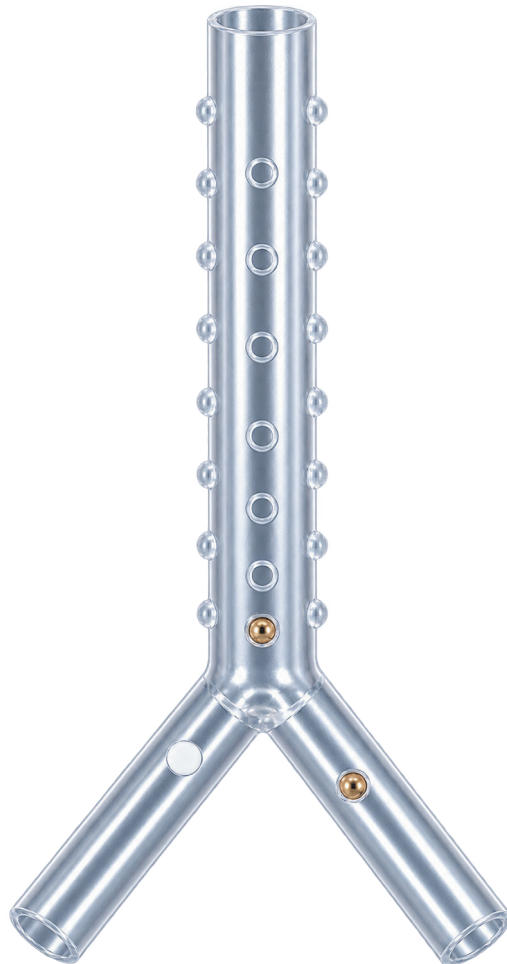


ADVANCED ENDOBRONCHIAL SOLUTIONS

VOLUTAM™ STENT Silicone Airway Stent System



ANATOMY-DRIVEN AIRWAY SUPPORT

Clinical product overview for healthcare professionals

Central airway obstruction

Stent therapy is one component of multimodality therapeutic bronchoscopy - selected according to etiology, anatomy, symptoms and treatment goals.

TREATMENT STRATEGIES FOR AIRWAY OBSTRUCTION

INTRINSIC

Endoluminal disease may first require debulking or ablative therapy. A stent is not automatically required if durable airway patency is achieved.

EXTRINSIC

External compression may require mechanical airway support when there is no endoluminal tissue to remove.

MIXED

Combined endoluminal disease and external compression often require a multimodality strategy.

WHEN STENTING BECOMES RELEVANT

- Symptomatic malignant or nonmalignant central airway obstruction when stent placement is feasible for the underlying disorder and other bronchoscopic/systemic options are insufficient.
- Airway support after recanalization when patency cannot otherwise be maintained.
- Complex tracheal, carinal or bronchial anatomy in which device geometry and sizing must be individualized.

CLINICAL PRINCIPLE

The 2024 CHEST guideline emphasizes multimodality therapeutic bronchoscopy and multidisciplinary decision-making. Evidence certainty for stent placement recommendations remains very low; selection therefore matters.

Source: CHEST Clinical Practice Guideline, 2024; WABIP MCAO 2024; WABIP BCAO 2025.

Why silicone airway stents?

A removable mechanical support platform with multiple geometries for central airway management.



ANATOMY & CONFIGURATION

Straight and bifurcated geometries allow the implant concept to be adapted to different central-airway locations.

VISIBLE DESIGN FEATURES

Transparent silicone construction with radiopaque markers and external anti-migration features on selected configurations.

REVISION CAPABILITY

Silicone stents are removable and can be revised or exchanged when clinically required.

CLAIM-DISCIPLINED COMMUNICATION

This catalog focuses on observable design features, anatomy, selection logic and clinical use context. Product-specific performance claims should be interpreted together with the current approved labeling and Instructions for Use.

DESIGN INTENT

Support airway patency while preserving a lumen for ventilation and secretion management; performance depends on correct indication, sizing, placement and follow-up.

Appropriate stent selection

Data-driven. Anatomy-focused. The final device choice must follow the approved IFU and specialist assessment.

