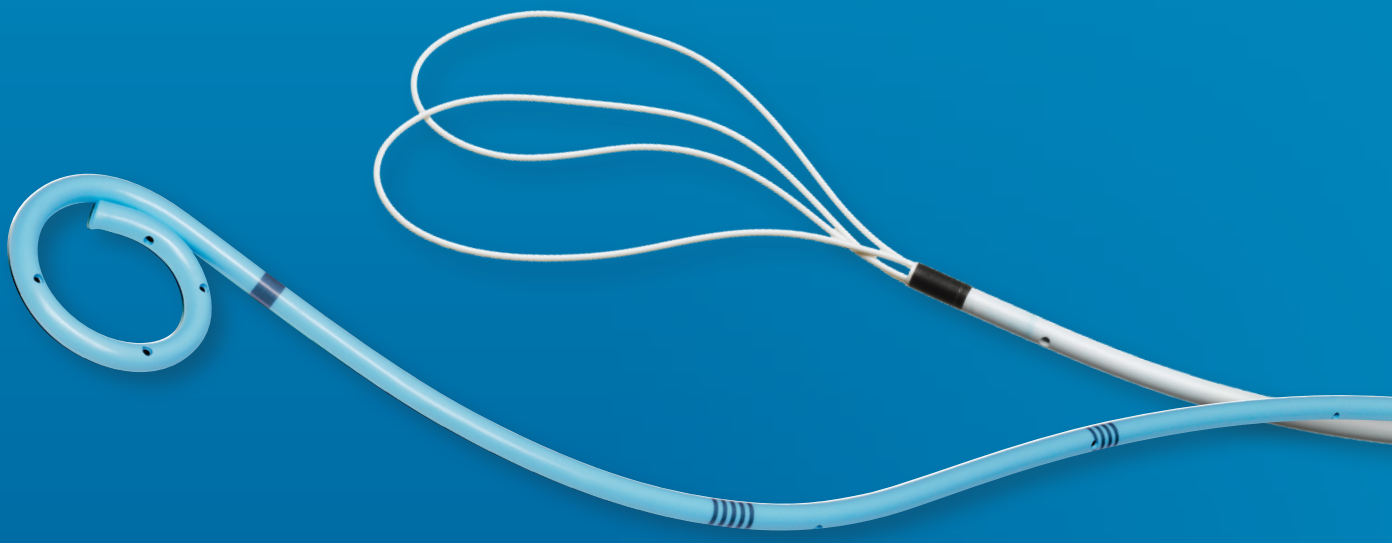
Boston Scientific

Advancing science for life™

Ureteral Stents

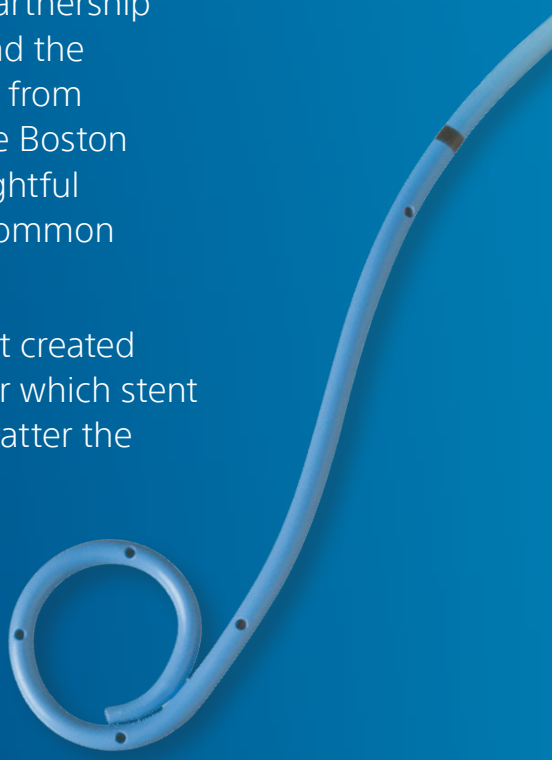
A broad portfolio to meet patients' and physicians' needs and preferences



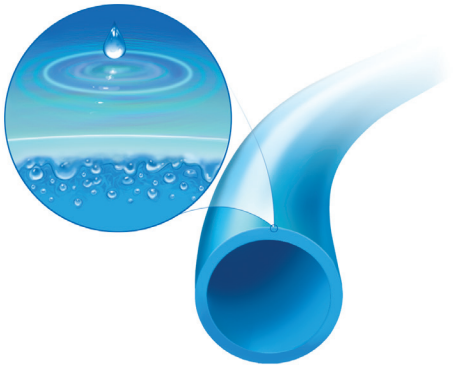
Because all stents are not created equal.

In the world of urology and helping patients maintain drainage, all stents are not created equal. Because each patient and ureteroscopy case is unique, you can't rely on one stent to solve all challenges. Boston Scientific offers a broad portfolio of firm, soft and dual-durometer stents designed to accommodate your patient's unique anatomy, clinical presentation and tolerance. Boston Scientific stents have been developed from more than 35 years of clinical research in partnership with urologists just like you – urologists who best understand the characteristics that help advance the quality of patient care, from the routine to the most complex of cases. When you choose Boston Scientific, you can count on a stent portfolio backed by insightful evidence and innovative solutions that will help you solve common challenges related to ureteral stent procedures.

So, while our portfolio offers stents that are intentionally not created equal, our goal is to ensure you equal confidence, no matter which stent you choose – confidence that we have a stent for you, no matter the patient, no matter the case.



Most of our stents are biocompatible for up to 365 days[1,2] and feature proprietary materials and coating, such as:

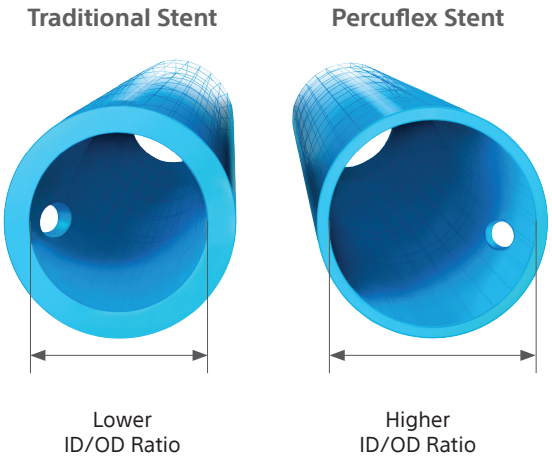


HydroPlus™ Hydrophilic Coating

- Absorbs water to provide a low-friction smooth surface that facilitates advancement[3,4] and may help reduce superficial damage to the epithelium[5]

Percuflex™ Material Construction

- Designed to soften at body temperature and conform to the ureter
- Helps reduce potential for stent migration due to the high coil retention strength[3]
- Promotes optimal drainage with a thin wall design, large inner lumen and multiple side drainage holes[1,3,6]
- Made of biocompatible material for up to 365-day indwell[1]
- Provides durable material strength[3]



Images not drawn to scale.

