

DESIGNED  
FOR EASE AND  
EFFICIENCY

T-DOC<sup>®</sup>

Air-Charged™ Catheters



*Innovation for Health*

# WHY AIR-CHARGED CATHETERS?

Urodynamic testing – including cystometry – plays an important role in the diagnosis and assessment of bladder filling, storage, and emptying abnormalities. Traditionally, the invasive part of urodynamics has been carried out using Water-Filled Catheters, which were the only type of device available when quantitative criteria for diagnosing and assessing specific lower urinary tract conditions were originally established in the 1970s.

However, there is increasing recognition that Water-Filled Catheters can present problems in routine clinical practice. When patients move, Water-Filled Catheters are prone to significant artefacts<sup>2,3,11</sup> – and previous studies showed that readings are often inconsistent when procedures are repeated.<sup>1,4,10</sup>

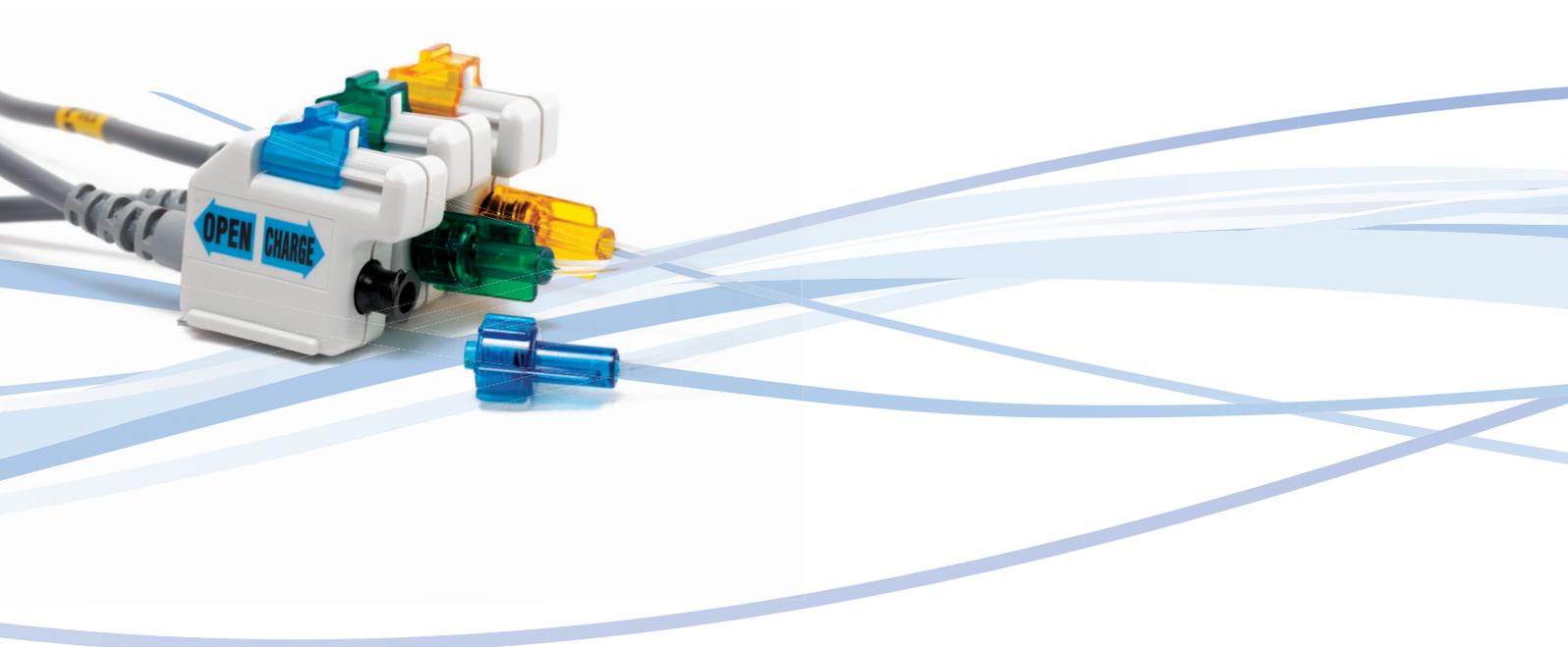
Water-Filled Catheter procedures are relatively complex to set up,<sup>2</sup> meaning that healthcare professionals must be experienced with urodynamic applications and be capable of resolving technical problems. In less experienced hands, the use of Water-Filled Catheters may run a sizeable risk of producing unreliable tracings.<sup>10</sup>

Air-Charged Catheters (also known as Air-Filled Catheters) were developed in the late 1990s to avoid these pitfalls and are appropriate to use in place of Water-Filled Catheters in the majority of clinical scenarios. Whilst the use of Air-Charged Catheters still requires the patient's bladder to be

infused with water, the measurement of bladder and urethral pressures with Air-Charged Catheters involves a balloon-tipped air-filled column and an internal rather than external pressure transducer.

