

Pressure Decay Leak Test

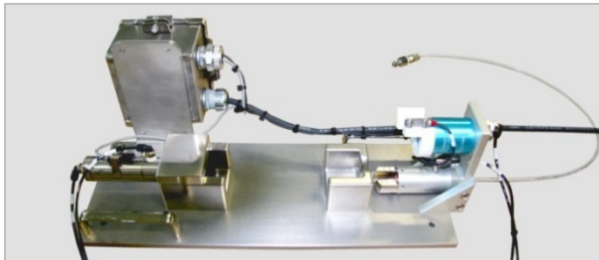
System Description

This machine is a manual four-station pressure decay system designed to independently test medical syringe assemblies using an asynchronous test cycle. This system will test four identical parts and using one operator to perform part load, execute the leak tests, and perform part unload. All four test stations are controlled by a single 4-channel Blackbelt Pro benchtop instrument.

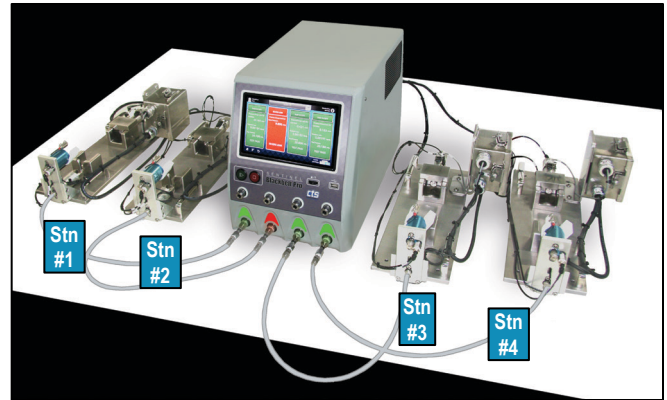
Test Cycle

The operator loads a syringe into test Station #1, makes its peripheral connections to the CTS Connect seals, and initiates test cycle by pressing the Station #1 Start button. The part is sealed and pressure decay leak and blockage tests are performed in sequence on the syringes. The 1st test uses a fast pressure decay test to detect blockage. The part is pressurized to 3.0 psig, stabilized and tested for a minimum pressure loss of 2.0 psig in 0.1 seconds. The 2nd test is a pressure decay test to detect leakage. The seals remain actuated and the part is pressurized to 27 psig, stabilized, isolated, and tested for < 0.05 psig in 4 seconds. Parts meeting specification pass testing and the operator is notified by the glowing 'green' status lights on the front of the instrument. If any of the parts fail their test, the glowing 'red' status light alerts the operator and the parts remain locked into the Connects on the fixture. The reject is cleared by the operator pressing Stop button to release the part for unloading.

These tests and sequences repeat for test Stations #2, #3, and #4. Asynchronous testing allows stations to operate in any order or sequence similar to 4 separate 1-channel instruments. When a test is complete, the station can be unloaded, reloaded, and new test cycle started.



View of the Syringe Assembly Test Fixture



View of the Sentinel Blackbelt Pro system designed to independently test four parts, at four stations, using a concurrent asynchronous test cycle.

Features and Benefits

- Four-station benchtop test system
 - Manual part load and unload
 - Part size: ~200 cc volume
- Blackbelt Pro Benchtop instrument
 - Independent four-channel system
 - Sequential or Asynchronous testing
 - Provides leak, flow, pressure, and vacuum testing
- CTS Connect[®] part seals
- Test specifications:
 - Test #1 3.0 psig occlusion test < 2.0 psi in 0.1 sec
 - Test #2 27.0 psig leak test > 0.05 psi in 4 sec
- Production
 - 4 parts every 16 seconds with tooling motions
 - Manual part load/unload time: 4 sec
 - Throughput : 900 pph