



Dover™ Urology Products

Urological Innovations in Silicone





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Dover™ Urology Products

The mission of Dover™ urology products is to create and deliver innovative healthcare solutions. With patients catheterized in Canada, it is vital that our urology products are of the highest quality and with superb function. Our goal is to deliver value to healthcare professionals for the purpose of enhancing patient care.

Catheterization complications extend beyond the Foley catheter. All components, including the Foley, drain bag, and prepping components contribute to patient care.

By focusing on each aspect of the system, Dover™ urology products offer a product that helps reduce catheter-associated complications and enhances overall collection system flow. Dover™ urology products have set out to provide efficient and safe practices.



Material selection

The Foley materials selected will have a direct impact on patient safety from the moment they are put into use. Selecting latex-free materials can help reduce complications associated with catheterization.

Dover™ urology products offer a premium solution, featuring the latest innovations in material and construction. Dover™ 100% silicone catheters help reduce encrustation, can lower the incidence of urethral irritation, and eliminate latex allergy concerns.

Comparing Latex to 100% Silicone

Latex

Latex-based Foley catheters can present an increased risk to patients.

Cytotoxic

The body rejects latex by exhibiting a foreign body response (irritation) due to its toxic properties.

Organic

Organic protein rich material contains chemicals as a result of the manufacturing process. Proteins act as a food source for bacteria.

Porous

Absorbs moisture causing catheter expansion.

Allergy Promoting

Latex material is known to cause various levels of allergic reactions (type I-IV).

Adherent

Encourages encrustation.

100% Silicone

100% silicone Foley catheters help reduce catheter-associated complications compared to latex Foley catheters. Silicone material offers optimal performance while eliminating latex concerns.

Biocompatible

Non-reactive to human tissue.

Inorganic

Contains no extractable chemicals. Protein-free.

Non-Porous

Will not absorb body fluids and eliminates "Foley catheter expansion".

Non-Toxic

Free of latex allergens and non-reactive to human urethral cells.

Non-Adherent

Repels urine, blood, salts and organic materials. Helps reduce encrustation, minimizing the likelihood of occlusion.

Hypersensitivity

Latex, when used in direct patient contact, can be a significant source of irritation.

"The ideal materials should be biologically inert, chemically stable in urine without any release of toxic contaminants and resistant to encrustation."

Pariente FL, Bordenave L, Jacob F, Bareille R, Baquey C, Le Guillou M. "Cytotoxicity Assessment of Latex Urinary Catheters on Cultured Human Urothelial Cells." European Urology (2000) 38(5):640-643, ©S. Karger AG, Basel. Used with permission.



A True Broad-Spectrum Solution

Patients with indwelling Foley catheters are prone to many complications. Stricture, encrustation, bladder lesions, and hypersensitivity are some of the likely complications facing your patients.

By simply choosing Dover™ urology products, the probability of a complication is drastically reduced. As one of the largest manufacturers of 100% silicone Foley catheters, our line of Dover™ urology products provide a broad-spectrum solution to help reduce catheter-associated complications.



Encrustation

Encrustation is a significant cause of catheter failure.

“The silicone-based Dover™ catheters took a statistically significant longer time to block [occlude] than did latex-based Bardex™ catheters.”

Sabbuba N, Stickler D. “Report of Encrustation Performance of Foley Catheters in a Laboratory Model of the Catheterized Bladder” Cardiff School of Biosciences (December 2002). Used with permission.

Type of Catheter	Mean Time to Blockage in Hours
Bardex® Lubricath®	30.5 hours
Bardex® IC	29.8 hours
Dover™ Silicone	53.7 hours
Dover™ Silver	51.7 hours

Average mean time to block ± 1 SD. Statistically significant in vitro study.



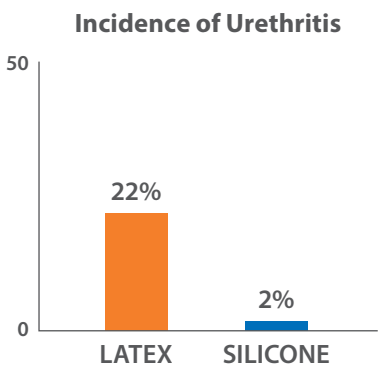
Cross-sections of Bardex™ IC Catheter. Source: Sabbuba N, Stickler D.

