) — Indicated • KTP
✓ laser (532 nm) — Indicated • 445 nm
✓ blue laser — Indicated

Non-compatible laser systems

X Nd:YAG laser — Do not use
X Argon laser — Do not use

References and specifications

Item number	Internal diameter (mm)	External diameter (mm)	Length (cm)
TN-0050-SET	5	7,9	34

Each Tenax® laser-resistant endotracheal tube is supplied with a stylet.

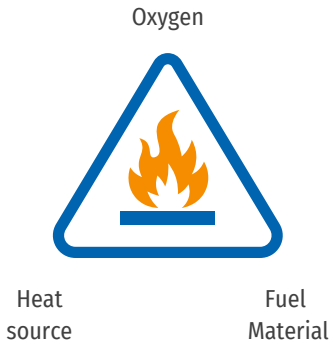
Prevención de incendios en la vía aérea

Of the surgical fires reported in otolaryngology:

- 36% occurred during tracheotomies.
- 25% occurred during laryngotracheal endoscopic procedures.(2)

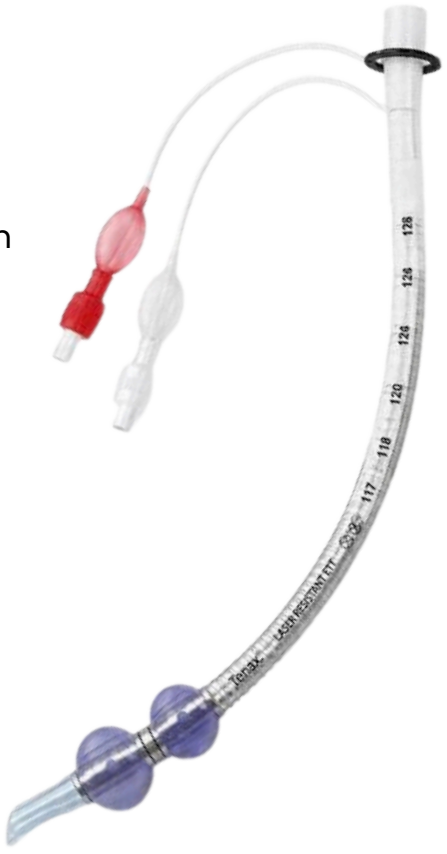
Complications of airway fires can be severe, ranging from the unexpected need for mechanical ventilation to, in the worst cases, death.

Three essential components are required to start and sustain a fire during medical procedures involving a patient's airway: oxygen + CO_2 laser + endotracheal tube.



Tenax® directly helps minimise this risk:

- Its aluminium spiral-reinforced body helps resist laser penetration and prevent ignition of the tube.
- When filled with saline, its DualCuff™ system acts as a heat sink and provides a double sealing barrier against scattered laser radiation.
- Its integrated blue dye immediately indicates if a cuff has been affected, allowing the surgeon to respond promptly before combustion occurs.



Clinical benefits

- **Aluminium covering.** Provides laser-resistant protection to the tube body during the indicated laser procedures**.**
- **Preformed tube.** The curved tube follows the shape of the airway and provides greater flexibility.
- **Soft outer covering.** A soft silicone covering helps minimise damage to the vocal cords and adjacent anatomy.
- **Preloaded with blue dye.** If the cuffs are punctured or damaged, the blue dye immediately alerts the surgeon.
- **Clear depth markings.** Help monitor tube placement and reduce the risk of accidental extubation.
- **Low-profile cuffs.** The slimmer profile of Tenax® cuffs sets a new standard. • Tenax® double cuff. DualCuff™ provides an additional layer of protection.
- **No natural rubber latex.** Manufactured without natural rubber latex. • Sterile, single-use device. Intended for use in a single patient.



Frequently asked questions

What is the Tenax® laser-resistant endotracheal tube?
The Tenax® laser-resistant endotracheal tube is a silicone endotracheal tube indicated for endotracheal intubation during surgical procedures using CO_2, KTP and 445 nm blue laser systems. It features a laser-resistant aluminium covering, a soft silicone outer covering and a DualCuff™ design to support airway management during laser-assisted procedures.

Which procedures typically require a laser-resistant endotracheal tube?
Laser-resistant endotracheal tubes are commonly used in procedures in which laser energy is applied close to the airway. These include laser laryngoscopy, microlaryngoscopy, transoral laser microsurgery (TLM), vocal cord surgery, laryngeal surgery, procedures for airway stenosis, papilloma removal, laser head and neck surgery, and other procedures requiring endotracheal intubation.

How does Tenax® contribute to airway safety during laser use?
The Tenax® laser-resistant endotracheal tube provides protection to the tube body against laser exposure during the indicated procedures. Together with careful oxygen management, correct tube placement and compliance with established laser safety protocols, it forms one component of a comprehensive airway safety strategy. No laser-resistant endotracheal tube should be considered completely non-flammable or fireproof.

What is the function of the DualCuff™ design?
The Tenax® tube incorporates two fluid-filled cuffs designed to provide an effective tracheal seal. The integrated blue-dye indicator system helps identify cuff damage if a cuff is punctured or ruptures during surgery, enabling the clinical team to act immediately in accordance with established laser safety protocols.

Why is the Tenax® tube manufactured with a silicone outer covering?
The soft silicone outer covering is designed to provide a low-trauma surface that helps reduce secretion build-up while facilitating insertion and removal. In addition, the flexibility of the tube allows it to adapt to changes in airway position during surgery.

Which laser systems is Tenax® indicated for?
The Tenax® laser-resistant endotracheal tube is indicated for procedures using CO_2 (10.60 µm), KTP (532 nm) and 445 nm blue laser systems when used in accordance with the instructions for use. The device must not be used with Nd:YAG lasers, argon lasers or other types of laser.

Which medical specialists commonly use laser-resistant endotracheal tubes?
Laser-resistant endotracheal tubes are commonly used by otolaryngologists (ENT surgeons), head and neck surgeons, anaesthesiologists and multidisciplinary airway teams performing laser-assisted procedures on the upper airway.



1. User observation 2025/retrospective data analysis in the US market. Rating: 1 – Unacceptable; 5 – Excellent
2. Day, A. T., Rivera, E., Farlow, J. L., Gourin, C. G., & Nussenbaum, B. (2018). Surgical fires in otolaryngology: a systematic and narrative review. Otolaryngology–Head and Neck Surgery, 158(4), 598-616.

References:
Roy S. Development of an Improved LASER-Resistant Endotracheal Tube. The Laryngoscope. 2024;134(Suppl 7):S1–S12. doi:10.1002/lary.31210

CAT_TENAX TUBO LASER_EN_00

Contact:

IES MEDICAL® - International Emergency Services
Bizkaia Science and Technology Park, Ibaizabal bidea, 500
48160 Derio, Bizkaia, España
T. +34 944 008 847
comercial@iesmedical.es
www.iesmedical.es

IES MEDICAL
Innovation for better care