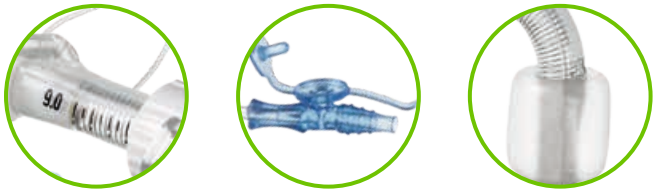
RÜSCH

Teleflex Solutions

In Support of VAP Protocols



Teleflex

Working together to advance ICU practice

With its rich heritage of research and innovation, Teleflex is dedicated to advancing anaesthesia practice through the continuous improvement of airway management technology.

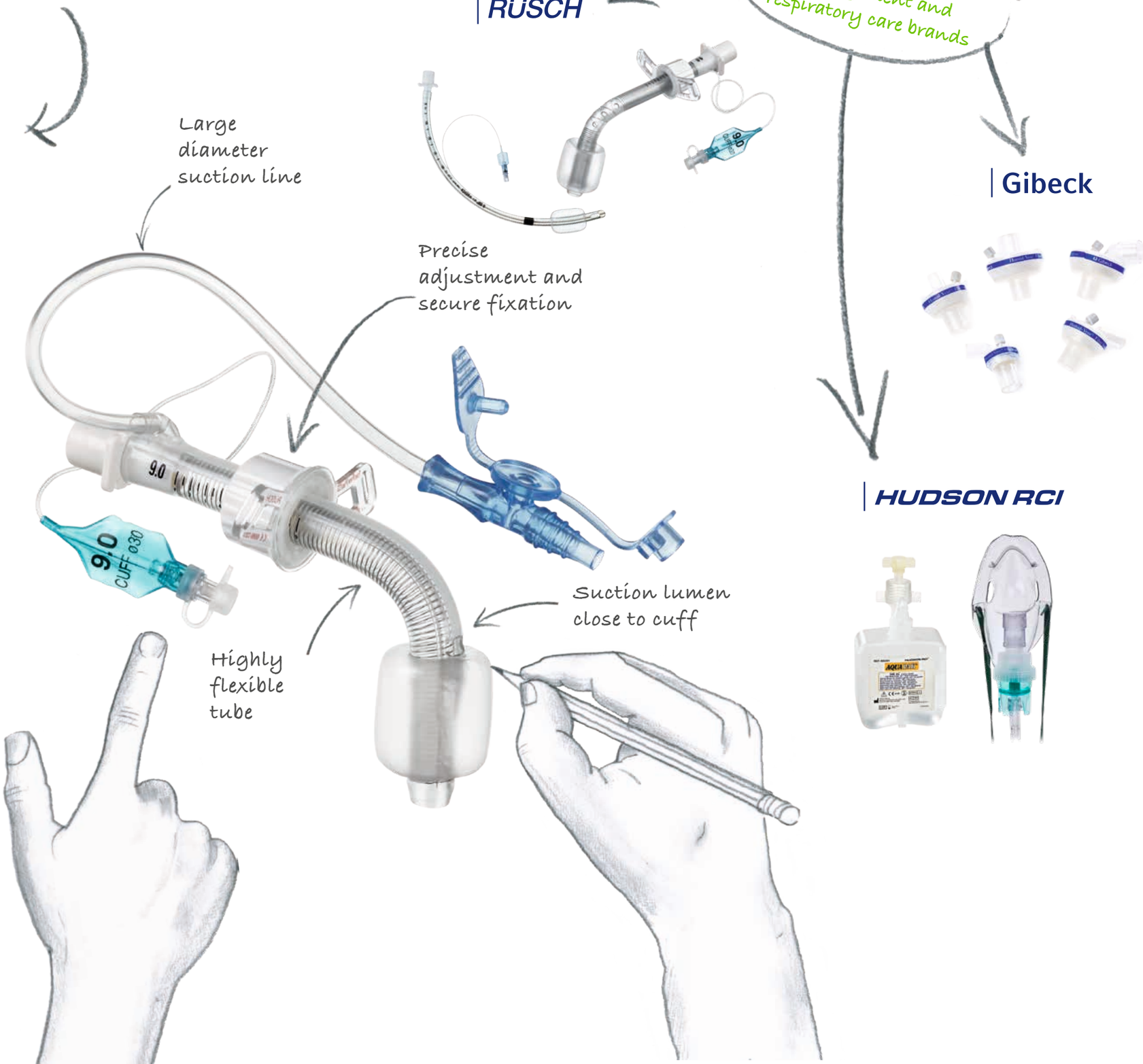
125 year history of producing German-quality anaesthesia and respiratory medical devices

