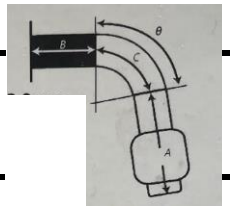
UNIVERSITY OF MARYLAND/SHOCK TRAUMA TRACHEOSTOMY SELECTION GUIDE

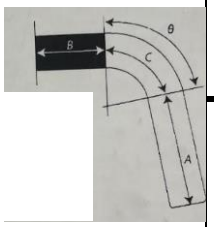
STANDARD TRACHEOSTOMY TUBES (DOUBLE LUMEN)

Item number	Name	Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)	Length (mm)	Cuff (mm)	Degree	Inner cannula (Y/N), ID, Reusable (Y/N), Item #
Portex BLUselect® Tracheostomy Tube – Cuffed This tracheostomy tube is made of polyvinyl chloride (PVC). The cuff is a low-pressure, high-volume cuff designed to minimize trauma and ease insertion. The device can be connected to the ventilator with or without the inner cannula.							
534088	6.0 Portex Cuffed	6.0	9.2	64.5	20	105	Inner cannula – yes Inner diameter – 5.0mm Reusable – up to 30 days Item # - 534096
534362	7.0 Portex Cuffed	7.0	10.5	70.0	24	105	Inner cannula – yes Inner diameter – 6.0mm Reusable – up to 30 days Item # - 534364
534089	8.0 Portex Cuffed	8.0	11.9	75.5	30	105	Inner cannula – yes Inner diameter – 7.0mm Reusable – up to 30 days Item # - 534097
534090	9.0 Portex Cuffed	9.0	13.3	81.0	30	105	Inner cannula – yes Inner diameter – 8.0mm Reusable – up to 30 days Item # - 534098
534091	10.0 Portex Cuffed	10.0	14.0	87.5	30	105	Inner cannula – yes Inner diameter – 9.0mm Reusable – up to 30 days Item # - 534099

Item number	Name	Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)		Length (mm)	Cuff (mm)	Degree	Inner cannula (Y/N), ID, Reusable (Y/N), Item #	
Portex BLUselect® Tracheostomy Tube – Cuffless This tracheostomy tube is made of polyvinyl chloride (PVC). This cuffless tube can be used in patients who do not require ventilatory support.									
534092	6.0 Portex Cuffless	6.0	9.2		64.5	N/A	105	Inner cannula – yes Inner diameter – 5.0mm Reusable – up to 30 days Item # - 534096	
534363	7.0 Portex Cuffless	7.0	10.5		70.0		105	Inner cannula – yes Inner diameter – 6.0mm Reusable – up to 30 days Item # - 534364	
534093	8.0 Portex Cuffless	8.0	11.9		75.5		105	Inner cannula – yes Inner diameter – 7.0mm Reusable – up to 30 days Item # - 534097	
534094	9.0 Portex Cuffless	9.0	13.3		81.0		105	Inner cannula –yes Inner diameter– 8.0mm Reusable – up to 30 days Item # - 534098	
Shiley® <u>Proximal</u> XLT Tracheostomy Tube – Cuffed Proximal XLT tubes are used for patients with larger skin to tracheal wall distances. These are recommended for patients with a BMI≥35 or a skin to trachea distance of >4cm. The inner cannula must be inserted to connect the device to the ventilator/ambu bag.									
333044	5.0 Proximal XLT Cuffed	5.0	9.6		A: 33, B: 20, C: 37 Total: 90	29.2	90	Inner cannula – Yes Reusable – No Inner Diameter– 5.0mm Item # - 333038	
333043	6.0 Proximal XLT Cuffed	6.0	11.0		A: 34, B: 23, C: 38 Total: 95	31.3	90	Inner cannula – Yes Reusable – No Inner Diameter – 6.0mm Item # - 333036	
333041	7.0 Proximal XLT Cuffed	7.0	12.3		A: 34, B: 27, C: 39 Total: 100	35	90	Inner cannula – Yes Reusable – No Inner Diameter – 7.0mm Item # - 333040	
342338	8.0 Proximal XLT Cuffed	8.0	13.3		A: 35, B: 30, C: 40 Total: 105	35	90	Inner cannula – Yes Reusable – No Inner Diameter – 8.0mm Item # - 333039	