Urethritis

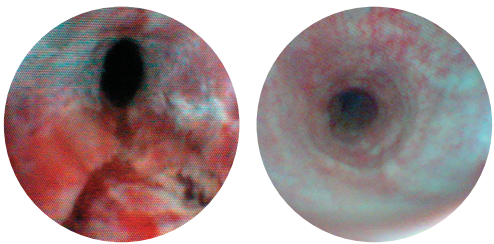
Urethritis is a major source of patient discomfort and contributes to a breakdown in tissue integrity.

“Of those with latex catheters 22% developed urethritis, compared with 2% of those in the silicone catheter group. This difference is statistically significant (P<0.01).”

Nacey JN, Tulloch AGS, Ferguson AF. “Catheter-induced Urethritis: A Comparison Between Latex and Silicone Catheters in a Prospective Clinical Trial.” British Journal of Urology (1985) 57:325-328. Used with permission.



Peer-reviewed, published, clinical in vivo study
Source: Nacey JN, Tulloch AGS, Ferguson AF.



Urethral Stricture

Normal Urethra

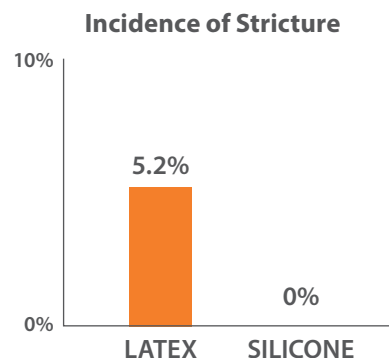
Stricture

Stricture reduces the ability of a patient to void which may lead to bladder distention, kidney failure and other major complications.

“Thus the overall incidence of urethral stricture in the group with latex catheters was 5.2% when followed up for between 15 and 24 months compared with 0% in those with silicone catheters followed up for between 12 and 28 months.”

“On the basis of our two series, we suggest that silicone catheters be used routinely for short-term catheterization in men undergoing bypass surgery.”

Ferrie BG, Groome J, Sethia B, Kirk D. “Comparison of Silicone and Latex Catheters in the Development of Urethral Stricture after Cardiac Surgery.” British Journal of Urology (1986) 58:549-550. Used with permission.



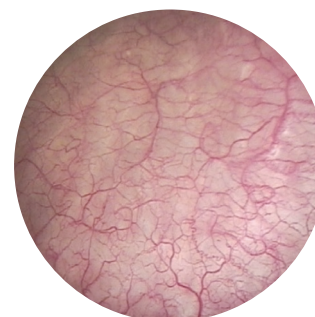
Peer-reviewed, published, clinical in vivo study.
Source: Ferrie BG, Groome J, Sethia B, Kirk D.

Bladder Lesions

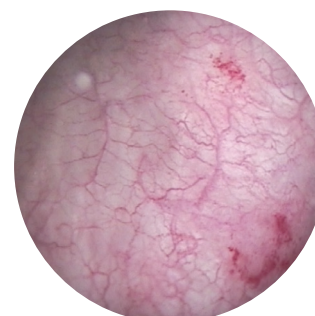
Pressure-induced bladder distention and catheter-associated suction lesions are both inherent complications of catheterization in non-vented closed systems.

“Top-vented catheter valve tubing will produce a clinically and statistically significant difference in suction lesions of the bladder versus traditional non-vented catheter drainage tubing.”

Grocela JA, MD, MPH. “A Prospective, Randomized, Blinded Comparison of Top-Vented Catheter Valve vs. Non-Vented Catheter Valve Suction Damage to the Bladder in a Convenience Sample of Woman Undergoing Urethral Support Surgery” Presented at New England Section of the American Urological Association, September 26th 2008. Used with permission.

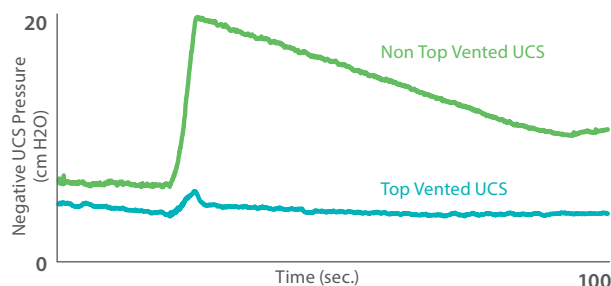


Pre catheterization



Post catheterization

Suction Comparison of Vented and Non Vented Urine Collection Systems



Increased suction may cause bladder lesions.