427 patents held for airway devices*

Teleflex is growing to support the demands of the global healthcare marketplace

>25m Teleflex products used during intubations each year**

> 12,000 clinicians trained in Teleflex procedural labs every year*



A diverse portfolio of trusted airway management and respiratory care brands

RÜSCH

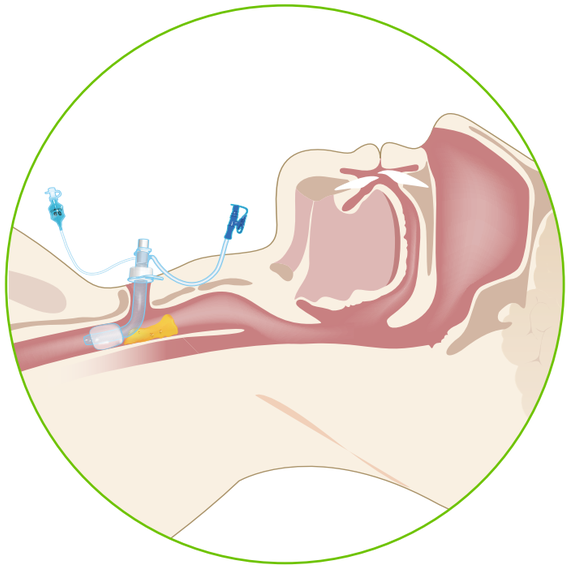
Gibeck

HUDSON RCI

* Data on file

** Teleflex Global Anesthesia sales data, YOY, Dec. 2017

Make a big difference in the successful reduction of VAP.



Localisation of subglottic secretions

Both endotracheal & tracheostomy tubes that have a suction line moulded into the length of either airway tube, enable continuous or intermittent subglottic suctioning from above the cuff, where there is the potential for oropharyngeal or gastric secretions to pool.

This is intended to reduce the micro aspiration of secretions and subsequent bacterial colonisation of the respiratory tract, which is a leading cause of VAP[1].

References
1. Souza CR, Santana *VT. Rev Bras Ter Intensiva. 2012:24(4):401-406*

Table of Contents

Single use product

Not made with natural rubber latex

NON DEHP **To increase patient safety, Teleflex supplies a range of products that is not made with DEHP**

What is Ventilator Associated Pneumonia (VAP)?

Dr. Tim Collins, EdD, MSc, BSc, RN, Director Clinical Medical Affairs Teleflex EMEA

Critically ill patients who are unconscious or sedated in Intensive Care Units will require mechanical ventilation which exposes them to the risk of developing ventilator associated pneumonia (VAP). The definition for VAP is a new onset pneumonia that has developed in patients who have been mechanically ventilated for more than 48 hours via an endotracheal or tracheostomy tube (National Institute for Health and Clinical Excellence, 2007; American Thoracic Society, 2005).

The diagnosis of VAP is complex and not straightforward because there are no firm diagnostic criteria for VAP. The diagnostic criteria are frequently debated (Speck et al, 2016). The diagnosis of VAP is based on the history, clinical signs and symptoms, chest x-ray findings, and microbiology results, but the literature provides no consensus for criteria for establishing a VAP diagnosis (National Institute for Health and Clinical Excellence, 2007).

What are the effects of acquiring VAP?

VAP significantly increases mortality and complications, resulting in increased duration of ventilation, longer ICU stay, increased hospital length of stay, and increased hospital costs (Speck et al 2016). Evidence suggests that approximately 10-28% of ventilated patients acquire VAP, making it the most common fatal nosocomial infection in critical care patients (Wagh and Acharya, 2009).

What is the cost of VAP?

Studies suggest that VAP increases length of ICU stay by 6 days and can generate additional costs of between GBP £6,000 - £22,000 per VAP episode* (Speck et al, 2016). The diagnosis of VAP is complex and not straightforward because there is no firm diagnostic criteria for VAP. The diagnostic criteria are frequently debated (National Institute for Health and Clinical Excellence, 2007 Speck et al, 2016).

* Equivalent to approx. €6,630 - €24,308 (www.ecb.europa.eu / 19Jun2020)

How to reduce the incidence of VAP?