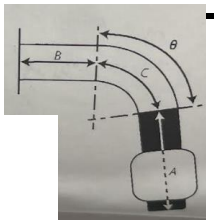
Shiley® Proximal XLT Tracheostomy Tube – Cuffless

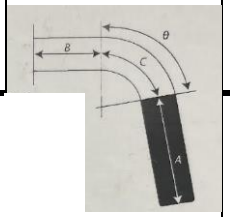
These tubes are indicated for patients with larger skin to tracheal wall distances who do not require ventilatory support. These are recommended for patients with a BMI≥35 or a skin to trachea distance of >4cm.

333045	5.0 Proximal XLT Cuffless	5.0	9.6		A: 33, B: 20, C: 37 Total: 90	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 5.0mm Item # - 333038
333042	6.0 Proximal XLT Cuffless	6.0	11.0		A: 34, B: 23, C: 38 Total: 95	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 6.0mm Item # - 333036
333037	7.0 Proximal XLT Cuffless	7.0	12.3		A: 34, B: 27, C: 39 Total: 100	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 7.0mm Item # - 333040
502557	8.0 Proximal XLT Cuffless	8.0	13.3		A: 35, B: 30, C: 40 Total: 105	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 8.0mm Item # - 333039

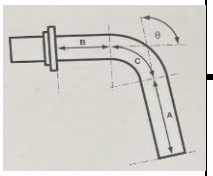
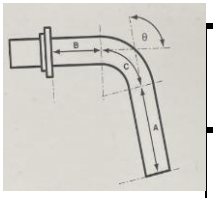
Shiley® Distal XLT Tracheostomy Tube – Cuffed

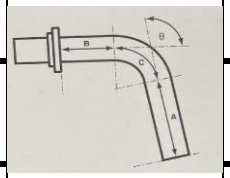
These tubes are designed for patients with long tracheal anatomy or anatomic issues that need to be bypassed (i.e. stenosis, malacia, etc). The inner cannula must be inserted to connect the device to the ventilator/AMBU bag

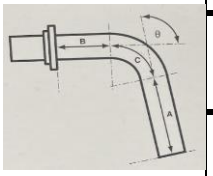
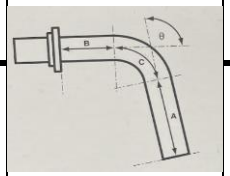
360141	5.0 Distal XLT Cuffed	5.0	9.6		A: 48, B: 5, C: 37 Total: 90	29.2	90	Inner cannula – Yes Reusable – No Inner Diameter – 5.0mm Item # - 333038
501548	6.0 Distal XLT Cuffed	6.0	11.0		A: 49.0, B: 8, C: 38 Total: 95	32.3	90	Inner cannula – Yes Reusable – No Inner Diameter – 6.0mm Item # - 333036
Item number	**Name**	**Inner Diameter (ID) (mm)**	**Outer Diameter (OD) (mm)**		**Length (mm)**	**Cuff (mm)**	**Degree**	**Inner cannula (Y/N), ID, Reusable (Y/N), Item #**
501356	7.0 Distal XLT Cuffed	7.0	12.3		A: 49, B: 12, C: 39 Total: 100	35.0	90	Inner cannula – Yes Reusable – No Inner Diameter – 7.0mm Item # - 333040
501933	8.0 Distal XLT Cuffed	8.0	13.3		A: 50, B: 15 C: 40	35.0	90	Inner cannula – Yes Reusable – No Inner Diameter – 8.0mm