Designed for Excellent Drainage

Low profile and large inner lumen

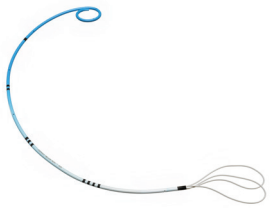
are attainable due to the high tensile strength of the Percuflex Material.[3,6]

The 5F version

is designed to increase drainage and may be passed over a .038″ guidewire.[1]

The clinical difference

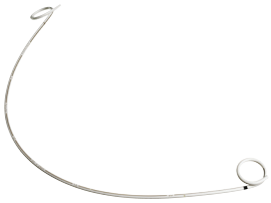
Tria™ Ureteral Stent
Unlike any other.



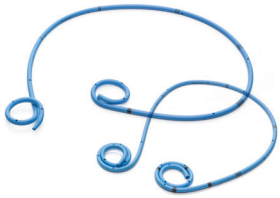
Polaris™ Loop Ureteral Stent
Proprietary loop design. Less bladder irritation.[7]

Polaris™ Ultra Ureteral Stent
Firm where it needs to be. Soft where it matters.

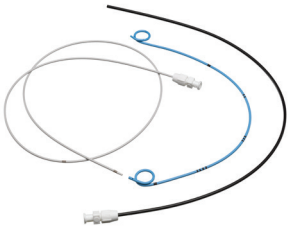
Percuflex™ Plus Ureteral Stent
Firm enough to place under difficult conditions.[3,8]



Percuflex™ Ureteral Stent
A stent designed for migration resistance.

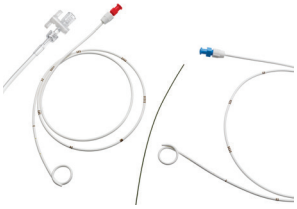


Contour™ and Contour VL™ Ureteral Stents
The soft stent designed to conform.

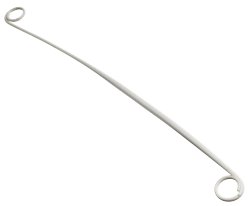


Contour™ Injection Ureteral Stent Set
The stent platform that shows you the way.

Stretch™ VL Flexima Ureteral Stent
When you need one size to fit all.



Percuflex™ Urinary Diversion Stent Set
The stent set designed for optimal drainage.

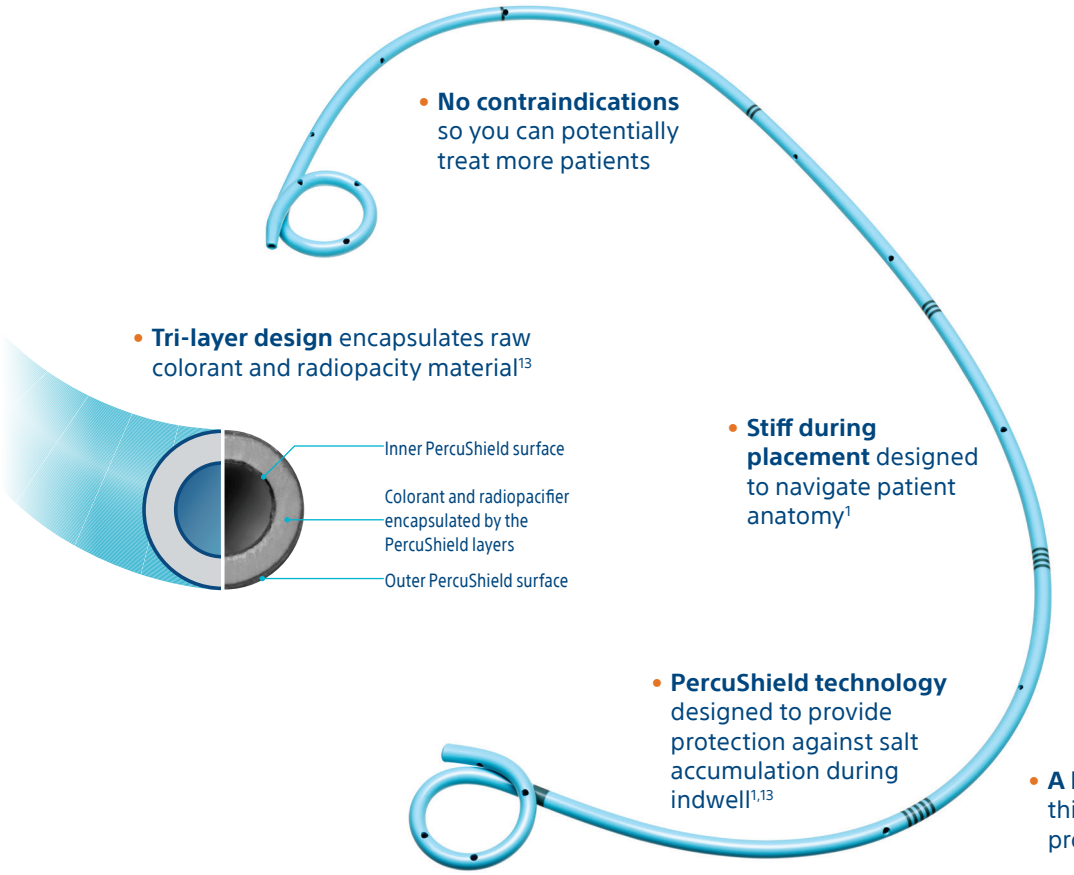


Retromax™ Plus Endopyelotomy Stent
A stent designed to facilitate healing.[6]

Tria™ Ureteral Stent

Unlike any other.

When it comes to ureteral stents, urine calcium (Ca) and magnesium (Mg) salt deposits can contribute to stent complications such as encrustation.[9,10] The cause and rate of encrustation is multifactorial and can include factors such as body chemistry and medical condition of the patient, stent indwell time, and surface material or properties of the stent.[10-12] The Tria Stent is the only commercially available stent that may help control the accumulation of both Mg and Ca salts.[1,13] As a matter of fact, in a bench study, the Tria Stent showed up to 60% less accumulation compared to Bard Inlay Optima® Ureteral Stent, depending on urine characteristics.[1,13] This is due, in part, to PercuShield™ technology on the inner and outer surfaces that are embedded, designed to provide protection against salt accumulation.[1,13] The Tria Stent is designed to be stiffer during placement to navigate patient anatomy while softening by over 40% at body temperature,[1,14] which may promote greater patient tolerability.[15] And, with no contraindications to potentially treat more patients, the Tria Ureteral Stent is a truly unique stent – unlike any other.