Using Subglottic Suction devices as part of a dedicated protocol (care bundle), can reduce the risks associated with Ventilator Associated Pneumonia *NAP 4 2017. (2)Girou E, Stephan F, Novara A, Safar M, Fagon JY. Am J Respir Crit Care Med . 1998;157(4 Pt 1):1151-1158 (3)*. A care bundle is defined as a grouping of evidence based practices, with the goal of encouraging a consistent delivery of care to improve clinical outcomes *(Hellyer et al 2016)*. The ventilator care bundle increases compliance to evidence based interventions and has demonstrated a significant reduction in VAP *(Damas et al 2015 Hellyer et al 2016).*

The ventilator care bundle currently consists of the following interventions:

- head of bed elevation to 30 - 45 degrees;
- daily sedation interruption and assessment of readiness for extubation;
- use of subglottic secretion drainage;
- effective oral hygiene;
- avoidance of scheduled ventilator circuit changes (Hellyer et al 2016).

Intensive Care staff regularly apply the “Ventilator Care Bundle” to their practice.

Other products that are associated with reducing the incidence risk of VAP include cuff pressure management devices & automated suction control systems

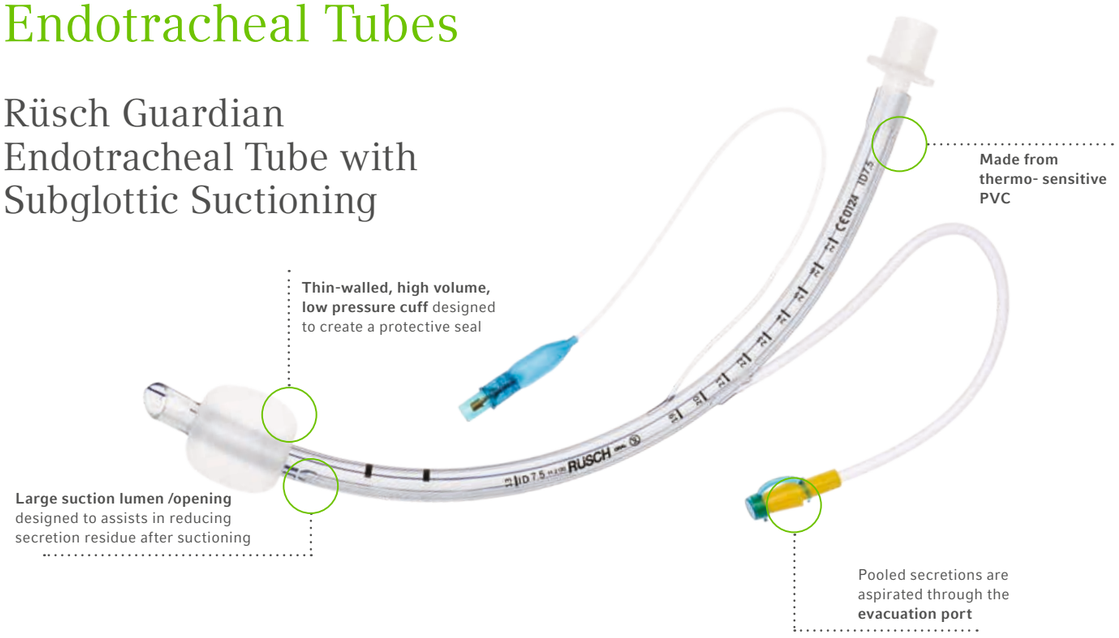
Subglottic Suctioning can reduce the incidence of ventilator Associated Pneumonia when implemented into your vap protocol

Both endotracheal & tracheostomy tubes that have a suction line moulded into the length of either airway tube, enable continuous or intermittent subglottic suctioning from above the cuff, where there is the potential for oropharyngeal or gastric secretions to pool. This is intended to reduce the micro aspiration of secretions and subsequent bacterial colonisation of the respiratory tract, which is a leading cause of VAP[1].

References
1. Souza CR, Santana *VT. Rev Bras Ter Intensiva. 2012:24(4):401-406*

Endotracheal Tubes

Rüsch Guardian Endotracheal Tube with Subglottic Suctioning



Clear Tracheal Tube

Made of PVC, with high volume, low-pressure cuff, line for subglottic suctioning.