CLINICAL ASSESSMENT

Define etiology (benign/malignant), symptoms, prior therapy, expected treatment course, surgical options and overall patient condition.

AIRWAY ASSESSMENT

Define location, length, healthy-airway diameter, fixed versus dynamic narrowing, distal airway viability and relationship to the carina/lobar branches.

SIZING LOGIC

- 1

LOCATION

- Trachea
 - Carina
 - Main bronchus
 - Lobar branch
- 2

GEOMETRY

- Straight
 - Stenotic
 - Bifurcated
 - Anatomy-specific
- 3

DIAMETER

Reference adjacent healthy airway; avoid undersizing or excessive wall pressure
- 4

LENGTH

Cover the target segment while minimizing unnecessary airway coverage

IMPORTANT

A stent that is too small may increase the risk of migration, whereas excessive diameter or length may increase airway-wall pressure or result in unnecessary mucosal coverage. Bronchoscopic and CT assessments should be integrated to optimize stent selection and positioning.

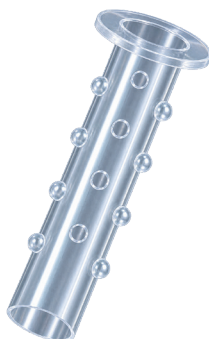
Anatomy-driven configurations

A coordinated silicone stent portfolio for tracheal, carinal, bronchial and lobar anatomy.



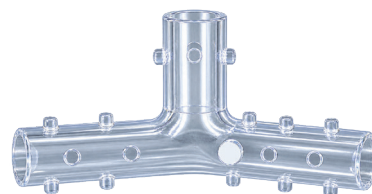
J STENT

Angled configuration for directional tracheobronchial support where airway anatomy requires a non-linear geometry. Select orientation and size from the target anatomy.



CARINA STENT

Flanged proximal geometry with a straight silicone body for selected carinal or proximal main-bronchus support.



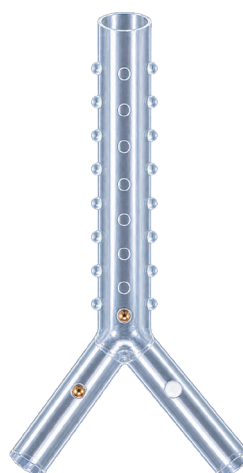
UPPER LOBE

Anatomy-specific configuration designed around right-upper-lobe bronchial branching while maintaining support of the adjacent bronchial segment.



STENOTIC STENT

Tapered / hourglass geometry with a narrowed central segment for focal stenotic anatomy. Diameter transition and length should be selected according to the target segment.

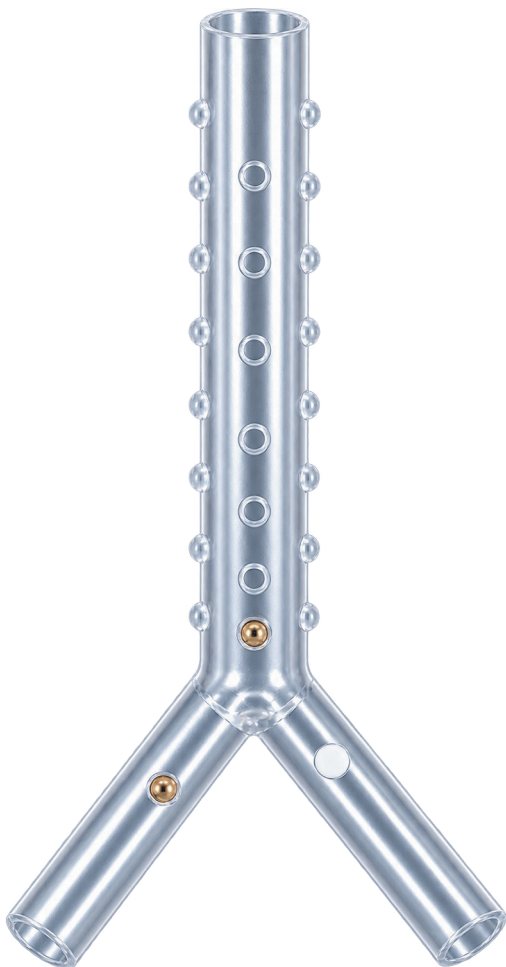


Y STENT

Distal trachea, carina and both main bronchi

Y stent

Designed around distal tracheal, carinal and main-bronchial anatomy.