Compared to a competitive stent, Tria has lower Mg and Ca salt accumulation:[1,13]

Tria Soft

19% – 60% ⬇

Tria Firm

41% – 59% ⬇

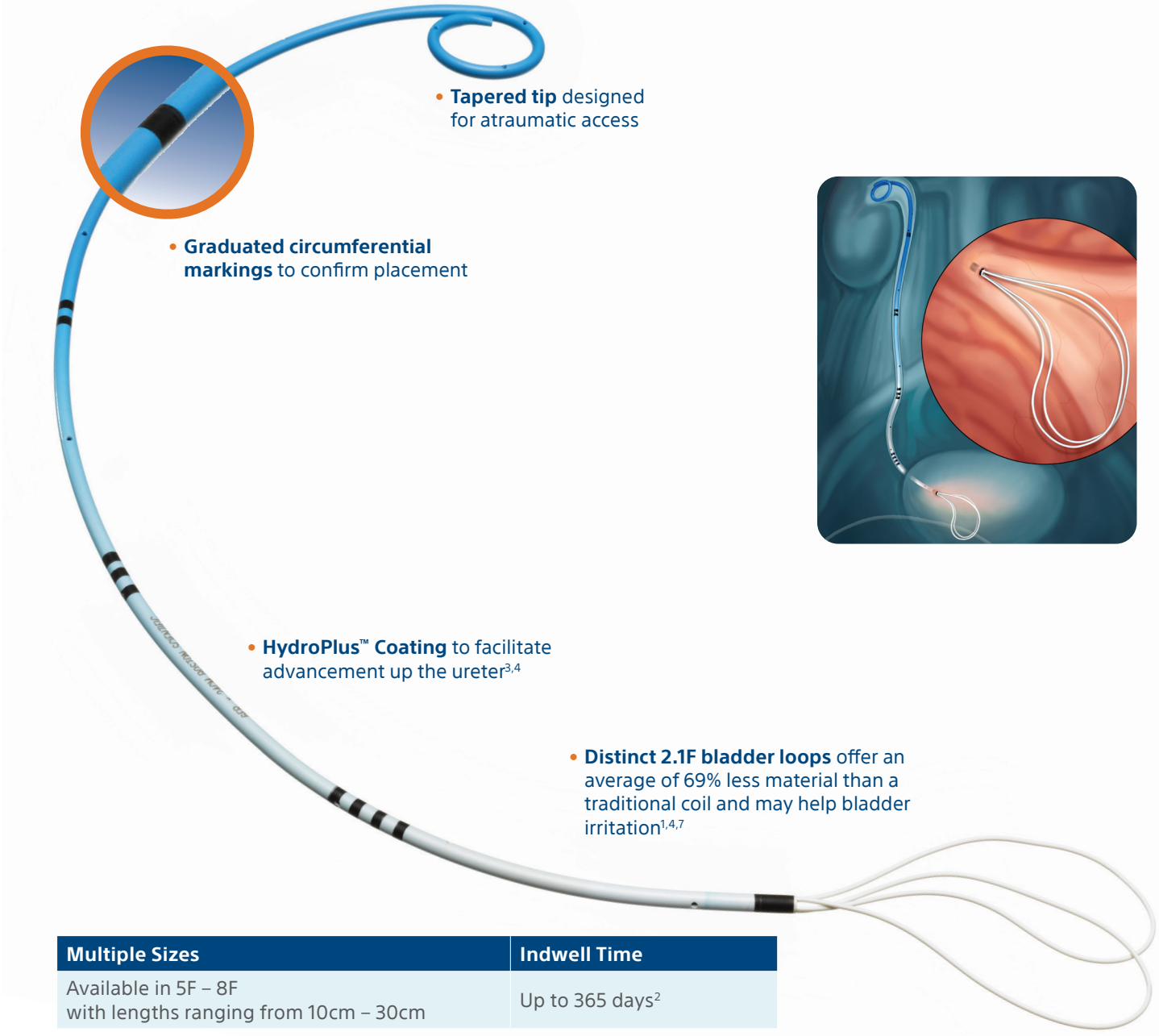
• **Softens by >40%** at body temperature,[1,14] which is designed to promote greater patient tolerability[15]

Multiple Sizes	Indwell Time
Available in 4.8F – 8F with lengths ranging from 10cm – 30cm	Up to 365 days[2]

Polaris™ Loop Ureteral Stent

Proprietary loop design. Less bladder irritation.[7]

You never want to be thrown for a loop; however, the Polaris Loop Ureteral Stent may be the exception. This dual-durometer stent features two unique bladder loops that result in an average of 69% less material in your patient's bladder than a traditional stent.[1,4] Ideally, that means less bladder irritation.[7] The stent is also designed to deliver optimal drainage, giving you confidence in the stent's performance during indwell.



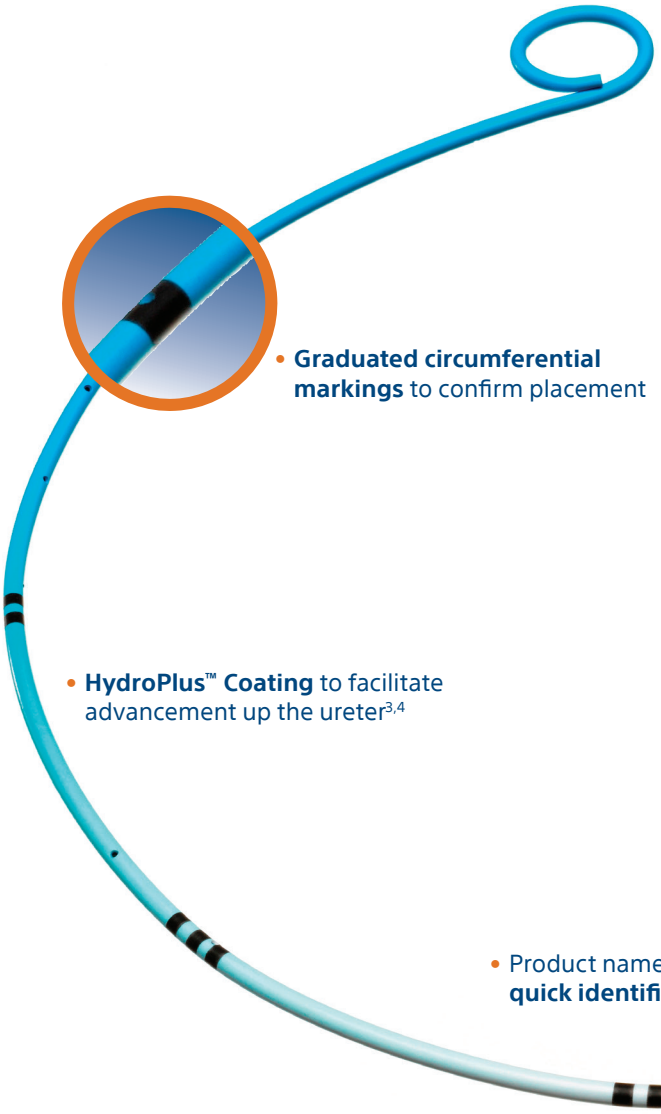
- **Tapered tip** designed for atraumatic access
- **Graduated circumferential markings** to confirm placement
- **HydroPlus™ Coating** to facilitate advancement up the ureter[3,4]
- **Distinct 2.1F bladder loops** offer an average of 69% less material than a traditional coil and may help bladder irritation[1,4,7]

Multiple Sizes	Indwell Time
Available in 5F – 8F with lengths ranging from 10cm – 30cm	Up to 365 days[2]

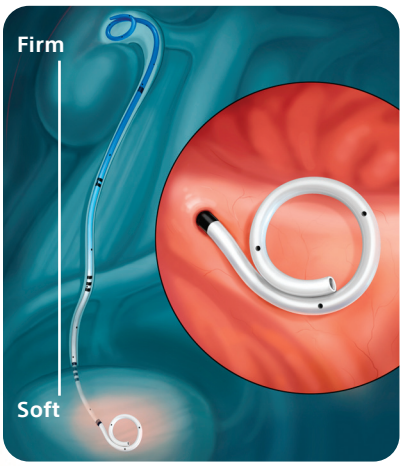
Polaris™ Ultra Ureteral Stent

Firm where it needs to be. Soft where it matters.

