



TRACOE Kids

Innovative solutions for
pediatric tracheostomy care

Atos

Breathing-Speaking-Living
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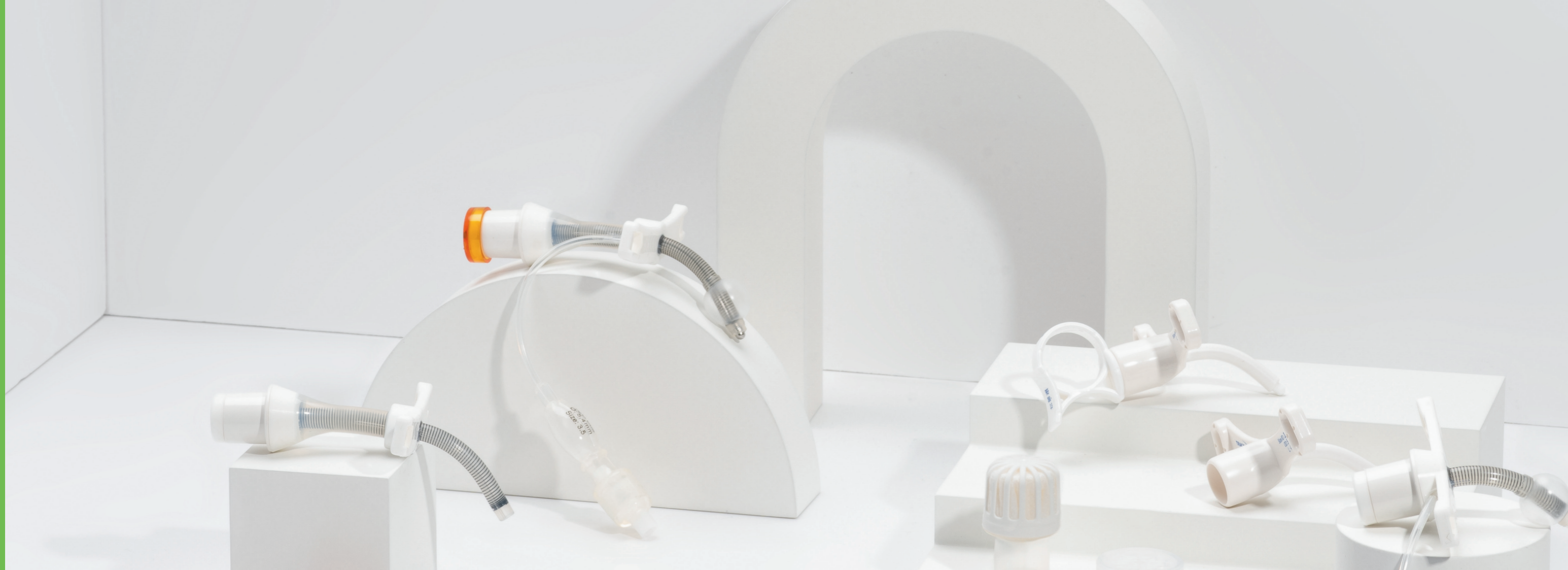
Children with a tracheostomy

When considering children and young people that require a tracheostomy it is important to note that children are not just mini adults.¹ Not only are they anatomically and physiologically different from adults, but from birth to adulthood they are navigating social, emotional, physical, and cognitive changes and development.^{2,3} Additionally, the reason for tracheostomy may significantly differ from that of adult cohorts, for example tracheostomy placement due to pulmonary issues and need for ventilation following premature birth or upper airway obstruction due to congenital anomalies (a condition or issue that an infant is born with).^{4,5} Placement of a tracheostomy at any point during infancy and childhood therefore has the potential to disrupt developmental milestones and changes.