*Source data on file (meter and bag average)

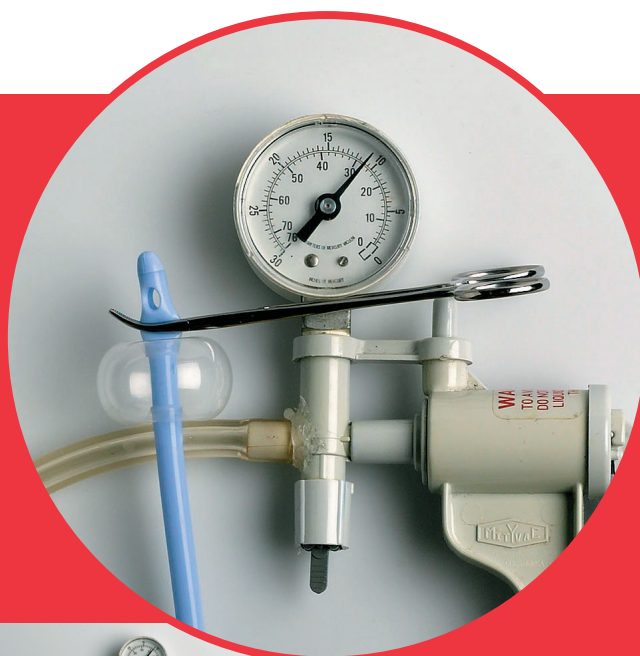
It's not just how it's made, it's how it works.

Proven construction and materials matter. Proven performance matters even more. When you select a market leading Dover™ 100% silicone catheter, you have chosen a product that is fabricated from materials that minimize the risk associated with latex. The result? The extrusion molding process, combined with the unique properties of silicone, provide larger internal lumens, greater resistance to shaft collapse and improved flow.

Construction

For unparalleled patient comfort and consistent clinical performance, today's silicone provides larger internal lumens, stronger catheter walls, better flow rates and true French sizes — all in a biocompatible material.