					Total: 105			Item # - 333039	
Shiley® Distal XLT Tracheostomy Tube – Cuffless These tubes are designed for patients with long tracheal anatomy or anatomic lesions that need to be bypassed (i.e. stenosis, malacia, etc). These cuffless tubes are for patients who do not require ventilator support.									
360200	5.0 Distal XLT Cuffless	5.0	9.6		A: 48, B: 5, C: 37 Total: 90	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 5.0mm Item # - 333038	
360138	6.0 Distal XLT Cuffless	6.0	11.0		A: 49.0, B: 8.0, C: 38.0 Total: 95	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 6.0mm Item # - 333036	
360139	7.0 Distal XLT Cuffless	7.0	12.3		A: 49, B: 12, C: 39 Total: 100	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 7.0mm Item # - 333040	
360140	8.0 Distal XLT Cuffless	8.0	13.3		A: 50, B: 15 C: 40 Total: 105	N/A	90	Inner cannula – Yes Reusable – No Inner Diameter – 8.0mm Item # - 333039	

SPECIALTY TRACHEOSTOMY TUBES (SINGLE LUMEN)

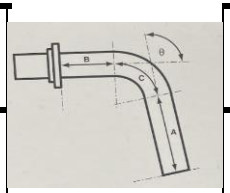
Item number	Name	Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)		Length (mm)	Cuff (mm)	Degree	Inner cannula (Y/N), ID, Reusable (Y/N), Item #	
Bivona® Mid-Range Aire Cuf This tracheostomy tube is made of molded silicone. These tubes contain "aire" cuffs which means they are filled with air. They are mid-range high-volume, low-pressure cuffs. If the cuff is overinflated air will diffuse out.									
320094	5.0 Bivona® Mid-Range Aire Cuf	5.0	7.4		A: 7, B: 0 C: 53 Total: 60	17	100	Inner Cannula – No	
320095	6.0 Bivona® Mid-Range Aire Cuf	6.0	8.8		A: 17, B:0 C: 53 Total: 70	18	100	Inner Cannula – No	
320096	7.0 Bivona® Mid-Range Aire Cuf	7.0	10.0		A: 27, B: 0 C:53 Total: 80	21	100	Inner Cannula – No	
320097	8.0 Bivona® Mid-Range Aire Cuf	8.0	11.0		A: 35, B: 0 C: 53 Total: 88	25	100	Inner Cannula – No	
Bivona® TTS Cuff This tracheostomy tube is made of molded silicone. These cuffs are tight to shaft when deflated, allowing easier placement and air movement around the tube. **TTS cuff is filled with WATER** (not air or saline). The TTS is a high-pressure low volume cuff so it is not recommended for those who have their cuff inflated for most of the day. These tubes do not have inner cannulas so care should be taken to avoid secretion collection causing blockage.									
320089	5.0 Bivona® Cuffed	5.0	7.4		A: 7, B: 0, C: 53 Total: 60	9.5	100	Inner cannula – No	
264595	6.0 Bivona® Cuffed	6.0	8.8		A: 17, B: 0, C: 53 Total: 70	11.0	100	Inner cannula – No	
264596	7.0 Bivona® Cuffed	7.0	10.0		A: 27, B: 0, C: 53 Total: 80	12.0	100	Inner cannula – No	
264596	8.0 Bivona® Cuffed	8.0	11.0		A: 35, B: 0, C: 53 Total: 88	13.0	100	Inner cannula – No	