As airflow is redirected through the tracheostomy and by-passes the upper airway, important physiological functions such as voicing (for example, crying, sighing, laughing, talking), communication, swallowing, coughing, and bearing down may be disrupted, which is particularly relevant in the child developing these skills.⁶⁻¹⁰ In addition, it is important to highlight that a child's respiratory system and immunity are developing through infancy into adulthood and so are vulnerable to respiratory infections and illness.^{11,12} Due to the position of the tracheostomy at the entry to the lower airway and lungs, children are at higher risk of respiratory infections and admission to hospital. Therefore, enhancing respiratory health is essential to minimize these negative consequences.¹³⁻¹⁶

In caring for the child or young person with a tracheostomy, it is imperative that medical products not only accommodate the child's changing size and growth stage but also respect the changing anatomical dimensions and proportions of their airways.^{3,17} These anatomical structures are highly sensitive and at risk of damage from manipulation and pressure. Compression or rubbing of the tracheal mucosa by a tube, for example, may cause local inflammation, granulation, or other trauma. Irreversible damage and stenosis (narrowing of the airway) may occur if a tube is needed for a prolonged period.^{17,18}

It is necessary to consider the underlying reason for placement of a tracheostomy or associated comorbidities as these may impact on a child or young person's ability to achieve optimal physical, emotional, or cognitive health and well-being.^{19,20} Parents and caregivers often receive education to manage their child's care in community settings, highlighting challenges, impact, and 'burden'.^{2,21} However, it is emphasized that children and young people with a tracheostomy and their families are often described as demonstrating resilience in their journey from insertion of tracheostomy to transition to home care settings and back into familiar routines.^{22,23}



Tracheostomy tubes for children

The dimensions of the tracheostomy tube, particularly the length and diameter, change in accordance with changing growth and development of the child or young person.^{3,5} The infant trachea may only be a few centimeters in length and therefore even slight millimeter changes can impact on the positioning and placement of the tracheostomy including the distance from the carina. Even in the growing child, changes to the size of the tracheostomy continues to ensure the overall well-being of the child is optimized.¹⁷



Proximally longer

For infants or children with limited neck space, poor head control or where ventilation may be required, utilizing a proximally longer tracheostomy tube may be a useful solution. The standard ISO 15 mm connector is proximally placed and so is more accessible. This positioning helps to keep connectors away from the neck, chin, and stoma and helps to minimize ventilation circuits from being disconnected.¹⁷ It may also be easier to position accessories such as heat and moisture exchangers +/- filtration (HME / HMEFs) or one-way speaking valves on these tubes.¹⁷



Tracoe Silcosoft tracheostomy tubes

A child's anatomical structures are highly sensitive and at risk of damage from manipulation and pressure. A child's trachea is relatively narrow and very soft and therefore, small changes can have a big impact. A flexible, kink-resistant but soft tube is gentle on the tracheal mucosa and the stoma itself.¹⁷

The Tracoe Silcosoft tracheostomy tube is a soft, flexible silicone tube for neonates, infants and children. They are offered in both a water-filled

cuffed and cuffless variations and with or without proximal extension.

The tubes are available in neonatal length (30–36 mm) in sizes from 2.5 mm to 4.0 mm (inner diameter) for neonates and infants, and in pediatric length (38–46 mm) in sizes 2.5 mm to 5.5 mm for children and young people.



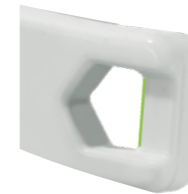
Spiral reinforced

The Tracoe Silcosoft tracheostomy tube has a spiral reinforcement embedded in the tube wall. The spiral is made from nitinol and therefore all Silcosoft tubes are MR conditional. The tight spiral winding ensures it retains its shape. The spiral winding ends before the end of the tube, which enables a soft tip.



Tracoe water-filled (H₂O) cuff

A cuff serves as a seal to minimize the passage of aspirated food, saliva and/or gastric contents into the lower respiratory tract as well as optimize pressures during ventilation.²⁴ The Tracoe H₂O cuff must be filled with sterile water. Filling with other liquids, for example, saline or glucose may result in damage to the cuff.²⁵ When the cuff is deflated, it is close and tight to the tracheostomy tube. The cuff inflation line is integrated into the material of the tube wall, which minimizes the risk of potential trauma or damage to the vulnerable pediatric airway mucosa.^{17,18,26}



Specially reinforced eyelets

Tracoe Silcosoft has a slightly curved neck flange with specially reinforced eyelets. These reinforced eyelets aid confidence particularly when used with hook-and-loop fastener neckbands. An additional feature includes inlets on the underside of the eyelets that allow the neckband to be recessed.