In the case of bladder pressure measurements, Air-Charged Catheter readings generally correlate well with those of Water-Filled Catheters.<sup>5,6</sup> Urethral pressure measurement involves fundamentally different principles when measured with Air-Charged Catheters as opposed to Water-Filled Catheters but there appears to be better repeatability with Air-Charged Catheters, which is worthy of further investigation in future studies.<sup>8,12</sup>

Compared with Water-Filled Catheters, Air-Charged Catheters are less prone to movement artefacts and have demonstrated good reproducibility.<sup>3,7</sup> Over the past two decades, no significant adverse events have been reported either from their direct use in patients or through clinical decision-making based on their readings.<sup>13</sup> Their reliability – coupled with greater convenience and ease of use – have led in recent years to increasing adoption of Air-Charged Catheters by healthcare professionals and medical institutions, including many recognized leaders in the field. LABORIE's T-DOC® Air-Charged Catheter brand has been commercially available for 15 years, during which time it has been used for over 4 million procedures in over 50 countries.





## WHAT ARE THE BENEFITS OF AIR-CHARGED CATHETERS?

Air-Charged Catheters measure urodynamic pressures using air pressure technology that results in far fewer artefacts. According to healthcare professionals who use Air-Charged Catheters, they are easier to use and require less staff training<sup>14</sup> than Water-Filled Catheters, providing significant time and cost savings in set-up, study and clean-up. They are made to the highest quality standards and are comparable in size to Water-Filled Catheters.

“Single use, disposable Air-Charged Catheters are simple and easy to use; they do not require supporting equipment, which reduces set-up, study and clean-up times. The improved efficiency means that examinations and applications can be conducted swiftly and efficiently.”

– Professor Enrico Finazzi Agrò

“T-DOC is easy to use, we no longer struggle with artefact movements, air bubbles or any other variables associated with water-filled catheters. These advantages make the interpretation of the tracings easier and allow us to focus more on the patient, trying to reproduce their symptoms, rather than navigating issues arising from artefacts during the urodynamic assessment.”

– Ervin Kocjancic, MD  
Vice Chairman Department of Urology  
University of Illinois – College of Medicine at Chicago

## BENEFITS TO PATIENTS

### Extra time for patient care and attention

The speed of application of Air-Charged Catheters means that healthcare professionals can complete the procedure swiftly and concentrate on patient

care and reassurance, instead of focusing on some of the technical issues that can impact Water-Filled Catheters, such as continuity of fluid, kinking or the occurrence of air bubbles.

## BENEFITS TO HEALTHCARE PROFESSIONALS

### Ease of use

Many healthcare professionals claim that Air-Charged Catheters afford significant time savings in set-up, reducing this by up to 15 minutes compared to Water-Filled Catheters.

### Improved urethral pressure measurement

With Air-Filled Catheters, there is a 360-degree circumferential contact area which means true urethral functionality is measured with less artefact. When Water-Filled Catheters are used, the single-port sensors and side-hole orientation may lead to inaccurate readings and users must make allowances for variable perfusion rates. Air-Charged Catheters do not have such issues which reduces the complexity of the measurement.<sup>2,3,9,11</sup>

### Less risk of artefact

Air-Charged Catheters are less susceptible to patient movement as the air column is not affected by confounding hydrostatic pressure artefacts. The water mass in Water-Filled Catheters can create pressure artefacts resulting from patient motion, change in height (position) and air bubbles.

### Simplicity

Healthcare professionals report that the use of Air-Charged Catheters is simple to learn which means less staff training.<sup>14</sup> Specialist nurses are usually fully trained in less than one week. In contrast, training on Water-Filled Catheters usually takes much longer due to the greater number of set-up steps and the need to identify and correctly address potential artefacts throughout the urodynamic studies.

### Reproducibility and reliability

Air-Charged Catheter measurements have been widely reported to be reproducible and reliable allowing a high level of data interpretation.

### Financial benefit

The cost per procedure of Air-Charged Catheters is largely comparable to that of Water-Filled Catheters, given that Water-Filled Catheters require additional disposables such as syringes, tubing, water, external transducers and stopcocks. When the time saved in application is factored in, the total healthcare provider cost may be advantageous with Air-Charged Catheters.





## AT A GLANCE: THE BENEFITS OF AIR-CHARGED CATHETERS

- Simplicity
- Ease of use
- Improved urethral pressure measurement
- Less risk of artefact
- Reproducibility and reliability
- Financial benefit
- Extra time for patient care and attention





## FOR FURTHER INFORMATION

If you have any comments, queries or concerns about the use of Air-Charged Catheters (marketed as T-DOC®), please use the contacts below for further information and guidance.

### MARKETING

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This booklet was developed by LABORIE, a global leader in urology, urogynecology, colorectal medicine and gastroenterology. The business is a multinational developer, manufacturer and marketer of innovative medical technologies and devices for the diagnostic and treatment of pelvic floor disorders.

**For references, please contact LABORIE.**

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