Item number	Name	Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)		Length (mm)	Cuff (mm)	Degree	Inner cannula (Y/N), ID, Reusable (Y/N), Item #
320092	8.5 Bivona® Cuffed	8.5	11.8		A: 35, B: 0, C: 53 Total: 88	14.0	100	Inner cannula– No
264598	9.0 Bivona® Cuffed	9.0	12.3		A: 45, B: 0, C: 53 Total: 98	14.5	100	Inner cannula – No
Bivona® Cuffless This tracheostomy tube is molded silicone. These tubes do not have inner cannulas so care should be taken to avoid secretion collection causing blockage.								
320083	5.0 Bivona® Cuffless	5.0	7.4		A: 7.0, B: 0, C: 53.0 Total: 60	N/A	100	Inner cannula – No
320084	6.0 Bivona® Cuffless	6.0	8.8		A: 17.0, B: 0, C: 53.0 Total: 70	N/A	100	Inner cannula – No
320085	7.0 Bivona® Cuffless	7.0	10.0		A: 27.0, B: 0, C: 53.0 Total: 80	N/A	100	Inner cannula – No
320086	8.0 Bivona® Cuffless	8.0	11.0		A: 35, B: 0, C: 53 Total: 88	N/A	100	Inner cannula – No
320087	9.0 Bivona® Cuffless	9.0	12.3		A: 45, B: 0, C: 53 Total: 98	N/A	100	Inner cannula – No

Item number	Name	Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)		Length (mm)	Cuff (mm)	Degree	Inner cannula (Y/N), ID, Reusable (Y/N), Item #	
Bivona® Fome-Cuff These tracheostomy tubes are used in patients with tracheomalacia, issues with cuff leaks, or to prevent cuff leaks in patients with long-term vent dependence. There is a port that can be used to deflate the cuff (not inflate). The cuff passively inflates on its own when open to ambient air, do not cap. Never inflate the cuff or it may overinflate and break. If the cuff breaks in the patient, there is no way to deflate the fome part of the cuff. There is a syringe with a stop cock to measure the volume used for inflation. There is a side port adaptor that can optionally be placed in-line with the ventilator to provide a puff of air with each inspiration which minimizes continuous pressure on the tracheal wall.								
302497	5.0 Fome-Cuff	5.0	7.3		A: 7, B: 0, C: 53 Total: 60	20	100	Inner Cannula – No	
302376	6.0 Fome-Cuff	6.0	8.7		A: 17, B: 0, C: 53 Total: 70	30	100	Inner Cannula – No	
320100	7.0 Fome-Cuff	7.0	10.0		A: 27, B: 0 C: 53 Total: 80	32	100	Inner Cannula – No	
3493	8.0 Fome-Cuff	8.0	11.0		A: 35, B: 0 C: 53 Total: 88	33	100	Inner Cannula – No	
3495	9.5 Fome-Cuff	9.5	13.3		A: 45, B: 0 C: 53 Total: 98	33	100	Inner Cannula – No	
Bivona® Hyperflex <u>Adjustable</u> Flange <u>TTS Cuff</u> This wire reinforced flexible silicone tracheostomy tube is designed to fit unusual anatomy because the tube can be adjusted to change the angle and length while resisting kinking. Adjustable tubes are only meant to be used temporarily until the ideal length can be determined and it can be exchanged for a fixed length tube. Because patients are dependent on the tube staying at the same length using a locking flange, patients require close monitoring. **TTS cuff is filled with WATER** (not air or saline). The TTS is a high-pressure low-volume cuff so it is not recommended for those who have their cuff inflated for most of the day. These tubes are MRI conditional (discuss with radiology).								
290485	6.0 Hyperflex Adjustable Flange TTS Cuff	6.0	9.2		A: 0, B: 0 C: 110 Total: 110	11	180	Inner Cannula – No	
290486	7.0 Hyperflex Adjustable Flange TTS Cuff	7.0	10.6		A: 0, B: 0 C: 120 Total: 120	12	180	Inner Cannula – No	
289468	8.0 Hyperflex Adjustable Flange TTS Cuff	8.0	11.7		A: 0, B: 0 C: 130 Total: 130	13	180	Inner Cannula – No	
290482	9.0 Hyperflex Adjustable Flange TTS Cuff	9.0	12.9		A: 0, B: 0 C: 140 Total: 140	14.5	180	Inner Cannula – No	