Length variants

As a child or young individual undergoes growth and development, the dimensions of a tracheostomy tube, including its length and diameter, adapt. Therefore, also several length variants are available.



The obturators

The standard length Tracoe Silcosoft tubes include a practical ring-shaped obturator. The ring-shaped grip allows intuitive handling of the obturator for the tube insertion which is particularly useful in smaller tube sizes. The Tracoe Silcosoft proximally longer tubes and length variants include a metal obturator that is easily identifiable by the orange cap with clear marking for orientation.

Color coding

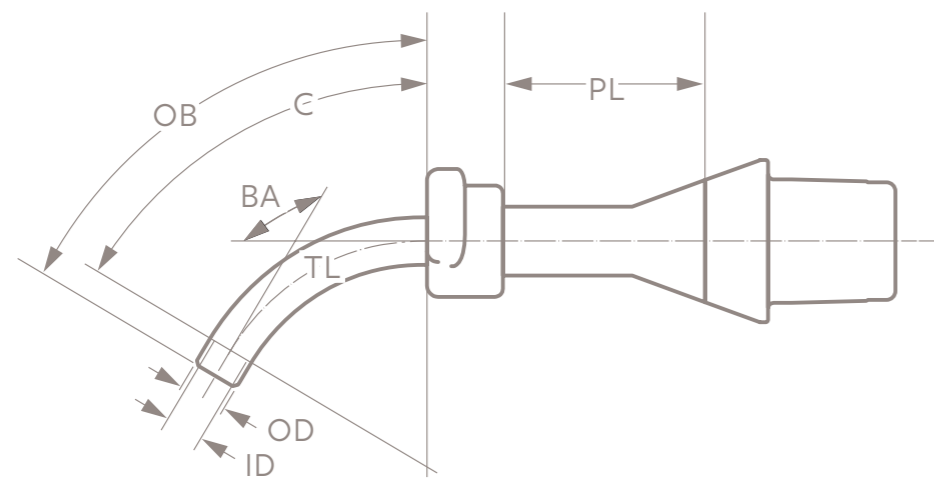
Standard and proximal longer tubes are identified by blue printing on the neck flange with length and diameter variances. Length variants are identified with green printed information.

Tracoe Silcosoft for neonates and infants

Technical Data

Size	ID	OD	C	TL	OB	BA	PL
	mm	mm	mm	mm	mm	°	mm
2.5	2.5	4.4	26.8	30	32	120	15
3.0	3.0	4.9	28.0	32	34	120	17
3.5	3.5	5.4	29.0	34	37	120	20
4.0	4.0	6.0	29.0	36	39	120	22

ID: inside diameter (clear width) of tube; **OD:** outside diameter of tube; **C:** length; **TL:** length along centre line from start of neck flange to bottom of tube; **OB:** length along outer bend from start of neck flange to bottom of tube; **BA:** bending angle **PL:** proximal longer



For reasons of clarity, this illustration shows proximal longer Tracoe Silcosoft tubes (REF 361 and REF 363)

Ordering information

Ref.no	Description	Available sizes
REF 360	Tracoe Silcosoft Neo	2.5-4.0
REF 361	Tracoe Silcosoft Neo PL	2.5-4.0
REF 362	Tracoe Silcosoft Neo C	2.5-4.0
REF 363	Tracoe Silcosoft Neo PL-C	2.5-4.0

Includes: Ring obturator (standard tubes) or metal obturator (proximal longer tubes), adjustable neck strap, disconnection wedge, and product info card with two detachable labels.