Oral, 1 eye (Murphy)
Sizes: I.D. 6,0-9,0 mm

Semi-seated connector, valve for Luer and Luer-Lock syringes, smooth rounded tip, continuous X-ray marker, rings to aid in correct tube placement, blue pilot balloon, graduated.

- Not made with natural rubber latex
- Sterile
- Single-use

Rüsch Guardian Endotracheal Tube with Subglottic Suctioning

REF.	ORDER SIZE/I.D.	O.D.	CUFF Ø	LENGTH TO SUCTION LUMEN	TOTAL TUBE LENGTH	QTY
112090060	6,0 mm	9,0 mm	25 mm	175 mm	290 mm	10
112090065	6,5 mm	9,8 mm	25 mm	195 mm	300 mm	
112090070	7,0 mm	10,4 mm	26 mm	205 mm	310 mm	
112090075	7,5 mm	11,2 mm	26 mm	215 mm	320 mm	
112090080	8,0 mm	11,8 mm	28 mm	225 mm	330 mm	
112090085	8,5 mm	12,6 mm	28 mm	235 mm	340 mm	
112090090	9,0 mm	13,1 mm	28 mm	245 mm	350 mm	

Effective subglottic secretion removal as part of a protocol provides a confident strategy to help protect against VAP. During mechanical ventilation, secretions from the upper respiratory tract accumulate above the endotracheal tube cuff.

Studies have shown that these secretions can seep past the cuff into the lower tract, causing pneumonia.[1] Drainage of the subglottic secretion has been proven as an effective strategy in helping to prevent early-onset VAP.[2]

1 American Thoracic Society. Consensus Statement: Hospital Acquired Pneumonia in Adults: diagnosis, assessment of severity, initial antimicrobial therapy and preventative strategies. Am J Respir Crit Care Med. 1996;151:1711-1725. Coffman, H.M.S., Rees, C.J., Sievers, A.E.F. & Belafsky, P.C.2008 Proximal suction tracheotomy tube reduces aspiration volume. In: Otolaryngology-Head and Neck Surgery. 2008; 138(4), 441-445.
2 Dezfulian C, Shojania K, Collard HR, Kim HM, Matthay MA, Saint S. Subglottic secretion drainage for preventing ventilator-associated pneumonia: a meta-analysis. Am J Med 2005; 118:11-18.
3 Pearce M, Mujica Lopez KI, Rubin BK. In vitro evaluation of endotracheal tubes with intrinsic suction. CHEST Journal. 2010;138(4):863-869.

Endotest Cuff Pressure Manometer

- "The pressure exerted by the tracheal tube cuff on the mucosa may exceed capillary perfusion pressure[1-3] and is a major cause of morbidity in intubated patients"[4].
- "Estimation techniques for cuff inflation are inadequate. Direct measurements (with a manometer) should be used"[5].
- "Cuff pressure manometers should be used to avoid exceeding manufacturers' recommended intracuff pressures which can be associated with increased patient morbidity"[6].

Aspiration of oropharyngeal pathogens, or leakage of secretions containing bacteria around the endotracheal tube cuff, are the primary routes of bacterial entry into the lower respiratory tract (Level II).[7]

Many VAP bundles around the world include – among other measures – strong recommendations to ensure that the cuff pressure is maintained between 20 and 30 cm H_2O to prevent leakage of bacterial pathogens around the cuff into the lower respiratory tract.[8,9,10,11]