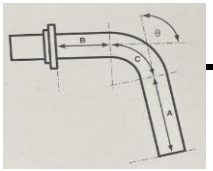
Bivona® Hyperflex <u>Adjustable</u> Flange <u>Mid Range Aire-Cuf</u>

This wire reinforced flexible silicone tracheostomy tube is designed to fit unusual anatomy because the tube can be adjusted to change the angle and length while resisting kinking. They are mid-range high-volume, low-pressure cuffs that are filled with air. If the cuff is overinflated air will diffuse out. Adjustable tubes are only meant to be used temporarily until the ideal length can be determined and it can be exchanged for a fixed length tube. Because patients are dependent on the tube staying at the same length using a locking flange, patients require close monitoring. These tubes are MRI conditional (discuss with radiology).

290256	6.0 Bivona® Hyperflex Adjustable Flange	6.0	9.2		A: 0, B: 0 C: 110 Total: 110	21	180	Inner Cannula – No
290483	7.0 Bivona® Hyperflex Adjustable Flange	7.0	10.6		A: 0, B: 0 C: 120 Total: 120	21	180	Inner Cannula – No
248428	8.0 Bivona® Hyperflex Adjustable Flange	8.0	11.7		A: 0, B: 0 C: 130 Total: 130	25	180	Inner Cannula – No
290484	9.0 Bivona® Hyperflex Adjustable Flange	9.0	12.9		A: 0, B: 0 C: 140 Total: 140	28	180	Inner Cannula – No

Bivona® Hyperflex XL <u>Fixed</u> Flange Mid Range Aire-Cuf

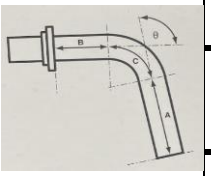
The hyperflex tube is a straight tracheostomy tube that contains a thin metal wire as reinforcement to prevent it from kinking. These are longer length tubes with a fixed length. The cuff is an “aire” cuffs which means that it they are inflated with air. They are mid-range high volume, low-pressure cuffs.

320107	6.0 Bivona® Hyperflex XL Cuffed	6.0	9.2		A: 0, B: 0 C: 100 Total: 100	18	180	Inner Cannula – No
314029	7.0 Bivona® Hyperflex XL Cuffed	7.0	10.6		A: 0, B: 0 C: 110 110	21	180	Inner Cannula – No
296739	8.0 Bivona® Hyperflex XL Cuffed	8.0	11.7		A: 0, B: 0 C: 120 Total: 120	25	180	Inner Cannula – No

Item number	Name	Inner Diameter (ID) (mm)	Outer Diameter (OD) (mm)		Length (mm)	Cuff (mm)	Degree	Inner cannula (Y/N), ID, Reusable (Y/N), Item #
314030	9.0 Bivona® Hyperflex XL Cuffed	9.0	12.9		A: 0, B: 0 C: 130 Total: 130	28	180	Inner Cannula – No

Bivona® Hyperflex XL Fixed Flange Mid Range Cuffless

The hyperflex tube is a straight tracheostomy tube that contains a thin metal wire as reinforcement to prevent it from kinking. These are longer length tubes. The cuffless tube can be used in patients who do not require ventilatory support.

320111	6.0 Bivona® Hyperflex XL Cuffless	6.0	9.2		A: 0, B: 0 C: 100 Total: 100	N/A	180	Inner Cannula – No
320112	7.0 Bivona® Hyperflex XL	7.0	10.6		A: 0, B: 0 C: 110 110	N/A	180	Inner Cannula – No
320113	8.0 Bivona® Hyperflex XL	8.0	11.7		A: 0, B: 0 C: 120 Total: 120	N/A	180	Inner Cannula – No
320114	9.0 Bivona® Hyperflex XL	9.0	12.9		A: 0, B: 0 C: 130 Total: 130	N/A	180	Inner Cannula – No

Jackson Metal Tracheostomy Tube

Metal is antimicrobial and thought to produce fewer secretions and odor. We do not carry the 15mm adaptor that is needed to attach to a ventilator. These tubes must be exchanged for a non-metal tube if the patient needs ventilatory support.