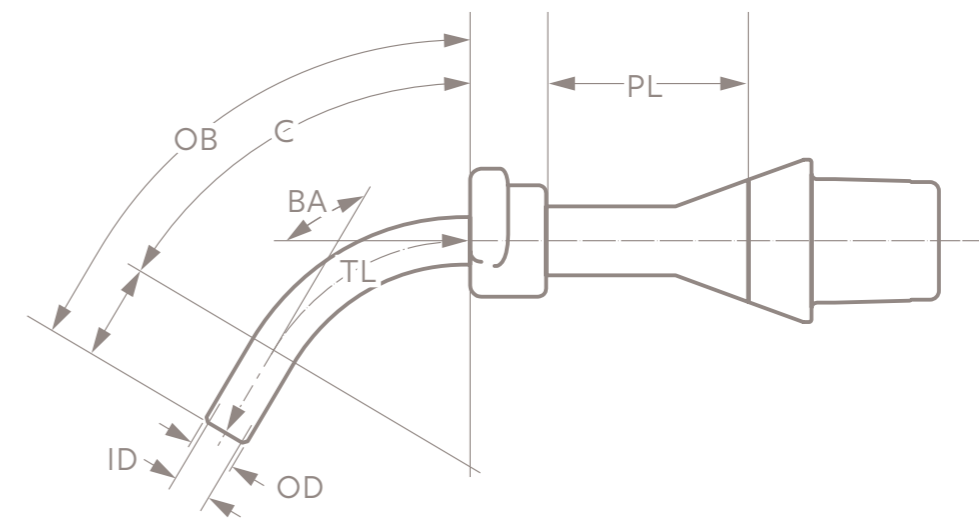
To order, specify: REF + Size, e.g. REF 362-3.5

Tracoe Silcosoft for children

Technical Data

Size	ID	OD	C	TL	OB	BA	PL
	mm	mm	mm	mm	mm	°	mm
2.5	2.5	4.4	29.0	38	40	120	20
3.0	3.0	4.9	29.0	39	41	120	20
3.5	3.5	5.4	29.0	40	43	120	25
4.0	4.0	6.0	29.0	41	44	120	25
4.5	4.5	6.6	29.0	42	45	120	30
5.0	5.0	7.3	29.0	44	48	120	30
5.5	5.5	8.4	29.0	46	50	120	30

ID: inside diameter (clear width) of tube; **OD:** outside diameter of tube; **C:** length; **TL:** length along centre line from start of neck flange to bottom of tube; **OB:** length along outer bend from start of neck flange to bottom of tube; **BA:** bending angle **PL:** proximal longer



For reasons of clarity, this illustration shows proximal longer Tracoe Silcosoft tubes (REF 371 and REF 373)

Ordering information

Ref.no	Description	Available sizes
REF 370	Tracoe Silcosoft Ped	2.5-5.5
REF 371	Tracoe Silcosoft Ped PL	2.5-5.5
REF 372	Tracoe Silcosoft Ped C	2.5-5.5
REF 373	Tracoe Silcosoft Ped PL-C	2.5-5.5

Includes: Ring obturator (standard tubes) or metal obturator (proximal longer tubes), adjustable neck strap, disconnection wedge, and product info card with two detachable labels.

To order, specify: REF + Size, e.g. REF 371-4.0



Neck flange

The Tracoe Mini tracheostomy tube has a slightly curved neck flange with large eyelets to attach the neckband. The neck flange has a sloping underside to optimize the fit of the neckband.

The obturator

The ring-shaped grip allows intuitive handling of the obturator for the tube insertion which is particularly useful in smaller tube sizes.

Tracoe Mini tracheostomy tubes

The tried and trusted Tracoe Mini tracheostomy tubes are made of a soft Polyvinyl chloride (PVC) and do not contain Di (2-ethylhexyl) phthalate (DEHP). They do not contain any metal and therefore are classified as MRI safe.

The Tracoe Mini tracheostomy tubes are available in neonatal length (30-36 mm) in sizes (inner diameter) 2.5 mm to 4.0 mm for neonates and infants, and pediatric length (32-62 mm) in inner diameter sizes 2.5 mm to 6.0 mm for children and young people.



Tracoe Mini Extension piece

Young children with poor head control and/or short necks are prone to tube obstruction by their chins. With connection of the extension piece to the 15 mm connector of the tracheostomy tube, the distance from the 15 mm connector and the child's neck is increased.⁸ The dead space is increased by about 3.5 to 4 ml (cm³). Fits all kid's tubes up to an inner diameter of 6 mm.