Every patient wants the least bladder irritation possible with their ureteral stent. We developed the Polaris Ultra Ureteral Stent that features a distinct soft Nautilus™ Bladder Coil specifically designed to minimize bladder irritation.[16,17] Its proprietary co-extrusion technology allows the stent to be firm in the kidney and soft in the bladder – creating a seamless transition from firm to soft so you can promote patient tolerance.[16,17] These unique features combined with a tapered renal tip also may help with ease of stent placement and removal.[18]



- **Renal coil** with tapered tip designed for ease of placement and removal through the ureteral orifice[18]
- **Graduated circumferential markings** to confirm placement
- **HydroPlus™ Coating** to facilitate advancement up the ureter[3,4]
- Product name and size to enable **quick identification** of stent
- **Soft Nautilus Bladder Coil** designed to potentially reduce bladder irritation[15-17]



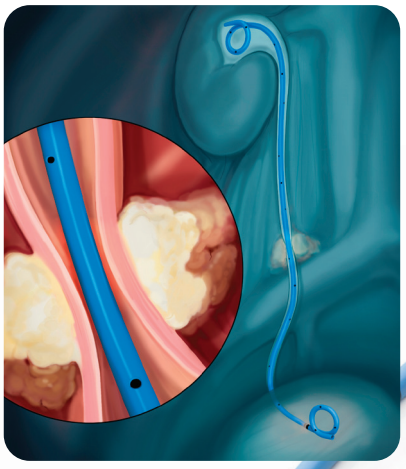
Co-extrusion creates a transition from firm to soft stent durometer.

Multiple Sizes	Indwell Time
Available in 5F – 8F with lengths ranging from 10cm – 30cm	Up to 365 days[2]

Percuflex™ Plus Ureteral Stent

Firm enough to place under difficult conditions.[3,8]

Tortuous anatomy? Tight strictures? Look no further than the Percuflex Plus Ureteral Stent to help you navigate a challenging tortuous anatomy.[1,3,8] Its firm material and smooth hydrophilic surface may help with placement, and its high retention coil aids in the maintenance of the stent's double pigtail shape to prevent stent migration.[3,4] The Percuflex Plus Stent is designed for patients with challenging conditions and procedures where you need to control placement.[1,3,8]



Material strength and smooth hydrophilic surface facilitate navigation of tight strictures.[1,3,8]

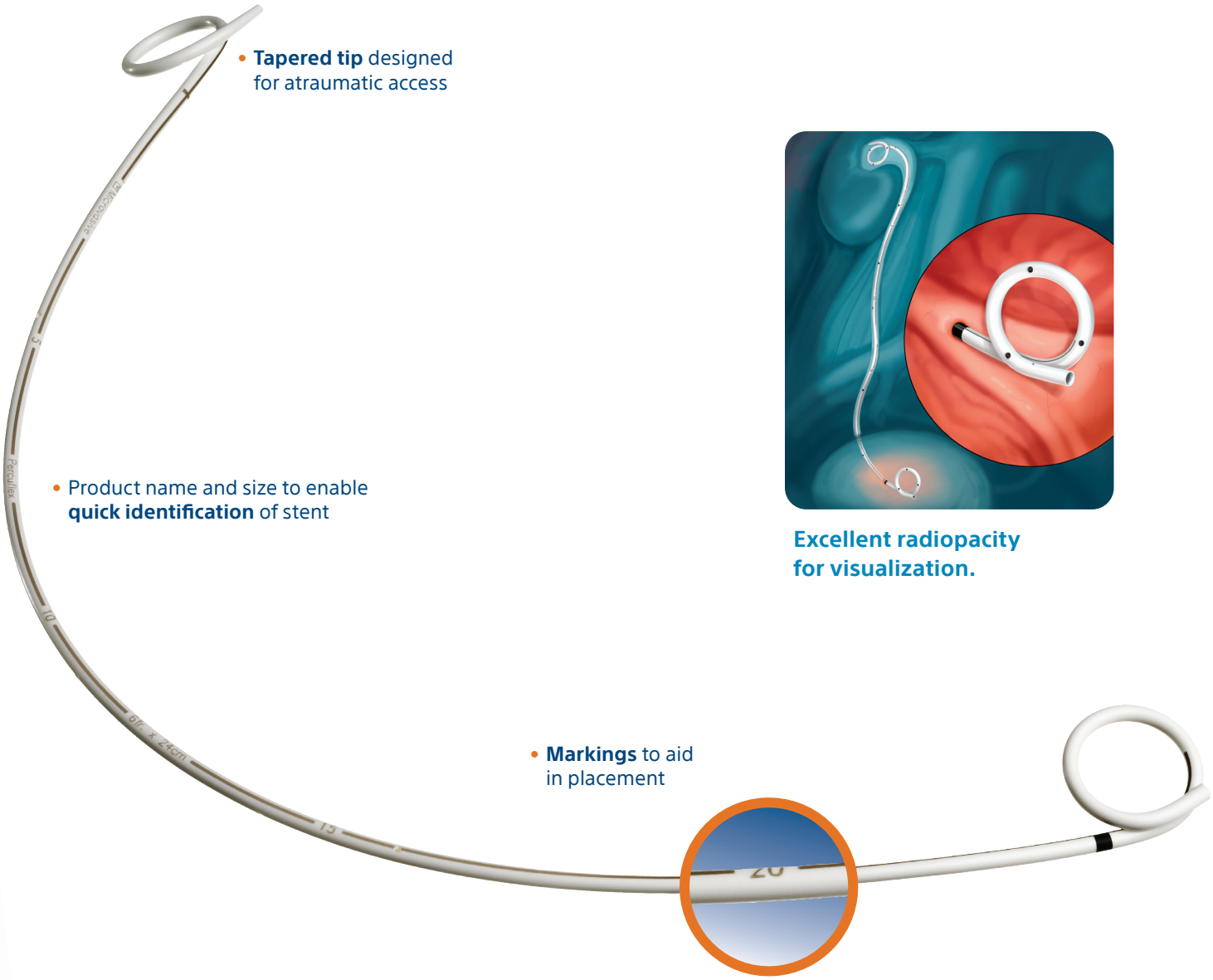
- **Graduated circumferential markings** every 5cm along the body of the stent
- Product name and size to enable **quick identification** of stent
- **HydroPlus™ Coating** to facilitate advancement up the ureter[3,4]
- **Tapered tip** designed for atraumatic access
- **High-retention coil strength** to help maintain pigtail shape and reduce potential for stent migration[3,4]

Multiple Sizes	Indwell Time
Available in 4.8F – 8F with lengths ranging from 10cm – 30cm	Up to 365 days[2]

Percuflex™ Ureteral Stent

A stent designed for migration resistance.