13922	#6 Jackson Metal tracheostomy tube	7.2	10.0	69	N/A	90	Inner Cannula – Yes Reusable – Yes Inner Diameter – 7.2mm Item number – included

Miscellaneous Items

320108	Universal Red Cap 15mm

General Guidelines:

1. There are different methods for sizing (Jackson and International Sizing Organization (ISO)). Most tubes (except the XLT Shileys) are in ISO sizing.
2. Always confirm what should be used to inflate the cuff on a non-standard trach (water vs air vs passive).
3. Cuff size does not always correspond to trach tube size. When addressing ventilatory leaks, check the cuff diameter when inflated.
4. Cuff pressures should be maintained in a range of 20-25mmHg. Need for higher pressure should prompt consideration of revision due to the risk of mucosal necrosis.
5. Length of tracheostomy tubes increases with increasing diameter size. Make sure to pay attention to both the diameter as well as the length required for the patient.
6. Proximal XLT tracheostomy tubes are generally recommended in patients with a BMI≥35 and/or skin to trachea distance >4cm.
   a. The skin-trachea distance should be assessed with the neck in a neutral position (prior cross-sectional imaging or point of case ultrasound can be used for assessment).
   b. Measure between the anterior wall of the trachea and the skin on the neck at the level of the superior aspect of the anterior clavicle.
7. Distal XLT tracheostomy tubes may be appropriate for very tall patients or patients with focal anatomic abnormalities (tracheomalacia, stenosis, etc) in order to bypass that area. Bronchoscopy should confirm that the tube is not in the main stem bronchus and sits safely above the carina even with changes in neck positioning.
8. Patients who are underweight, young, or shorter height may require smaller size tracheostomy tubes. These tubes are smaller in diameter to fit in smaller tracheas and shorter so that the tube sits in the appropriate position. For confirmation, a bronchoscopy down the tracheostomy tube during the procedure can confirm the appropriate position above the carina.
9. Customizable tracheostomy tubes can be ordered – please see your respective implant coordinator for assistance.
10. The Blue Rhino® Kit is compatible with both flexible Shiley and Portex tracheostomy tubes.
11. A general recommendation is to have a 2.0mm clearance between the scope outer diameter and the tracheostomy tube inner diameter to prevent scope damage – removing the inner cannula will increase the inner diameter and may help prevent scope damage.

Decannulation/Downsizing Guidelines:

1. Patients should be assessed for decannulation or downsizing of their tracheostomy on a routine basis.
2. Criteria for decannulation is similar to extubation; ability to protect their airway and manage secretions.
3. When considering decannulation, have the patient breathe with the cuff deflated and the tube capped. The length of time the patient needs to tolerate capping prior to decannulation is situation dependent but generally not longer than 24-36h (see "Tracheostomy Capping/Plugging and Decannulation Guideline for Adult Patients").
4. If the patient is struggling to breathe around the tracheostomy tube, the tube may need to be downsized to a smaller tube. This can be done at the bedside when the tract is healed.
5. Patients should also be evaluated for speaking valves by SLP on a routine basis when considered safe.

Reference

1. Pandian V, Hutchinson CT, Schiavi AJ, Feller-Kopman DJ, Haut ER, Parsons NA, Lin JS, Gorbatkin C, Angamuthu PG, Miller CR, Mirski MA, Bhatti NI, Yarmus LB. Predicting the need for nonstandard tracheostomy tubes in critically ill patients. J Crit Care. 2017 Feb;37:173-178. doi: 10.1016/j.jcrc.2016.05.025. Epub 2016 Jun 4. PMID: 27756050