Ordering information

Ref.no	Description	Qty
REF 356	Tracoe Mini Extension piece	1 pc

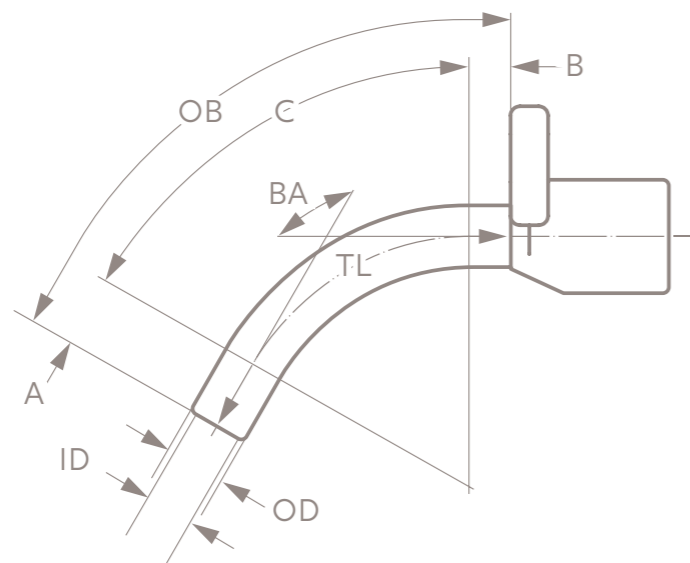
Includes: Disconnection wedge

Tracoe Mini for neonates and infants

Technical data

Size	ID	OD	A	C	B	TL	OB	BA
	mm	mm	mm	mm	mm	mm	mm	∅°
2.5	2.5	3.6	6	22	2	30	32	120
3.0	3.0	4.3	7	23	2	32	34	120
3.5	3.5	5.0	8	23	3	34	37	120
4.0	4.0	5.6	9	24	3	36	40	120

ID: inside diameter (clear width) of tube; **OD:** outside diameter of tube; **A:** length; **C:** length; **B:** length; **TL:** length along centre line from start of neck flange to bottom of tube; **OB:** length along outer bend from start of neck flange to bottom of tube; **BA:** bending angle



Ordering information

Ref.no	Description	Available sizes
REF 350	Tracoe Mini Neo	2.5-4.0

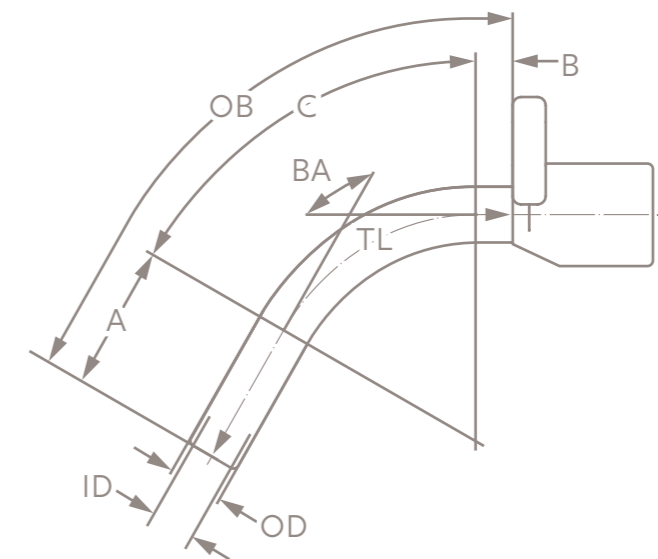
Includes: Ring obturator, adjustable neck strap, and product info card with two detachable labels.
To order, specify: REF + Size, **e.g. REF 350-3.5**
Length variants are available. Please contact your responsible country manager for further information.