With the firm Percuflex Ureteral Stent, you can be confident in your stent placement.[1,3,8] This firm stent has clear bladder markings and a tapered tip that are designed for ease of placement, and its high-retention coil strength helps to maintain its pigtail shape, thus reducing the chance of stent migration.[3,4]



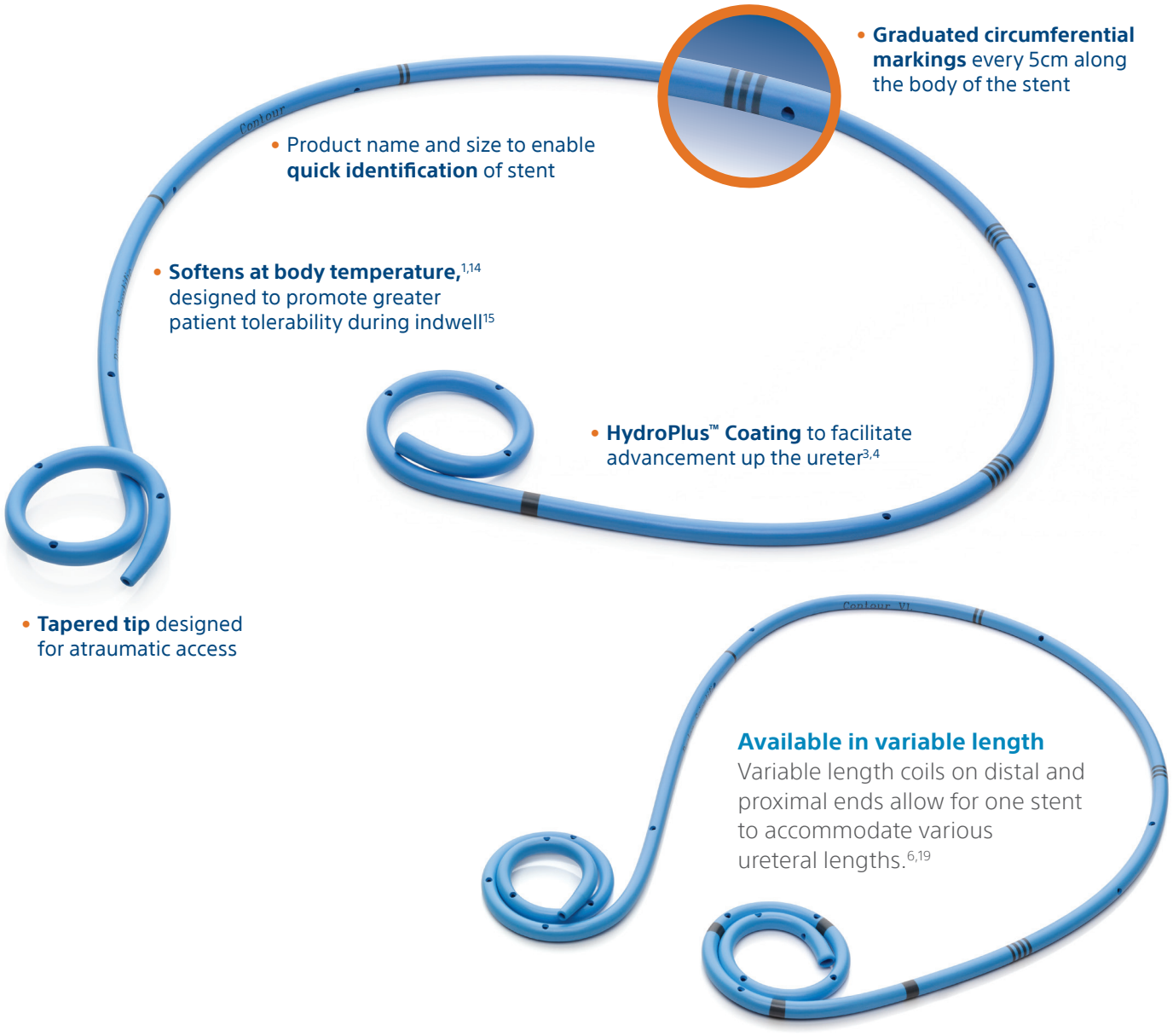
Excellent radiopacity for visualization.

Multiple Sizes	Indwell Time
Available in 4.8F – 8F with lengths ranging from 20cm – 30cm	Up to 365 days[2]

Contour™ and Contour VL™ Ureteral Stents

The soft stent designed to conform.

What sets Contour and Contour VL Ureteral Stents apart? These stents are made of soft Percuflex™ material that softens even further at body temperature,[1,14] designed to conform to the shape of the ureter. This unique material may promote patient tolerance,[15] and its variable coil length leaves no room for questions – one stent can accommodate various ureteral lengths.[6,19]

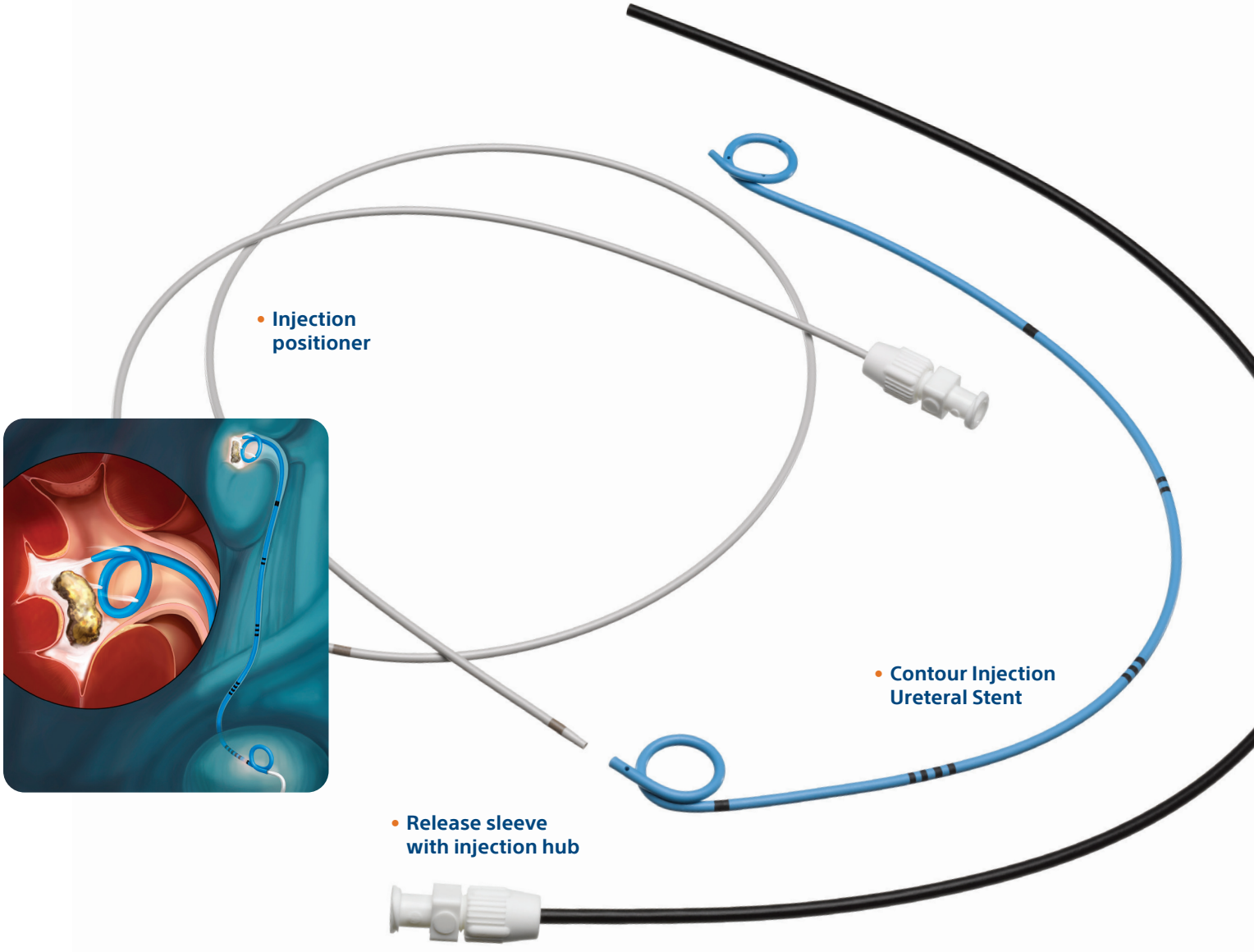


Multiple Sizes	Indwell Time
Fixed length stents available in 6F – 8F with lengths ranging from 20cm – 30cm	Up to 365 days[2]
Variable length stents available in 4.8F – 7F with lengths of 22cm – 30cm	

Contour™ Injection Ureteral Stent Set

The stent platform that shows you the way.