ANATOMICAL ROLE

Bifurcated support spanning the distal trachea and proximal main bronchi.

DESIGN FEATURES

Transparent silicone body, bifurcated geometry, radiopaque markers and external anti-migration features.

PLACEMENT LOGIC

Orientation and branch geometry should be selected from bronchoscopic and imaging assessment.

CLINICAL USE

Device selection, sizing and placement technique must follow specialist assessment and the current IFU.

ANATOMY

Distal trachea, carina and proximal main bronchi.

GEOMETRY

Bifurcated support. Branch orientation and lengths are anatomy-dependent.

SIZING

Select tracheal and bronchial diameters and lengths from healthy reference airway measurements.

Ordering: For ordering information, please refer to the Instructions for Use (IFU) or the Ordering Information section of this catalog.”

Straight & stenotic configurations

Two complementary geometries for straight airway support and focal stenotic segments.



STRAIGHT / REGULAR

Cylindrical silicone configuration for tracheal or bronchial segments where a straight support geometry is appropriate.

GEOMETRY

Tapered / hourglass profile with a narrower central segment.

CLINICAL FIT

For focal stenotic anatomy where a diameter transition is required.

SELECTION

Choose diameter profile and length from bronchoscopic and imaging measurements.

TECHNICAL SELECTION PRINCIPLE

Use the smallest geometry that provides the intended mechanical support without unnecessary mucosal coverage or excessive wall pressure. Final device selection and placement technique must follow the current approved Instructions for Use.

Bronchoscopic Procedure Workflow

A disciplined workflow is more valuable than a “simple placement” marketing claim.

- 1

ASSESS
Bronchoscopy + CT; define lesion mechanism, location, distal patency and treatment goal.
- 2

SIZE
Select geometry, diameter and length based on healthy reference airway and target segment.
- 3

PREPARE
Confirm device, accessories, orientation, sterile integrity and rescue strategy.
- 4

DEPLOY
Placement technique and bronchoscope/introducer compatibility must follow the current IFU.
- 5

VERIFY
Confirm position, airway patency, branch ventilation and immediate complications.

HCP USE ONLY

This catalog is a clinical product overview, not a substitute for the IFU, institutional protocol, specialist training or patient-specific clinical judgment.

Clinical Risks and Follow-up

Airway stents are foreign-body implants. Benefit depends on appropriate indication, sizing, placement and structured follow-up.

MIGRATION

Recognized complication; risk varies with anatomy, indication, stent type and sizing.

MUCUS PLUGGING / MUCOSTASIS

Secretions can accumulate and obstruct the stent or distal airway.

GRANULATION TISSUE

Tissue reaction can develop, particularly near stent edges.

INFECTION

Lower respiratory tract infection is a recognized post-stent complication.

TUMOR OVERGROWTH

In malignant disease, progression can occur at stent margins.

BLEEDING / AIRWAY INJURY

Procedure- and device-related airway injury must be considered.

FOLLOW-UP

CHEST 2024 suggests either routine surveillance bronchoscopy or bronchoscopy when patients become symptomatic after stent placement. The 2025 WABIP benign-CAO guideline also addresses surveillance and post-stent management; local practice should follow current guidance and the device IFU.

Common complications described in contemporary reviews include migration, mucus plugging/mucostasis and granulation tissue.

General Airway-stenting Clinical Evidence

The catalog separates general airway-stenting evidence from ENBIO device-specific claims.

CHEST 2024

Mahmood K, et al. Management of Central Airway Obstruction: An American College of Chest Physicians Clinical Practice Guideline. Chest. 2025;167(1):283-295. Published online July 17, 2024. DOI: 10.1016/j.chest.2024.06.3804.