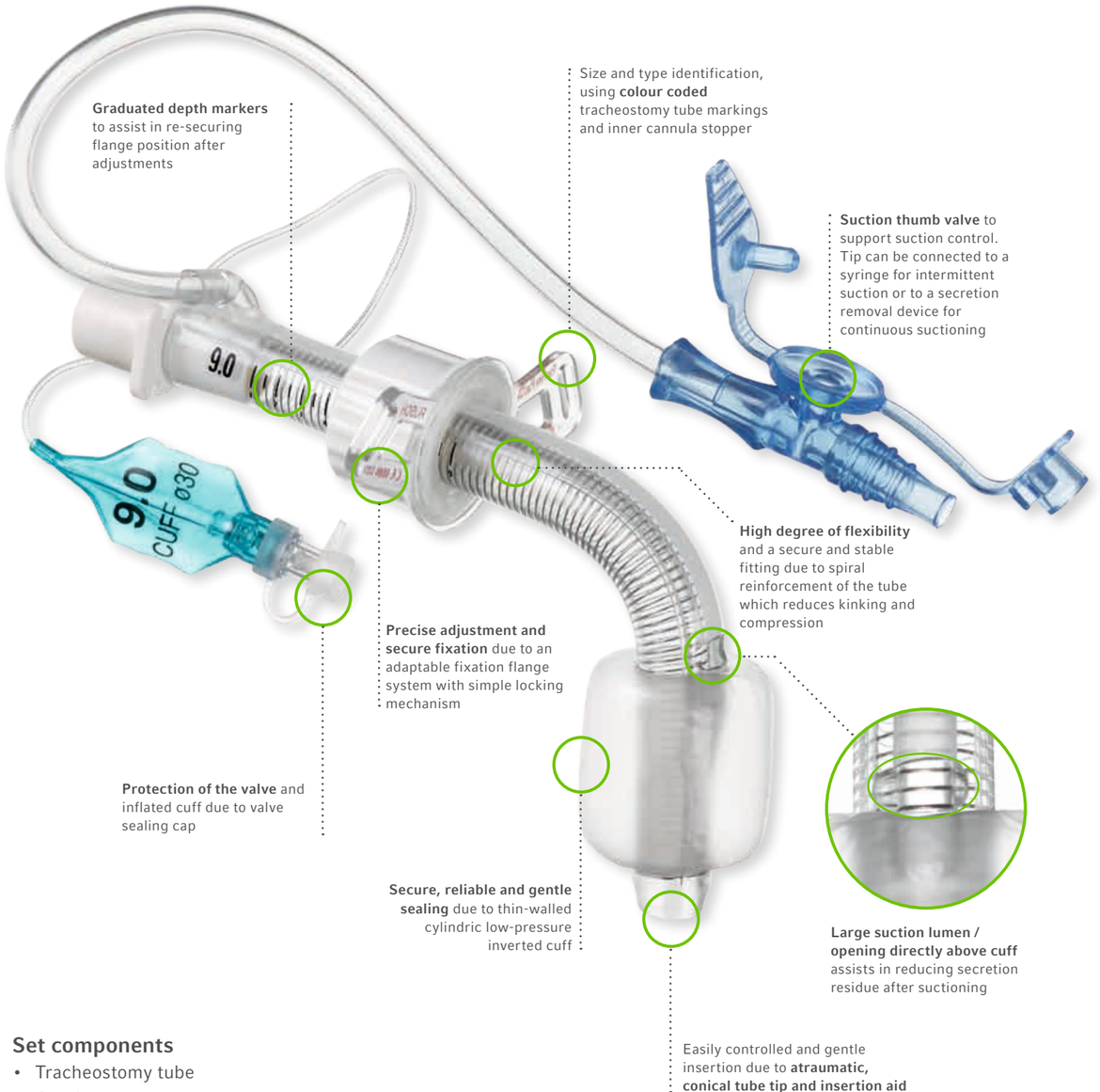
Endotest

REF.	DESCRIPTION	QTY
112700	Device for filling and monitoring the pressure of low-pressure cuffs on tracheal, tracheostomy, bronchial tubes and laryngeal masks • With connecting tube	1
230100	Connecting tube made of PVC for Endotest cuff pressure monitoring device • Transparent • With Luer connector (male and female) • Approx. 100 cm long, 2 × 3 mm • Not made with natural rubber latex • Sterile	10