Increasing your visualization provides you with improved control. That's why we designed the Contour Injection Ureteral Stent Set that gives you the ability to deliver contrast to improve visualization under fluoroscopy. This complete set includes an injection positioner and release sleeve with injection hub, packaged with a Contour Ureteral Stent. This unique stent is made of soft Percuflex™ material that softens even further at body temperature,[1,14] designed to conform to the shape of the ureter and promote patient tolerance.[15]

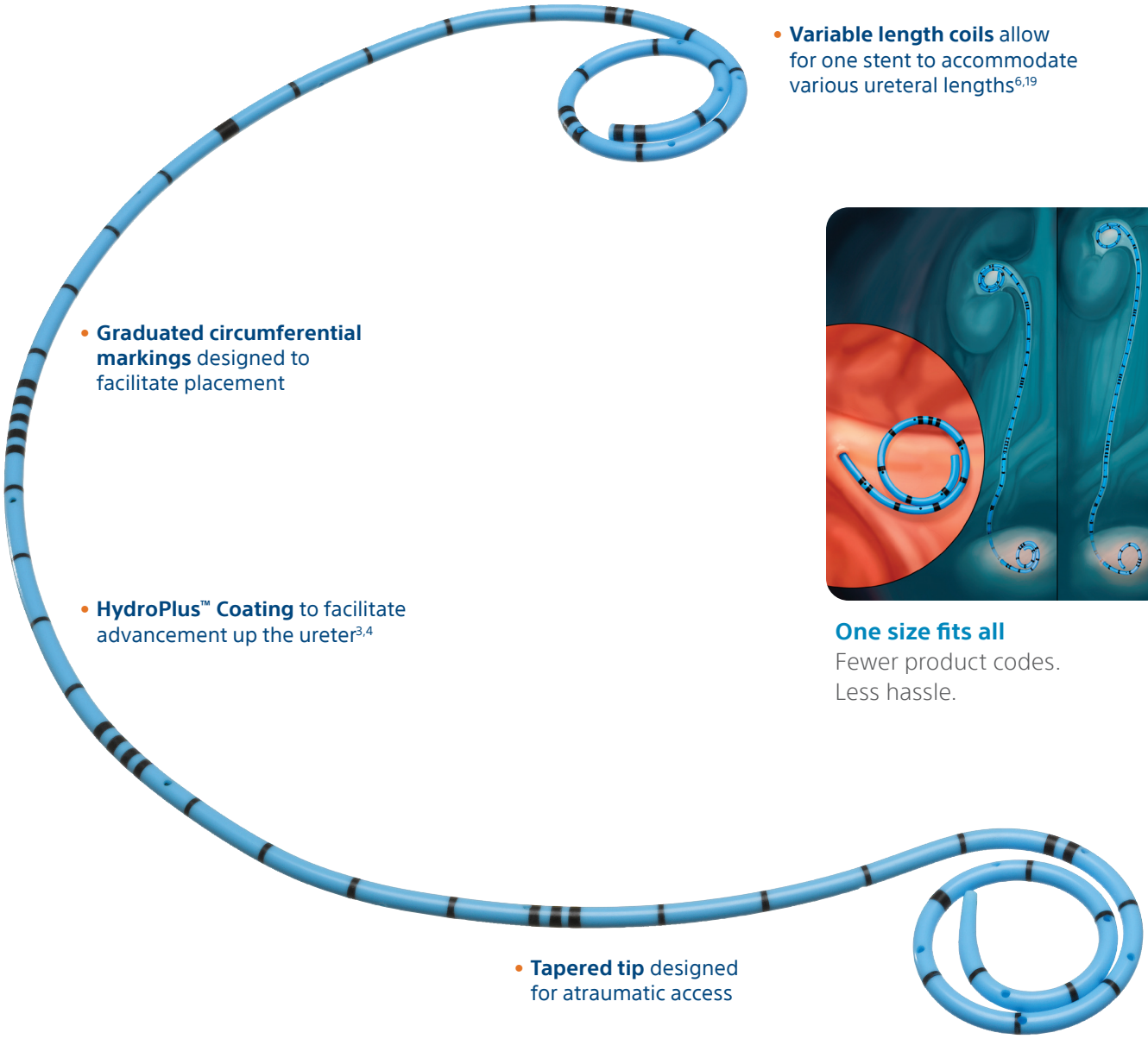


Multiple Sizes	Indwell Time
Fixed length stents available in 4.8F – 7F with lengths ranging from 20cm – 30cm Variable length stents available in 4.8F – 7F with lengths of 22cm – 30cm	Up to 365 days[2]

Stretch™ VL Flexima Ureteral Stent

When you need one size to fit all.

For physicians who want more versatility from a firm ureteral stent, the Stretch VL Flexima Ureteral Stent has variable length coils to accommodate different ureteral sizes.[6,19] Its variable lengths also allow for streamlined inventory management and fewer product codes.[6,20] Because, sometimes, one size does actually fit all.



- **Variable length coils** allow for one stent to accommodate various ureteral lengths[6,19]
- **Graduated circumferential markings** designed to facilitate placement
- **HydroPlus™ Coating** to facilitate advancement up the ureter[3,4]
- **Tapered tip** designed for atraumatic access

