

# Leak and Flow Benchtop Test Systems for Medical Devices

## Reduce operator effort and increase efficiency with an automated test system

Automate your leak testing with a turnkey test solution fully controlled by a Sentinel Blackbelt instrument.

The benchtop test system leverages the built-in capabilities of the Blackbelt or Blackbelt Pro to automatically execute each test without operator interaction beyond load/unload. It controls all aspects of the operation, from sealing to the programmed leak test. It conducts all the test cycles in a sequence using unique timers and measurement limits specific to each individual test.

Perform both leak and blockage testing at the system, which can be customized for your application.

CTS enables medical device manufacturers to minimize false rejects and increase repeatability by controlling the testing sequence. Our cost-effective solutions remove operator dependence on the test and provides an objective, calibrated and quantified measurement.



Benchtop testing system utilizing 4-Port Sequential Blackbelt for testing non-finished (untipped and no skived holes cut) multi-lumen CVC or PICC Catheters for both leak and blockage.

### Benefits of a CTS Automated Test Solution

1. No PLC required! The Blackbelt or Blackbelt Pro instrument manages the entire testing sequence.
2. Pneumatic actuated seals mitigate operator variables by regulating forces applied during sealing.
3. Data is collected during each test along with time-stamped pressure and flow curves.

## Cost-effective solution integrated with Blackbelt or Blackbelt Pro

The controls for the benchtop test system are within the Blackbelt and Blackbelt Pro instruments. These instruments conduct pressure testing, flow testing, and blockage testing to provide quantified results. They are integrated with pneumatic solenoids for actuating clamping and sealing functions. Each instrument is set with unique timers that are driven by sequencing operations to provide a more accurate and reliable test, eliminating operator dependence.



### Unique, proven methods to accurately conduct leak and blockage testing

- Single channel sequential or multi-channel concurrent testing for leak and blockage
- High resolution pressure decay and high precision mass flow leak or blockage measurement
- Standard CTS Connect seal integration for ID/OD ports and for luer connections
- Custom-designed medical-grade seals available

4-Channel concurrent Blackbelt Pro managed testing system for testing insulin delivery sets for leak and blockage.

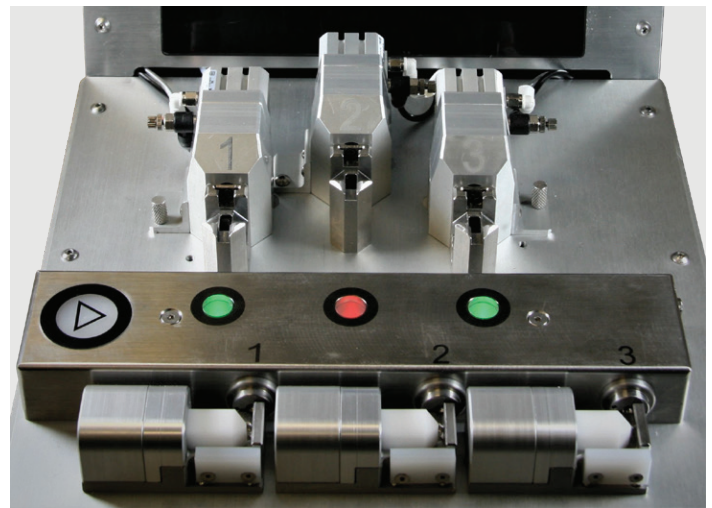
## How it works

CTS can adapt the test system for testing a variety of medical devices. Here is a typical leak and blockage test process for a multi-lumen catheter using the Sentinel Blackbelt.

A multi-lumen catheter is mated with proximal/inlet ends to the instrument's test port seals or luer fittings. The distal/outlet end is placed in a CTS Connect seal or tube pinch fixture. Upon start, the seals/pinchers actuate automatically, sealing the part for the leak test sequence. Each lumen is tested independently during the test sequence, venting those not under test to atmosphere.

Upon completion, the distal/outlet end seal is released and the blockage test sequence begins on each lumen independently. Accepted tests receive a green light, rejected tests receive a red light. Upon a reject signal the test sequence is stopped to help increase throughput by not testing rejected parts fully unless desired.

Optionally accepted parts may be marked using a laser or other marking methods and rejected parts may be cut or rendered inoperable by tooling to prevent further use and advancement through the production process.



Pneumatic seals automatically actuate and deactivate during the testing sequence to seal lumens during a leak test and vent lumens during a blockage test.

## CTS makes it easy to automate your leak test

We provide a complete solution integrated with a single-channel Blackbelt or multi-channel Blackbelt Pro instrument. Choose the Blackbelt Pro for concurrent multiple part testing requirements or for features that support 21 CFR Part 11 and EU Annex 11. Different test system configurations are available to best meet your requirements.

[Contact us to learn more](#)

Compact 3-Port Sequential Blackbelt controlled benchtop test system with guarded sliding drawer for testing finished (tipped and holes skived) multi-lumen CVC and PICC Catheters for both leak and blockage.

Blackbelt Instrument

Sequential Test Ports

Leak Standard, Calibration Port

CTS Connect Luer Seals

Part Nest, Part Sensor, and Reject Part Cutter

CTS Connect OD Seal

Part Load onto Sliding Tray with Automatic Start/Reject Clamp



Get the accuracy and repeatability you need to test critical medical devices with an automated leak test system from CTS.

[Contact us for a quote on your application](#)



*Your Global Leak and Function Test Solution Experts*

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