Tracoe Mini for children

Technical data

Size	ID	OD	A	C	B	TL	OB	BA
	mm	mm	mm	mm	mm	mm	mm	∅°
2.5	2.5	3.6	8	22	2	32	34	120
3.0	3.0	4.3	10	24	2	36	39	120
3.5	3.5	5.0	12	25	3	40	43	120
4.0	4.0	5.6	14	27	3	44	48	120
4.5	4.5	6.3	16	28	4	48	52	120
5.0	5.0	7.0	18	28	4	50	55	120
5.5	5.5	7.6	20	30	5	55	60	120
6.0	6.0	8.4	22	35	5	62	67	120

ID: inside diameter (clear width) of tube; **OD:** outside diameter of tube; **A:** length; **C:** length; **B:** length; **TL:** length along centre line from start of neck flange to bottom of tube; **OB:** length along outer bend from start of neck flange to bottom of tube; **BA:** bending angle



Ordering information

Ref.no	Description	Available sizes
REF 355	Tracoe Mini Ped	2.5-6.0

Includes: Ring obturator, adjustable neck strap, and product info card with two detachable labels.
To order, specify: REF + Size, **e.g. REF 355-3.5**
Length variants are available. Please contact your responsible country manager for further information.



Freevent XtraCare Mini

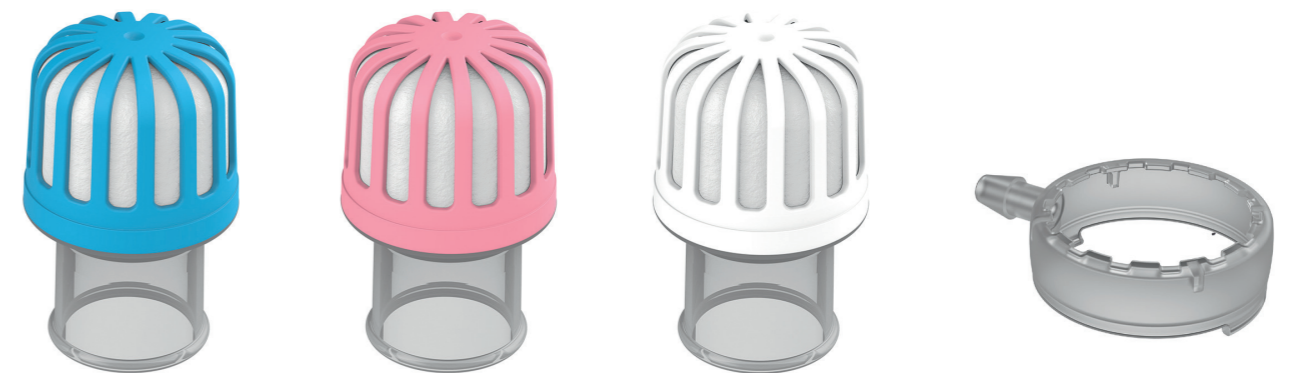
Freevent XtraCare Mini HMEF combines an HME with a highly effective electrostatic filter that reduces the inhalation of airborne particles containing viruses and bacteria. It is for daily use up to 24 hours* and provides protection with a filtration efficiency of more than 98%.^{29,30**}

The compact design is tailored for pediatric patients and fitted with a transparent connector to facilitate monitoring of secretions. It is compatible with 15 mm connectors and can be combined with Freevent O₂ Adaptor Mini to administer supplemental oxygen. XtraCare Mini is recommended for children with a tidal volume between 30-250 ml, approx. 7-30 kg.

The patient's inspired air is both humidified and filtered while expired air is filtered, protecting those in their direct surroundings such as healthcare professional and family. XtraCare Mini is intended for pediatric patients spontaneously breathing through a tracheostoma.

Freevent XtraCare Mini provides:

- Good humidification
- Effective filtration of bacteria >99%^{29**}
- Effective filtration of viruses >98%^{30**}



Ordering information

Ref.no	Description	Qty
8008	Freevent XtraCare Mini White	5 pcs
8004	Freevent XtraCare Mini White	30 pcs
8005	Freevent XtraCare Mini Blue	30 pcs
8006	Freevent XtraCare Mini Pink	30 pcs
8007	Freevent O2 Adaptor Mini	10 pcs

* All HMEs should be regularly monitored / changed if they become soiled, dropped or clogged.