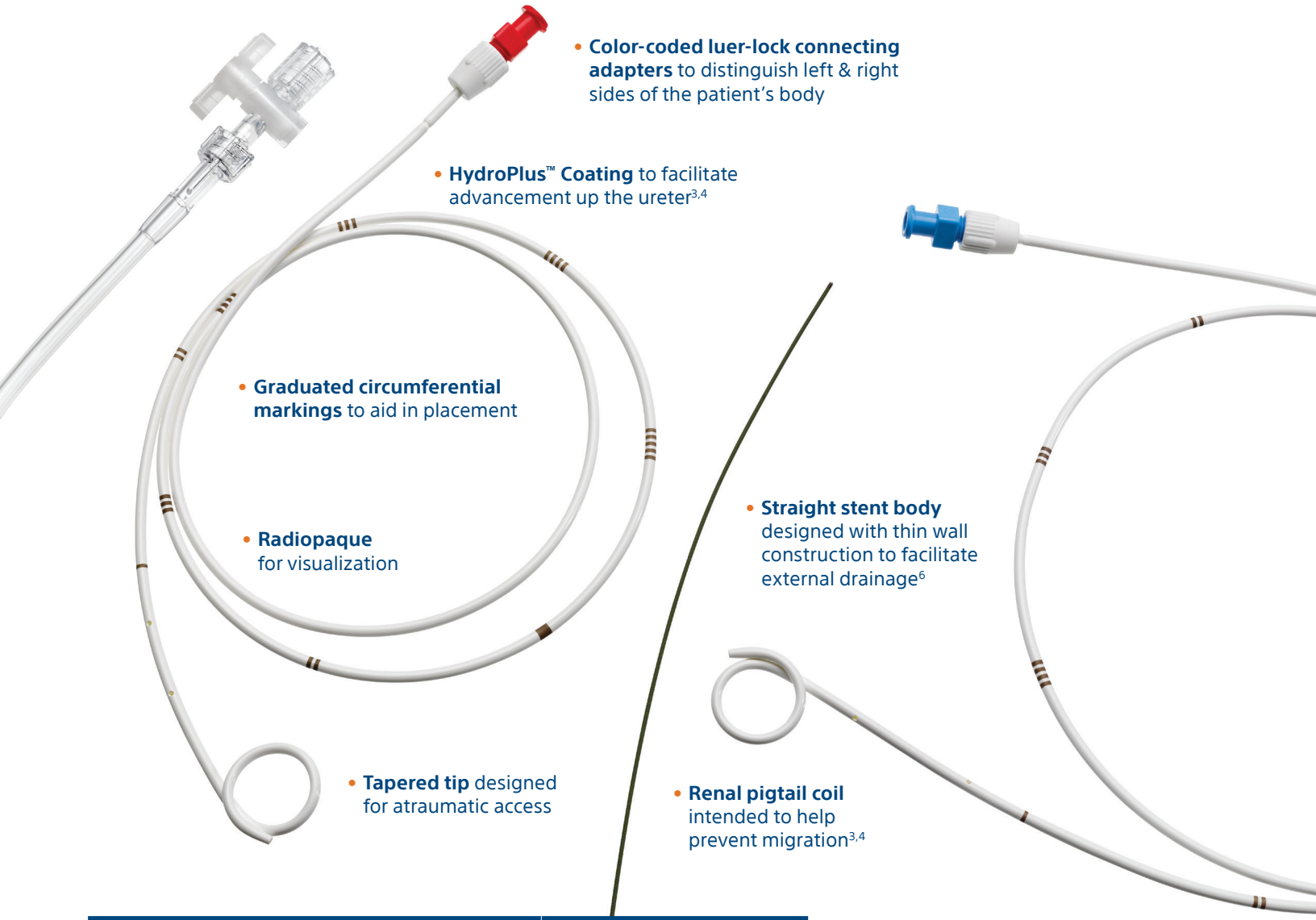
One size fits all
Fewer product codes.
Less hassle.

Multiple Sizes	Indwell Time
Available in 4.8F – 7F with variable lengths of 22cm – 30cm	Up to 90 days[21]

Percuflex™ Urinary Diversion Stent Set

The stent set designed for optimal drainage.

Sometimes you need to ensure optimal urinary system drainage from the patient's body. Intended for use following urinary diversion procedures, the Percuflex Urinary Diversion Stent Set is the perfect solution. The single renal coil is designed to securely hold the stent in position while the straight stent body is designed with a thin wall to facilitate external drainage.[6] The set contains two stents, guidewire, catheter adaptors and a drainage bag connector, so you can be confident you have everything you need when optimal drainage is a must.



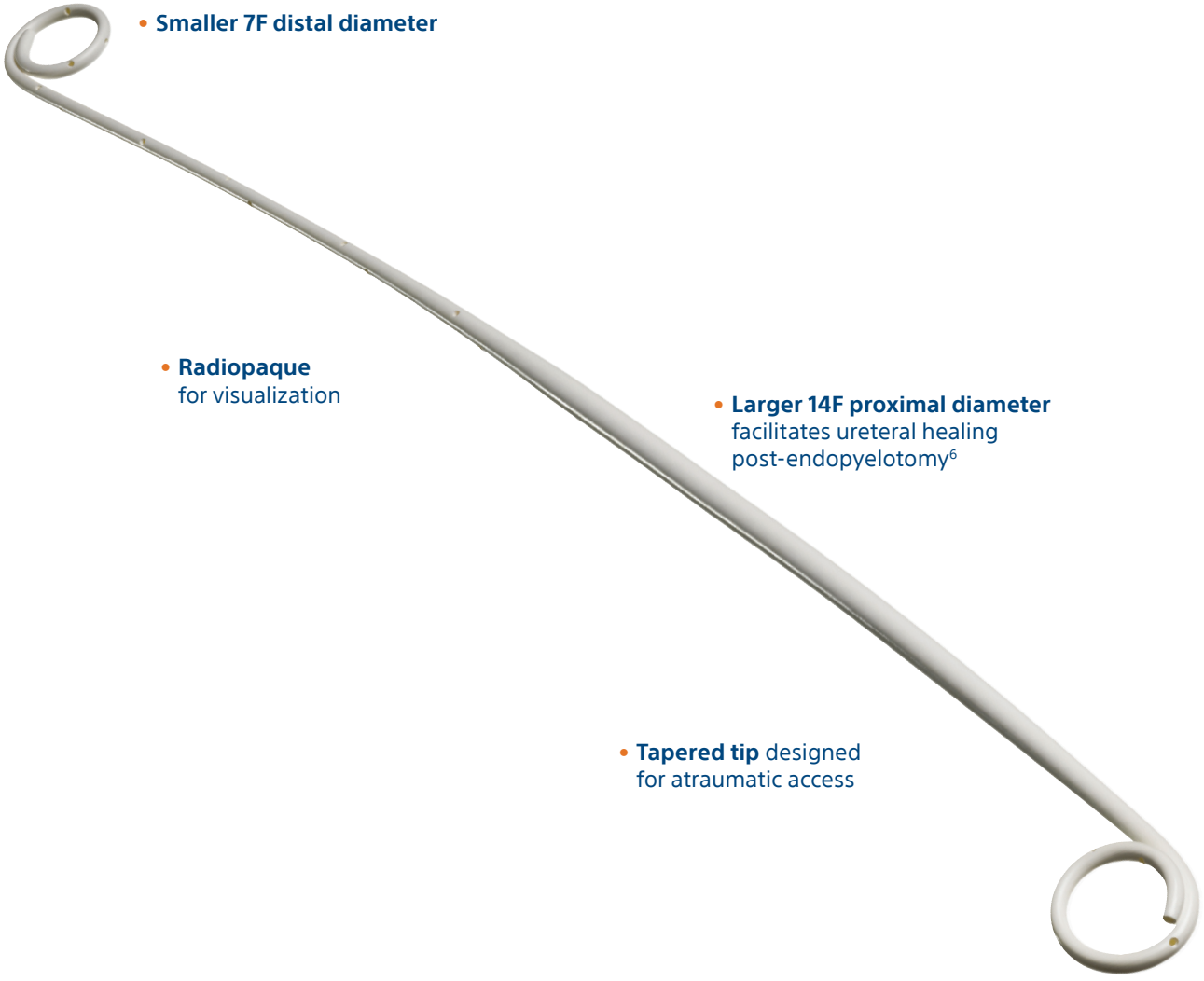
- **Color-coded luer-lock connecting adapters** to distinguish left & right sides of the patient's body
- **HydroPlus™ Coating** to facilitate advancement up the ureter[3,4]
- **Graduated circumferential markings** to aid in placement
- **Radiopaque** for visualization
- **Straight stent body** designed with thin wall construction to facilitate external drainage[6]
- **Tapered tip** designed for atraumatic access
- **Renal pigtail coil** intended to help prevent migration[3,4]