WABIP - Malignant CAO 2024

Chaddha U, et al. WABIP guidelines on airway stenting for malignant central airway obstruction. Respiriology. 2024;29(7):563-573. DOI: 10.1111/resp.14764.

WABIP - Benign CAO 2025

Chaddha U, et al. WABIP Guidelines on Airway Stenting for Benign Central Airway Obstruction. Respiriology. 2025;30(7):587-604. DOI: 10.1111/resp.70068.

Review

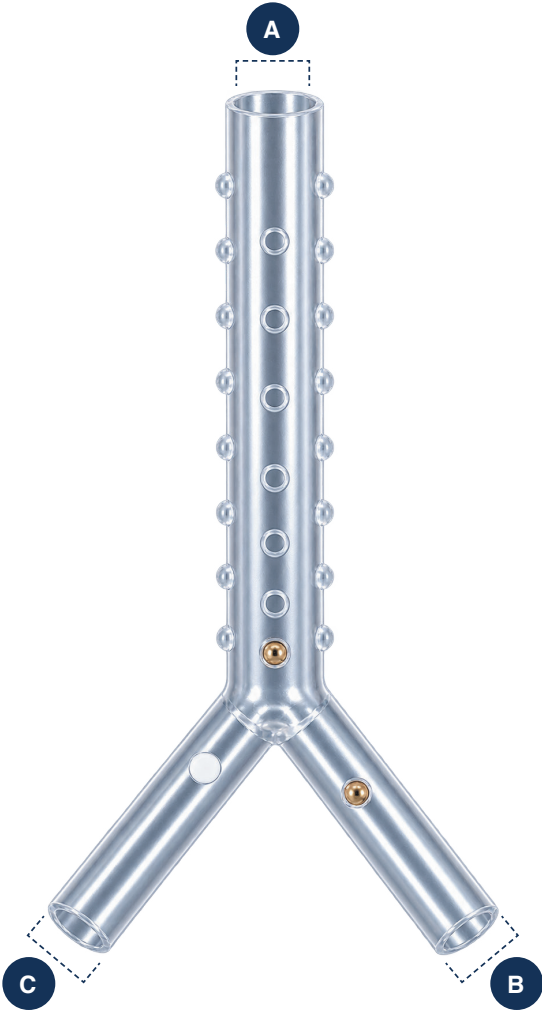
Sabath BF, Casal RF. Airway stenting for central airway obstruction: a review. Mediastinum. 2023;7:18. Contemporary review of indications, stent types and complications.

The references above provide the general clinical context for airway stenting. They should not be interpreted as evidence of product-specific clinical outcomes for VOLUTAM® Silicone Airway Stents.

PRODUCT LIST

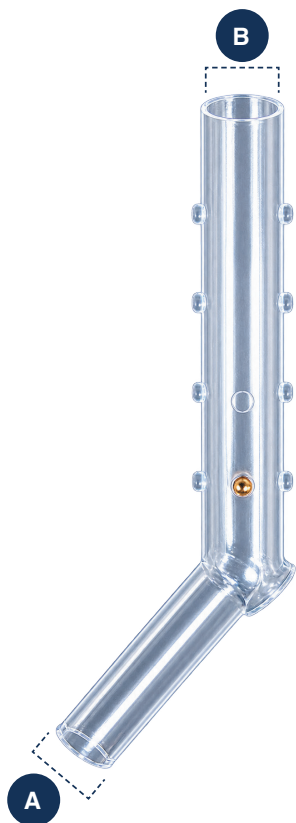
Product Code | Product Detail | Dimensions

Trachial Silicon Y STENT FAMILY



PRODUCT CODE	Ø A x B x C	LENGTH
VHY0114	14 x 9 x 10 mm	110 x 50 x 50 mm
VHY0115	15 x 12 x 12 mm	110 x 50 x 50 mm
VHY0116	16 x 13 x 13 mm	110 x 50 x 50 mm
VHY0117	17 x 13.5 x 13.5 mm	110 x 50 x 50 mm
VHY0118	18 x 14 x 14 mm	110 x 50 x 50 mm
VHYH114	14 x 9 x 10 mm H*	110 x 50 x 50 mm
VHYH115	15 x 12 x 12 mm H*	110 x 50 x 50 mm
VHYH116	16 x 13 x 13 mm H *	110 x 50 x 50 mm
VHYH117	17 x 13.5 x 13.5 mm H*	110 x 50 x 50 mm
VHYH118	18 x 14 x 14 mm H*	110 x 50 x 50 mm