** Please note: Since pathogens can enter and leave the human body in other ways (such as the mouth, nose, and eyes), Freevent XtraCare Mini can never guarantee complete protection. Please read the instructions for use for guidance.

A tracheostomy impact humidification and filtration

A tracheostomy bypasses the upper airway, and when breathing through a tracheostomy tube, the important, natural humidification and filtration functions are mostly lost. The tracheostomy creates an open portal of entry for unconditioned air, viruses, bacteria and other fine airborne particles and pathogens to enter directly into the trachea and lungs (lower airway).

Children with a tracheostomy have a higher risk of respiratory infections.^{11,12,14} This is due to the naturally protective oral and nasal passages being bypassed, allowing microorganisms into the lower airways more easily. Also, it is recognized that prolonged use of a tracheostomy tube can irritate the mucosa of the trachea, further increasing infection risk.^{13,27}

Long-term tracheostomy use has been associated with colonization of microorganisms such as Pseudomonas and Staphylococcus.^{16,25,28} Bacterial pneumonia is the most common reason for hospitalization in tracheostomized children.¹⁶

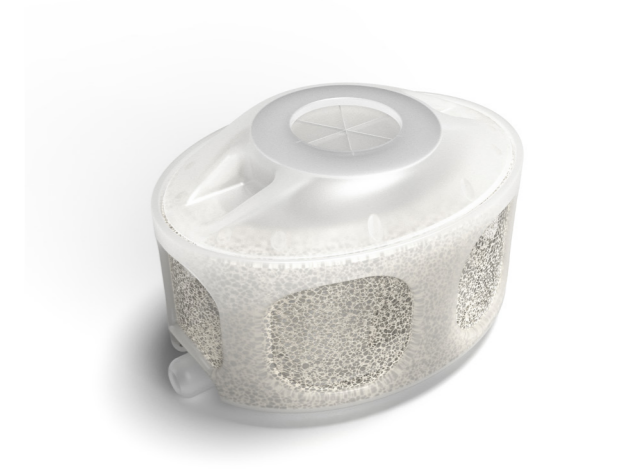
The use of Heat and Moisture Exchangers (HMEs) by patients with a tracheostomy optimizes heat and moisture qualities of the inspired air and therefore improves pulmonary function. Optimizing humidification and warmth of inspired air leads to decreased viscosity of mucus secretions, less irritation from dry airways, minimizes coughing, and improves respiratory functions.^{5,25,29-32}



TrachPhone

TrachPhone is a lightweight HME providing humidification, with an additional feature for suctioning and supplemental oxygen. It also contains a speaking valve function, where the top lid can be pressed to occlude the tracheostomy tube for voicing. After releasing the finger, the valve will open automatically.

The suction port within the TrachPhone allows for passage of a suction catheter without removing the device to enable respiratory secretion management³³. TrachPhone can be used in children and young people over 10 kg.



It can also help children that have been assessed to safely use a one-way valve device but that prefer to close off their tracheostomy using their finger. The child or young person can learn how to gently press the device to close it to allow airflow up through the voice box for sounds and talking. This reduces the risk of infection that may occur with finger occlusion directly on to the tracheostomy hub.

Ordering information

Ref.no	Description	Qty
7723	TrachPhone	5 pcs
7707	TrachPhone	30 pcs
7704	TrachPhone	50 pcs



One-way speaking valves

Placement of a tracheostomy can impact on a variety of upper airway functions, for example, voicing (laughter, sigh, cry, talking), cough, and swallowing.⁶⁻¹⁰ The use of one-way valves in appropriately selected children and young people can optimize upper airway functions and therefore development, including speech, language and communication, trunk support, etc.^{34,36}, as well as expedite decannulation in appropriate cases.³⁷

It is recommended that a child's readiness for one-way valve use should be assessed by a multi-disciplinary team and include functional upper airway assessment.³⁴⁻³⁶ The child or young person should be respiratory stable, free of infection and demonstrate a patent upper airway. Mobility of the vocal folds is also essential to optimize functions. The diameter of the tracheostomy tube should leave enough free space to allow airflow up and through the voice box (larynx), and therefore to optimize success with one-way speaking valve placement, the tracheostomy tube may need to be downsized.^{17,36}