Multiple Sizes	Indwell Time
Offered in both closed and open tip configuration	Up to 90 days[21]
Available in 6F – 8F with length of 80cm	

Retromax™ Plus Endopyelotomy Stent

A stent designed to facilitate healing.[6]

The question most patients ask before any procedure: What will my recovery look like? The Retromax Plus Endopyelotomy Stent is designed to deliver optimal drainage and aid in the patient's healing process.[6] It has a thin wall to help maintain an open and unblocked ureter, designed to promote drainage after endopyelotomy.[6] Visualization is also easier, as the stent is radiopaque. Its smooth, tapered tip is designed to help you place the stent more accurately in the ureteral orifice. Overall, Retromax Plus is the stent to turn to in order to help facilitate the healing process.



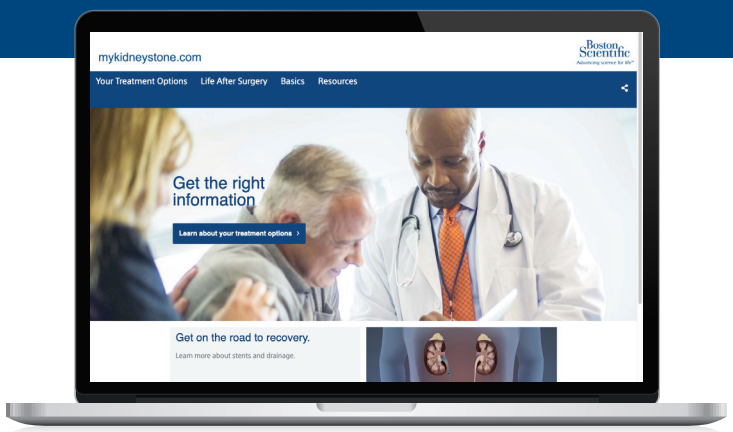
Multiple Sizes	Indwell Time
Available in lengths ranging from 22cm – 30cm	Up to 365 days[2]

What happens when ureteral stents are forgotten?

13 OUT OF 100
ureteral stents will be forgotten.[22]

~10 OF 13 (76%)
stents may become encrusted within 6 months.[11] This can result in increased risk of infection and obstruction.[23]

Requiring an average of
2 PROCEDURES
for stent removal.[11]



Direct your patients to **mykidneystone.com** to enhance his/her knowledge and engagement about kidney stone removal, including post-operative ureteral stent expectations.

To learn more about all of our stent solutions, visit
www.bostonscientific.com/BeyondStents

1. Data on file with Boston Scientific. Bench test results may not necessarily be indicative of clinical performance.
2. Biocompatible material designed for up to a 365-day indwelling time. Where long-term use is indicated, it is recommended that indwelling time for stent (with retrieval line removed) not exceed 365 days. This stent should be evaluated by the physician on or before 90 days post-placement.
3. Mardis HK, Kroeger RM, Morton JJ, et al. Comparative evaluation of materials used for internal ureteral stents. *J Endourol.* 1993 Apr;7(2):105-15.
4. Mosayyebi A, Vijayakumar A, Yue QY, et al. Engineering solutions to ureteral stents: material, coating and design. *Cent European J Urol.* 2017;70(3):270-4.
5. Cormio L. Ureteric injuries: clinical and experimental studies. *Scand J Urol Nephrol Suppl.* 1995;171:1-66.
6. Lam JS, Gupta M. Ureteral stents. *Urinary Stone Disease.* 2007;(25):465-93.
7. Taguchi M, Inoue T, Muguruma K, et al. Impact of loop-tail ureteral stents on ureteral stent-related symptoms immediately after ureteroscopic lithotripsy: comparison with pigtail ureteral stents. *Investig Clin Urol* 2017;58:440-446.
8. Beysens M, Tailly TO. Ureteral stents in urolithiasis. *Asian J Urol.* 2018 Oct;5(4):274-86.
9. Bruce AW, Sira SS, Clark AF, et al. The problem of catheter encrustation. *Can Med Assoc J.* 1974 Aug 3;111(3):238-41.
10. Vanderbrink BA, Rastinehad AR, Ost MC, et al. Encrusted urinary stents: evaluation and endourologic management. *J Endourol.* 2008 May;22(5):905-12.
11. Bultitude MF, Tiptaft RC, Glass JM, et al. Management of encrusted ureteral stents impacted in upper tract. *Urology.* 2003 Oct;62(4):622-6.
12. Elwood CN, Lo J, Chou E, et al. Understanding urinary conditioning film components on ureteral stents: profiling protein components and evaluating their role in bacterial colonization. *Biofouling.* 2013;29(9):1115-22.
13. Study methodology: Testing was performed by an independent third-party using the in-vitro BEST™ method to evaluate salt adhesion of the ureteral stents. A total of 30 samples from each ureteral stent family were tested in both a sterile Artificial Urine Model and a Bacterial Infection Model (n=15 in each model) for 2 weeks. Proteus mirabilis was used as the microbial challenge in the Bacterial Infection Model due to its known urease production and involvement in struvite formation.
14. Reduction in stent durometer represents the average percent drop in stent durometer from 25°C to 37°C in air.
15. Park HK, Paick SH, Kim HG, et al. The impact of ureteral stent type on patient symptoms as determined by the ureteral stent symptom questionnaire: A prospective, randomized, controlled study. *J Endourol.* 2015 Mar;29(3):367-71.
16. Lee JN, Kim BS. Comparison of efficacy and bladder irritation symptoms among three different ureteral stents: a double-blind, prospective, randomized controlled trial. *Scand J Urol.* 2015 Jun;49(3):237-41.
17. Al-Bareeq R, Denstedt JD. Stents and Stenting. In: Rao NP, Preminger GM, Kavanagh JP ed. *Urinary Tract Stone Disease.* London: Springer-Verlag;2010;(46):543-51.
18. Venkatesan N, Shroff S, Jayachandran K, et al. Polymers as ureteral stents. *J Endourol.* 2010 Feb;24(2):191-8.
19. Calvert RC, Wong KY, Chitale SV et al. Multi-length or 24 cm ureteric stent? A multicentre randomised comparison of stent-related symptoms using a validated questionnaire. *BJU Int.* 2013;111:1099–104.
20. Betschart P, Zumstein V, Piller A, et al. Prevention and treatment of symptoms associated with indwelling ureteral stents: A systematic review. *Int J Urology.* 2017 Apr;24(4):250-9.
21. Biocompatible material designed for up to a 90-day indwelling time.
22. Ather MH, Talati J, Biyabani R. Physician responsibility for removal of implants: the case for a computerized program for tracking overdue double-J stents. *Tech Urol.* 2000 Sep;6(3):189-92.
23. El-Faqih SR, Shamsuddin AB, Chakrabarti A, et al. Polyurethane Internal Ureteral stents in treatment of stone patients: Morbidity related to Indwelling Times. *Urology.* 1991;146(6):1487-1491.

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