1. Nordin U. The trachea and cuff induced tracheal injury. An experimental study on causative factors and prevention. *Acta Otolaryngol Suppl* (1977; 345: I-71)
2. Bunegin L, Albin MS, Smith RB. Canine tracheal blood flow after endotracheal tube cuff inflation during normotension and hypotension. *Anesth Analg* 1993; 76: 1083-90
3. Seegobin RD, van Hasselt GL. Endotracheal cuff pressure and tracheal mucosal blood flow: endoscopic study of effects of four large volume cuffs. *BMJ* 1984; 288: 965-8
4. Latto IP. The cuff. In: Latto IP, Rosen M, eds. Difficulties in Tracheal Intubation. *London: Bailliere Tindall*, 1984; 48-74
5. Stewart S, Secrest J, Norwood B, Zachary R. *AANA Journal*, 2003; 443: Vol 71 No 6
6. Association of Anaesthesists of Great Britain and Ireland. Recommendations for standards of monitoring during anaesthesia and recovery 2015. *Anaesthesia 2016*; 71: 85-93.
7. Guidelines for the Management of Adults with Hospital-acquired, *Ventilator-associated, and Healthcare-associated Pneumonia (2004)*
8. Guidelines for the Management of Adults with Hospital-acquired, Ventilator-associated, and Healthcare-associated Pneumonia *This official statement of the American Thoracic Society and the Infectious Diseases Society of America was approved by the ATS Board of Directors, December 2004 and the IDSA Guideline Committee, October 2004*
9. Prävention der nosokomialen beatmungsassoziierten Pneumonie Empfehlung der Kommission für Krankenhaushygiene und Infektionsprävention (KRINKO) beim Robert Koch-Institut Bundesgesundheitsbl att 2013 · 56:1578–1590 DOI 10.1007/s00103-013-1846-7 Online publiziert: 16. Oktober 2013
10. Recommandations formalisées d'experts / Pneumonies associées aux soins de réanimation RFE communie SFAR – SRLF Texte validé par le Conseil d'Administration de la SFAR (29/06/2017) et de la SRLF (08/06/2017).
11. Guidelines for the management of hospital-acquired pneumonia in the UK: *Report of the Working Party on Hospital-Acquired Pneumonia of the British Society for Antimicrobial Chemotherapy Journal of Antimicrobial Chemotherapy, Volume 62, Issue 1, July 2008, Pages 5–34, https://doi.org/10.1093/jac/dkn162 Published:29 April 2008*

Tracheostomy Tubes

TracFlex Plus Subglottic Tracheostomy Tube



Set components

- Tracheostomy tube
- Comfort neck band
- Insertion aid (holed obturator)

TracFlex Plus Subglottic Suction

TracFlex Plus Subglottic Suction tracheostomy tube supports effective subglottic secretion removal as part of a protocol providing a confident strategy to help protect against VAP. During mechanical ventilation, secretions from the upper respiratory tract accumulate above the cuff. Drainage of the subglottic secretions, including effective subglottic suction removal devices in HAI protocols, positively assists in reducing the incidence of VAP. *(Damas et al 2015 Hellyer et al 2016)*

This tracheostomy tube with integrated suction line is characterised by features d esigned to optimise the effectiveness of removing the secretions from above the cuff.

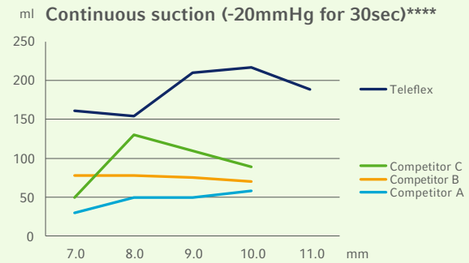
LATEX NON DEHP

TracFlex Plus Subglottic Set

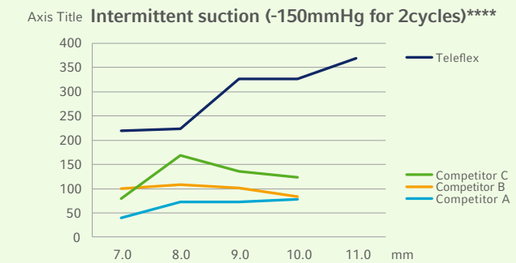
REF.	ORDER SIZE / I. D.	O.D. IN MM	CLL* IN MM	DIM. A IN MM	DIM. B IN MM	DIM. C IN MM	ANGLE θ (APPROX.)	CUFF Ø IN MM	QTY
121905	7.0	11.1	67.8	37.0	8.0	22.8	100	23	2
	8.0	12.6	85.8	40.0	20.5	25.4	100	27	2
	9.0	13.8	116.8	44.0	46.4	26.4	100	30	2
	10.0	15.4	119.8	44.0	41.8	34.0	100	32	2
	11.0	16.7	127.8	47.0	47.7	33.1	100	35	2

* Total length (CLL=A+B+C)

*** When ordering, please also indicate tube size



Removed test secretions in ml after 30 seconds continuous suction with -20mmHg



Removed test secretions in ml after 2 cycles at 10 seconds intermittend suction with 5 sec. interruption -150mmHg

**** Engineering Study Title: Tracheostomy Tube with Subglottic Suction Line Performance. Reference Nr.: ES-17-035. 15.July 2017. Test data on file.

Our Flexible Inner Cannula System: Effective Secretion Management Made Easy

Our thin walled flexible single-use inner cannula is designed to enable a close fit to the inner diameter of the tracheostomy tube to allow quick and hygienic removal of secretions.