With a one-way speaking valve in place, the child or young person breathes in through the tracheostomy and then must breathe out around the tracheostomy tube, up through the voice box and out the mouth and nose. With airflow restored to the upper airway, not only the functions mentioned may be restored but also smell, taste and secretion management may be improved.³⁷

When a one-way speaking valve is in place, the expiratory resistance is considerably higher when compared to breathing through an open tracheostomy tube. Without additional modification of a valve supporting transition from an open tracheostomy tube or HME to a closed bias one-way speaking valve, use of an adjustable one-way valve that allows some expiration through adjustable side-openings may improve tolerance.³⁸⁻⁴⁰



Tracoe Phon Assist I

Tracoe Phon Assist is a one-way speaking valve with two adjustable side openings. By turning the external part of the valve, the opening can be altered and can impact on the resistance in line with the child's abilities and needs. With the side opened maximally or partially, some expiration can then take place partially with the remaining airflow passing round the tube and through the upper airway.

The ability to be able to alter the resistance of the one-way speaking valve offers the potential to offer therapeutic options and rehabilitate the voice box

and upper airway, e. g. for weaning from ventilation, stimulation of the voice box for functions such as coughing, the oropharyngeal region for smell and taste, and to produce voice for laughing, sighing, and talking.

Phon Assist comes in two colors, namely transparent and orange, with and without oxygen supply port. The orange one-way valve may offer increased awareness of the valve in place compared to other attachments. Phon Assist I has a device life of up to 6 months.

Ordering information

Ref.no	Description	Qty
REF 650-T	Tracoe Phon Assist I	1 pc
REF 650-TO	Tracoe Phon Assist I O2	1 pc*
REF 650-TO-5	Tracoe Phon Assist I O2	5 pcs*
REF 650-TO-C	Tracoe Phon Assist I orange O2	1 pc*
REF 650-TO-C-5	Tracoe Phon Assist I orange O2	5 pcs*

*Including: adapter for oxygen supply



Essentials

There are essential products that play an important role in tracheostomy care. Our specific pediatric assortment includes a neckband and dressings. They help in daily living with a tracheostomy tube.

Freevent Neckband Two-piece

High quality adjustable neckband enabling simple application with the VELCRO® brand fastening designed to provide secure tube positioning. This neckband is made of soft foam and rounded edges for comfort. It enables easy placement, which is also useful for emergency changes and to facilitate changes where a single person is caring for the child.¹⁷

Ordering information

Ref.no	Description	Width	Length	Qty
1652	Freevent Neckband Two-piece S	Approx 2.0 cm	Min length 23 cm Max length 40cm	10 pcs



Tracoe Compress

A tracheal compress for padding between the stoma and the tube, allowing absorption of secretions. The compress includes a zigzag slit in a downward-facing position to minimize the risk of accidental removal.

Ordering information

Ref.no	Description	Size	Qty
REF 961	Tracoe Compress Slit Kids	6.5 x 6.3 cm	10 pcs



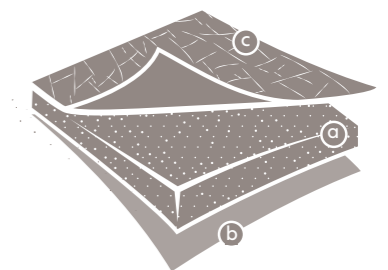
Tracoe Purofoam Compress

The Purofoam dressing can be used for the wound care of recent or irritated tracheostomy stomas as well as for covering healed but weeping areas. The compresses comply with the principles of moist wound treatment and includes the downward-facing zigzag slit to minimize the accidental removal of the compress.

Tracoe Purofoam is made of an absorbent open-pored polyurethane foam (a). The underside layer of the dressing next to the skin (b) allows absorption of fluids, including secretions into the dressings core (a). The surface layer prevents leakage of secretion to the outside and reduces bacterial contamination (c). The dressings are sterile and individually packaged.

Ordering information

Ref.no	Description	Size	Qty
REF 959	Tracoe Purofoam Compress Small	6.5 x 6.3 x 0.5 cm	10 pcs



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