Bardex™
Lubricath Catheter



Dover™
100% Silicone Catheter

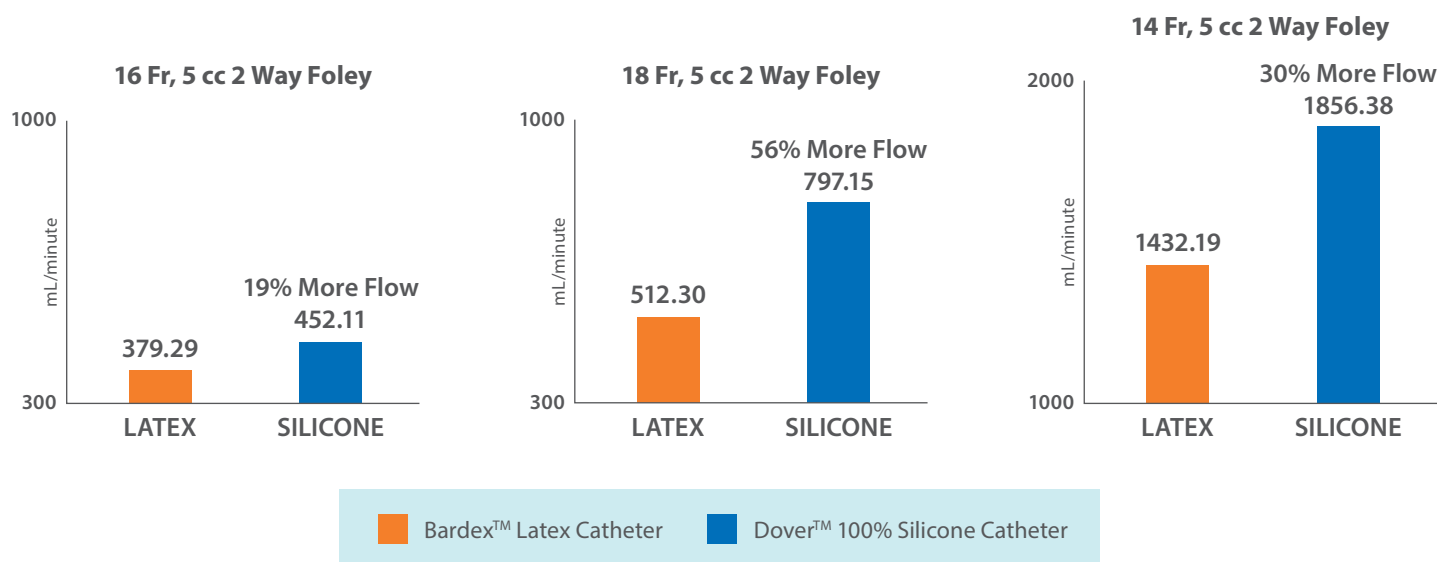
Improved Flow



Cross-Section of
Dover™ Silicone Catheter



Cross-Section of
Bardex™ Lubricath Catheter

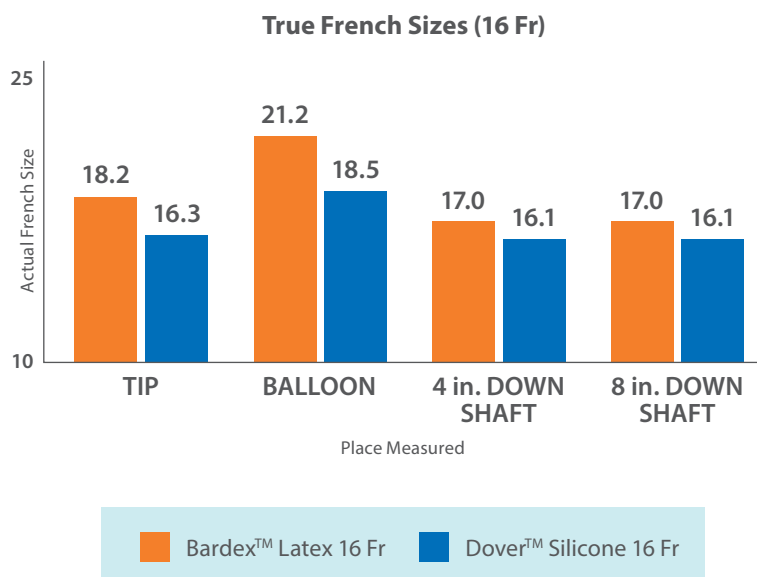


*Source data on file ASTM-F623-99

Catheter O.D. Comparison: Dover™ 16 Fr Catheter vs. Bardex™ 16 Fr Catheter

Dover™ silicone catheters offer unique extrusion manufacturing processes to provide consistent and accurate catheter sizing. Compared to Bardex™ latex catheters, Dover™ silicone catheters are more than 2X more accurate.

- 16 Fr Dover™ Silicone Catheter tolerances are +/- 2.5 Fr
- 16 Fr Bardex™ Lubricath™ Catheter tolerances are +/- 5.2 Fr