J STENT FAMILY



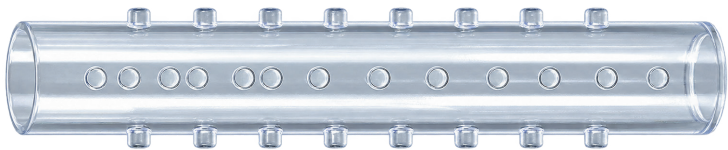
PRODUCT CODE	Ø A x B	LENGTH
VHJ0115	15 x 12 mm	Length 110 x 50 mm
VHJ0116	16 x 13 mm	Length 110 x 50 mm
VHJ0117	17 x 13.5 mm	Length 110 x 50 mm
VHJ0118	18 x 14 mm	Length 110 x 50 mm

CARINA STENT FAMILY



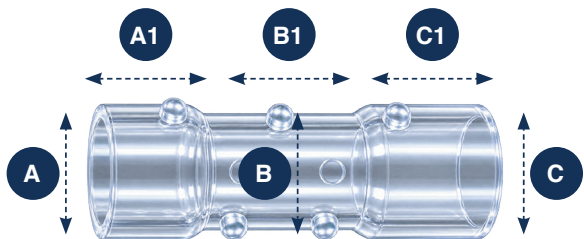
PRODUCT CODE	Ø Diameter	LENGTH
VHK0107	7	
VHK0110	10	
VHK0112	12	
VHK0113	13	
VHK0114	14	

STRAIGHT STENT FAMILY



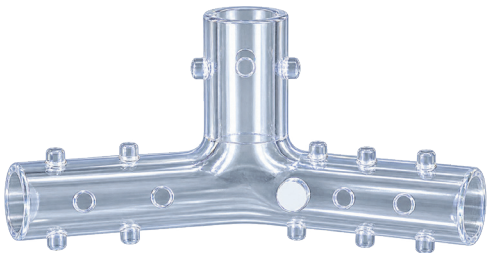
PRODUCT CODE	Ø Diameter	DIMENSIONS
VHSTR10	10 mm	Length 80 mm Wall 1.0 mm
VHSTR12	12 mm	Length 80 mm Wall 1.0 mm
VHSTR14	14 mm	Length 100 mm Wall 1.0 mm
VHSTR15	15 mm	Length 100 mm Wall 1.0 mm
VHSTR16	16 mm	Length 100 mm Wall 1.5 mm
VHSTR17	17 mm	Length 120 mm Wall 1.5 mm
VHSTR18	18 mm	Length 100 mm Wall 1.5 mm

J STENT FAMILY



PRODUCT CODE	Ø A x B x C	DIMENSIONS A1 X B1 X C1
VHS0114	14 x 12 x 14 mm	Length 15 x 20 x 15 mm
VHS0115	15 x 13 x 15 mm	
VHS0116	16 x 14 x 16 mm	
VHS0117	17 x 15 x 17 mm	
VHS0118	18 x 16 x 18 mm	
VHSS114	14 x 12 x 14 mm	Length 9 x 17 x 9 mm
VHSS115	15 x 13 x 15 mm	
VHSS116	16 x 14 x 16 mm	
VHSS117	17 x 15 x 17 mm	
VHSS118	18 x 16 x 18 mm	

UPPER-LOBE STENT FAMILY



PRODUCT CODE	PRODUCT DETAIL	DIMENSIONS
VHULR01	Right Upper-Lobe Silicone Stent	13 x 9 x 10 mm Length 40 x 17 x 35 mm
VHULL01	Left Upper-Lobe Silicone Stent	13 x 9 x 10 mm Length 40 x 17 x 35 mm