This procedure is particularly gentle on the patient, simplifies maintenance, and also designed to protect the inner lumen of the tracheostomy tube against contamination, reducing the risk of infection.

LATEX NON DEHP

TracFlex Plus Inner Cannulas

REF.	ORDER SIZE OF TUBE / I.D.	I.D. OF INNER CANNULA	O.D. OF INNER CANNULA	QTY
121910	7.0	5.5	6.2	10
	8.0	6.5	7.2	10
	9.0	7.8	8.3	10
	10.0	8.8	9.4	10
	11.0	9.8	10.4	10

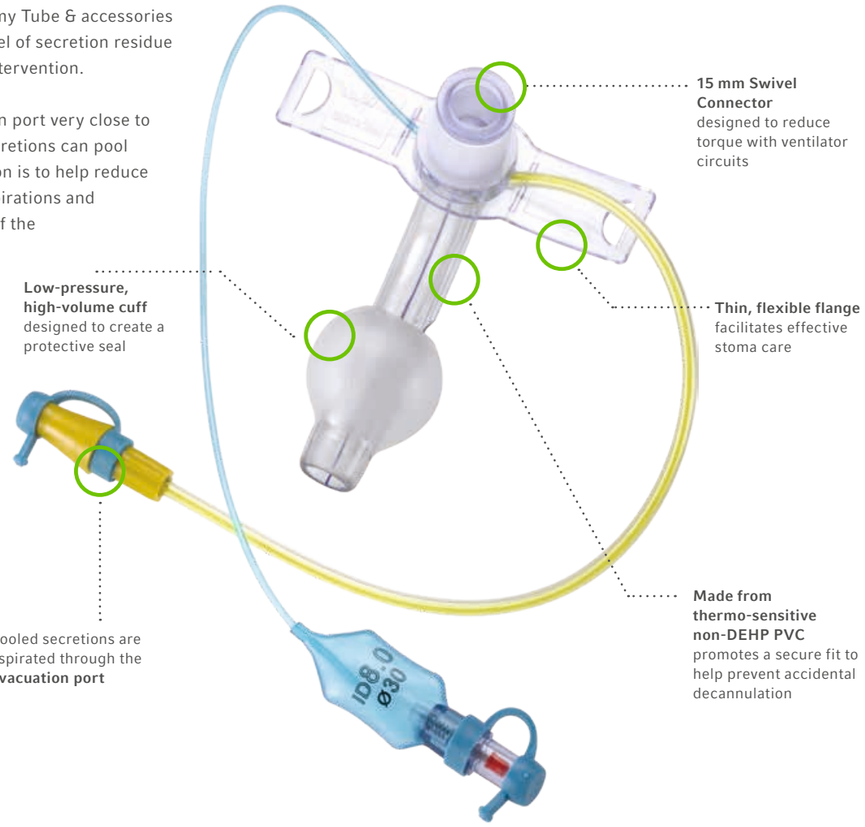
Tracheostomy Tubes

Crystal Subglottic Suction Tracheostomy Tube

The Single Use Crystal Tracheostomy Tube & accessories are designed to help reduce the level of secretion residue following a subglottic suctioning intervention.

By locating the secretion evacuation port very close to where oropharyngeal or gastric secretions can pool above the inverted cuff, the intention is to help reduce the risks associated with micro aspirations and subsequent bacterial colonisation of the respiratory tract, which is a leading cause of VAP*

*Reference: Souza CR, Santana VT. Rev Bras Ter Intensiva. 2012;24(4):401-406.



Set Components

- Tracheostomy tube
- Soft neck band
- Insertion aid (obturator)
- Patient card

Suitable for use with Rüsch flexible Crystal Clear Plus inner cannula

NON DEHP

Crystal Subglottic Suction Tracheostomy Tube

PRODUCT CODE								
WITHOUT INNER CANNULA	WITH RUSCH CRYSTAL CLEAR INNER CANNULA	SIZE / I.D. (MM)	O.D. (MM)	LENGTH (MM)	ANGLE θ APPROX.	CUFF Ø (MM)	INNER CANNULA	QTY
20103065	220103065	6.5	9.7	64.0	98°	24.0	6.5	10
20103070	220103070	7.0	10.4	74.0	98°	26.0	7.0	10
20103075	220103075	7.5	11.1	77.5	98°	26.0	7.5	10
20103080	220103080	8.0	11.9	81.0	98°	28.0	8.0	10
20103085	220103085	8.5	12.4	81.0	98°	28.0	8.5	10
20103090	220103090	9.0	12.8	93.0	98°	30.0	9.0	10
20103095	220103095	9.5	13.3	93.0	98°	30.0	9.0	10
20103100	220103100	10.0	14.0	99.0	98°	30.0	10.0	10