*Source data on file

Silver Elution Performance

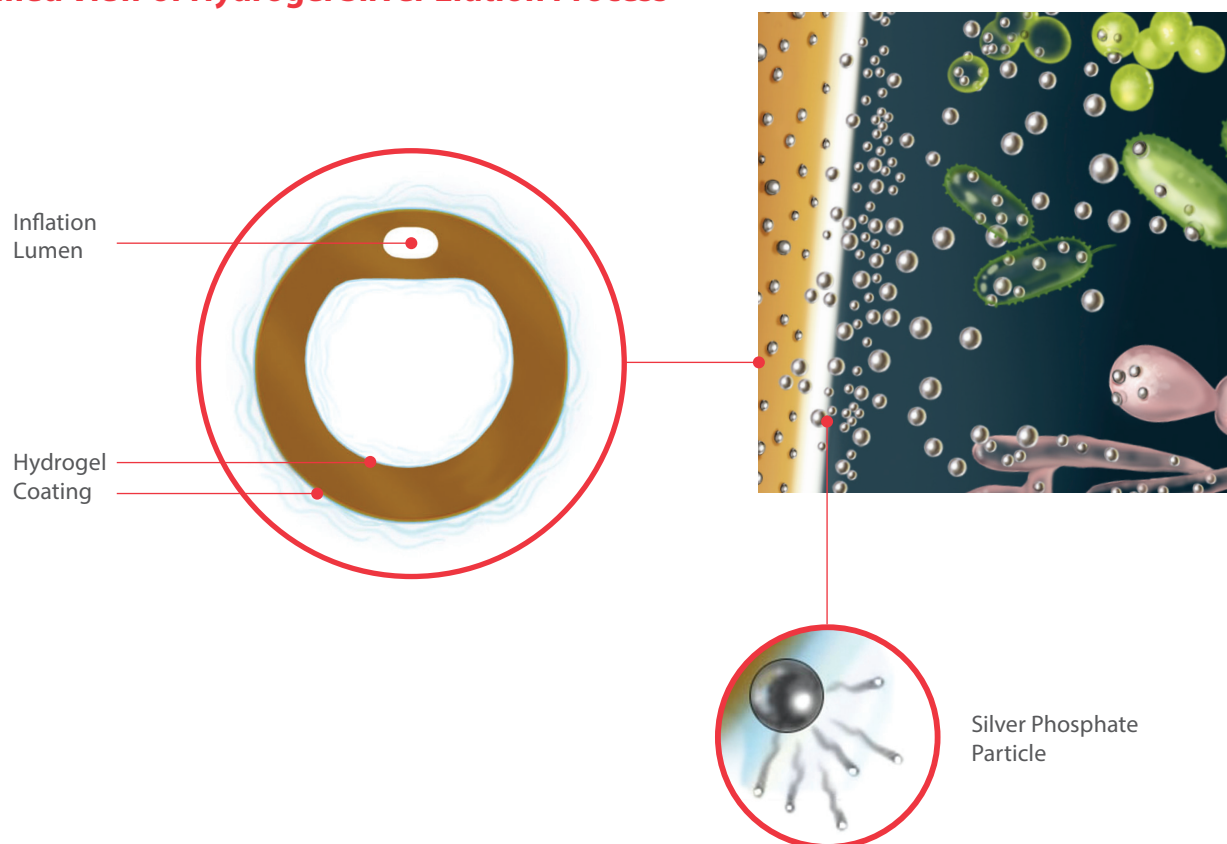
Dover™ silver 100% silicone Foley catheters represent the very latest in catheter technology. Its phosphate silver ion technology, coupled with a hydrogel coating on both the internal and external surfaces, slowly releases ionic silver particles. This technology is engineered to release higher concentrations of silver ions during the first five days and provide consistent elution over time.



Programmable Release Technology

Not all silver technology is created equal. Phosphate silver ion technology, coupled with a hydrogel coating on both internal and external catheter surfaces, slowly releases ionic silver particles from the Dover™ 100% silicone catheter platform.

Magnified View of Hydrogel Silver Elution Process



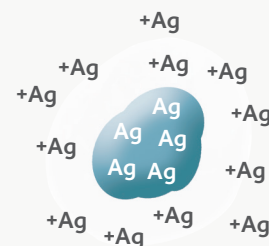
Suspended within the catheter hydrogel coating lies an efficient ionic silver elution technology.



Silver phosphate particle with silver ions in suspension (non-active)



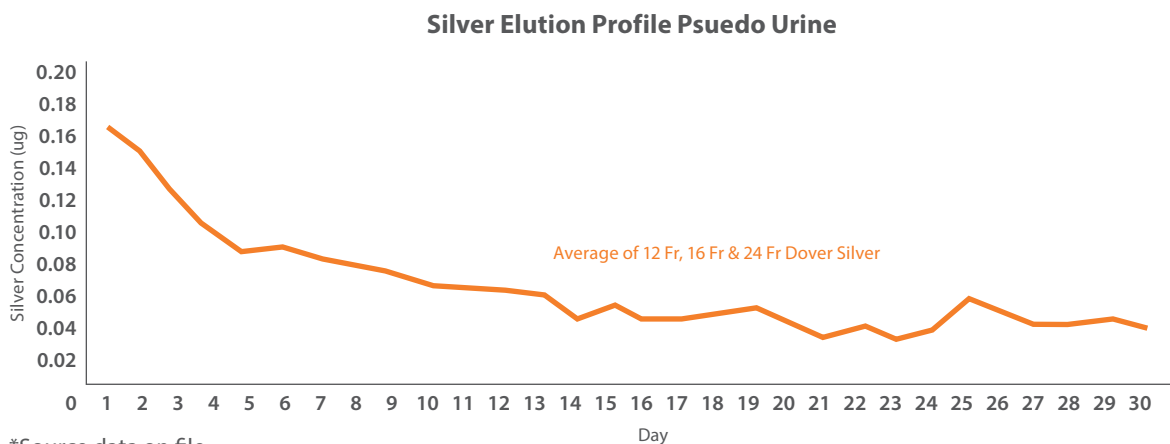
As the water-soluble phosphate dissolves, ionic silver becomes active.



Dissolve rates are engineered to maximize the release of active silver ions over time.

Silver Coating on a Premium Silicone Platform

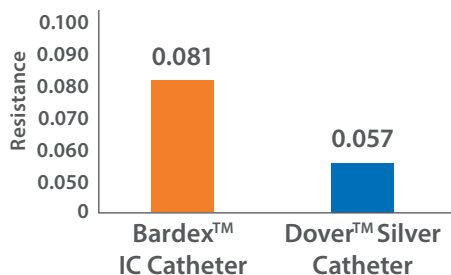
Dover™ silver catheters release higher concentrations of silver ions during the first five days and provide consistent elution over time. Coupled with a “slicker” hydrogel coating on inert silicone material, the silver is truly “available”.



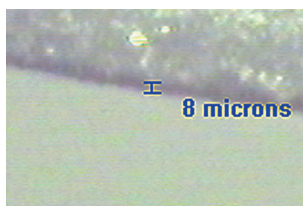
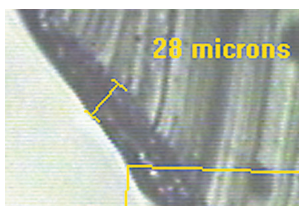
Hydrogel Coating

As compared to the Bardex™ IC catheter, the Dover™ silver catheter hydrogel coating reduces friction, limiting urethral irritation.

Hydrogel Coated Catheter Friction Test



Compared to the Bardex™ IC catheter, the Dover silver catheter coating is 3.5x thicker.



Optimized flow performance **minimized complications**

A urine collection system requires constant flow to ensure the bladder empties properly and remains free of positive and negative pressures that act on the urinary tract. Eliminating these pressures by using a vented system minimizes complications such as bladder distention and bladder lesions. A vented system optimizes flow performance, minimizing caregiver time and enhances patient comfort and safety.

Dover™ urology products' total system approach addresses aspects of urine collection to optimize flow and enhance patient safety with an ergonomic design.



The Collection System

Dover™ urology products provide the ideal urine collection system that is easy to use while enhancing patient comfort and safety. The new design incorporates features that mitigate the issues currently experienced with traditional systems.

“Dynamic flow problems may place patient at risk for incomplete bladder evacuation and various inflammatory conditions.”

“A filter prevents airborne bacteria from gaining access to the urinary drainage system and prevents urine leakage.”

Gray, M., (PhD, FPN, PNP, CUNP, CCCN, FAANP, FAAN). Moderator. “Symposium: Consensus and controversy in urinary drainage systems: Implications for improving patient safety.” Safe Practices in Patient Care Vol. 4, No 1; 1-8. Accessed April 2014 <http://www.safe-practices.org>

Flow

- Vented System
- Loop Clip
- Anti Reflux Device

Safety

- Needleless Luer Lock Sampling
- Vented System
- Loop Clip
- Anti Reflux Device
- Drain Spout
- True Closed System
- Latex Free
- Pre-attached Catheter Securement

Ease of Use

- Needleless Luer Lock Sampling
- Loop Clip
- Hanger Hooks
- Drain Spout

Dual Hanger Hooks

Heavy weight hooks pivot to allow level positioning

Loop Clip

The loop clip promotes optimal tube positioning to enhance flow performance while maintaining desired tubing length for various mobility requirements

Top Vent

The top vent minimizes pressure within the system and the patient's bladder

Luer Lock Sample Port

Multi access needleless sample port



Anti-Reflux Device

Lower point of entry to further assist the gravity fed downward flow dynamic

Bag Vent

The bag vent minimizes pressure within the system and the patient's bladder while the inner membrane also acts as a bacterial and viral barrier.



Urine Meter



Self-Sealing
Sample Port

Drain Spout

45 degree pedestal ensures device remains vertical during operation, offers one-handed operation, and reduces exposure to fluids while maintaining a truly closed system

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*Data available on request.

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CA Lit. No. CA-PMR-0208, 19-041 (6/2019)



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