NON DEHP

Rüsch CrystalClear Inner Cannula

PRODUCT CODE	SIZE	I.D. (MM)	O.D. (MM)	COLOUR CODE	QTY
121310-000065	6.5	5.0	5.7	Maroon	10
121310-000070	7.0	6.0	6.7	Blue	10
121310-000075	7.5	6.5	7.3	Yellow	10
121310-000080	8.0	7.0	7.7	Purple	10
121310-000085	8.5	7.0	7.7	Green	10
121310-000090	9.0	8.0	8.7	Brown	10
121310-000095	9.5	8.0	8.7	Navy	10
121310-000010	10.0	8.8	9.7	Red	10

Ohio Medical Push-To-Set Intermittent Suction Unit

- Dual-mode intermittent and continuous vacuum regulator
- Precise vaccuum level settings (0-27 kPa/0-200 mmHg)
- Intermittent flow rate is adjustable from 0 to 16 L/min and is preset to 8 L/min
- Gauge features flow-in-the dark increments and needle
- 3 years manufacturer's warranty

Ohio Medical Push-To-Set

REF.	VERSION	DIMENSIONS	WEIGHT	QTY
8732-1253-901	DIN	16.51 x 7.1 x 12.19 cm	0.57 Kg	1
8731-1253-901	BS			
8733-1253-901	Afnor			
8732-2253-901	DIN with Venturi Backpack			

The Push-To-Set device will automatically set a vacuum limit when selecting or changing the vacuum levels preventing unintended, unregulated suction. The dual-spring regulator module will allow precise vacuum level settings in the critical care range (0-27 kPa/0-200 mmHg) while providing fast adjustment up to full available wall vacuum for emergency resuscitation. Only two (2) turns of the control knob are needed to go from 0 to full available wall vacuum.

The intermittent cycle starts in the ON mode. Both ON and OFF timing cycles will be adjustable from 1 to 30 seconds independently without removing the cover or the gauge. The intermittent ON/OFF switch cycling is nearly silent. Intermittent flow rate is adjustable from 0 to 16 L/min and is preset to 8 L/min. The gauge features glow-in-the dark increments and needle. The manufacturer's warranty covers both parts and labor for three (3) years.

Accessories

Silkomed Vacuum Tubing

Made of silicone.

- Pyrogen-free
- Autoclavable
- Latex-free
- Non-sterile

LATEX

Silkomed Vacuum Tubing

REF.	ORDER SIZE LENGTH	I.D. MM		O.D. MM	QTY
471800	approx. 10 m	7.0	x	13.0	1 coil
		8.0	x	14.0	
		10.0	x	16.0	

When ordering, please always indicate Ref. and order size

LATEX

Suction Canister

REF.	DESCRIPTION	CAPACITY	QTY
MI1361	Suction canister for subglottic suction	250 ml	40

Wall Bracket

REF.	DESCRIPTION	QTY
HC053	for suction canister ref. MI361	1

Hydrophobic Suction Filter

- Helps to reduce contamination of the vacuum regulator by preventing the penetration of fluids
- Acts as a shut off in the presence of flooding
- PTFE Filter Media 1µm
- 99,99% Air particle retention @ 0.3 microns
- Flow rate: 30 SLPM @ 1psiD

LATEX

Hydrophobic Suction Filter

REF.	DESCRIPTION	QTY
6730-0572-800	Tubing x Tubing Nipple version	50

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Teleflex is a global provider of medical technologies designed to improve the health and quality of people's lives. We apply purpose-driven innovation – a relentless pursuit of identifying unmet clinical needs – to benefit patients and healthcare providers. Our portfolio is diverse, with solutions in the fields of vascular and interventional access, surgical, anesthesia, cardiac care, urology, emergency medicine and respiratory care. Teleflex employees worldwide are united in the understanding that what we do every day makes a difference. For more information, please visit teleflex.com.

Teleflex is the home of Arrow, Deknatel, Hudson RCI, LMA, Pilling, Rüsch, UroLift, and Weck – trusted brands united by a common sense of purpose.

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