Welcome to the
TME on CD
Series of Product Previews.







This presentation introduces the

TME *SOLUTION*

™

Leak and Flow Tester

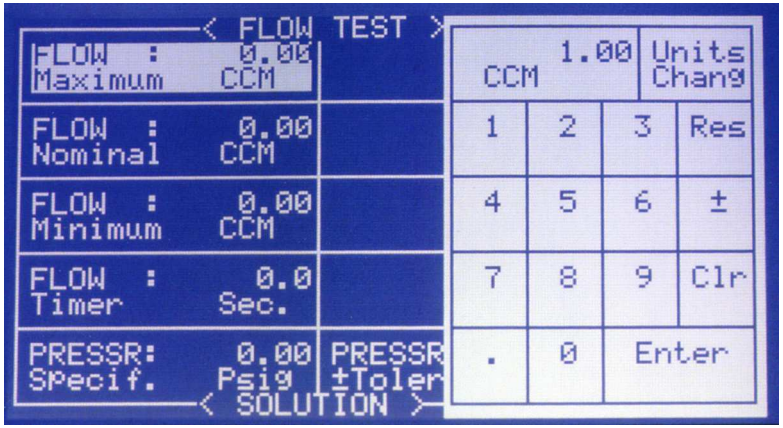
Specialists in Leak, Flow and Package Testing

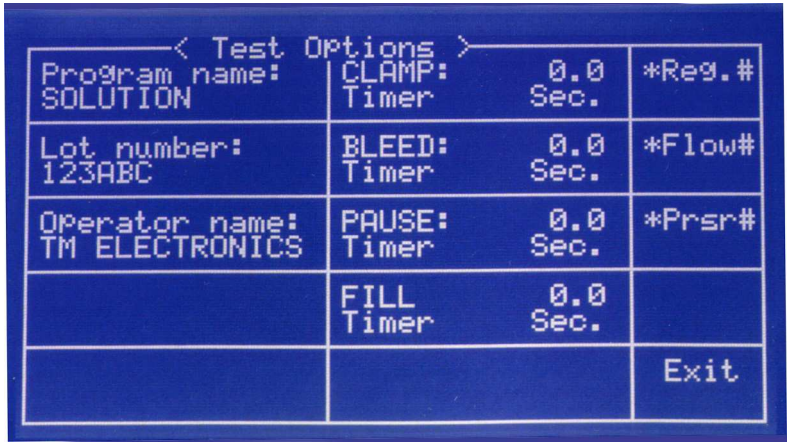
www.tmelectronics.com

Introducing the

TME *SOLUTION*

Problem-Solving Leak and Flow Tester





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TME *SOLUTION*

Test Capabilities

- **PRESSURE DECAY**
- **PRESSURE INCREASE**
- **VACUUM DECAY**
- **MASS FLOW RATE**
- **OCCLUSION**
- **BURST TEST**
- **CLOSED CHAMBER TEST**
- **CRACKING PRESSURE**
- **DIFFERENTIAL PRESSURE**

TME *SOLUTION*

Advantages

Repeatability, Flexibility, Quantitative Results

Up to Four Channel Concurrent Leak and Flow Testing

Multiple Channel Sequential Leak and Flow Testing

Real Time Statistical Analysis and Quality Control Charts

Industrial, Medical, Food and Pharmaceutical Applications

Easy to Use Touch Screen Menus

NIST Traceable Calibration Services

TME *SOLUTION Features*

***Multiple Stored Programs for Operating Test Parameters*: program and store up to 100 different test set-ups**

***Linkable Programs*: design a sequence of tests to suit your specific need. For example, perform a burst test, a flow test and a vacuum decay test sequentially with only one simple instruction**

***Two Way RS232 Computer Connection* for data collection and remote program control**

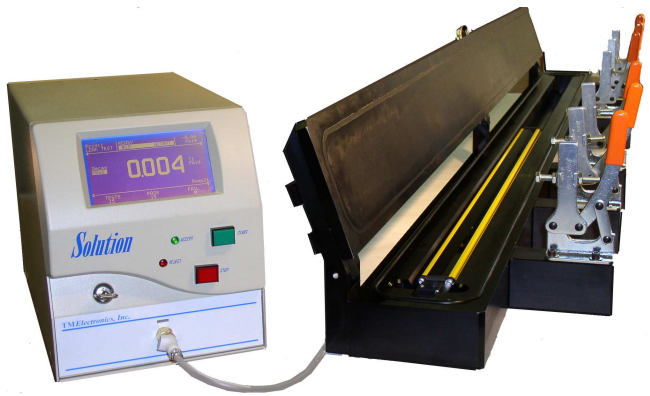
TME *SOLUTION*

Applications

AUTOMOTIVE

COMPONENTS

- *Engine Sub-Assemblies*
- *Cylinder Blocks*
- *Cooling Systems*
- *Fuel Systems*
- *Brakes*
- *Transmissions*
- *Emission Controls*
- *Power Steering*



MEDICAL DEVICES

- *Catheters*
- *Intravenous Infusion Sets*
- *Blood Devices*
- *Filters*
- *Blood and Drainage Bags*
- *Bottles*
- *Implantable Devices*
- *Package Integrity Testing*
- *Solution Vials*

INDUSTRIAL AND APPLIANCE

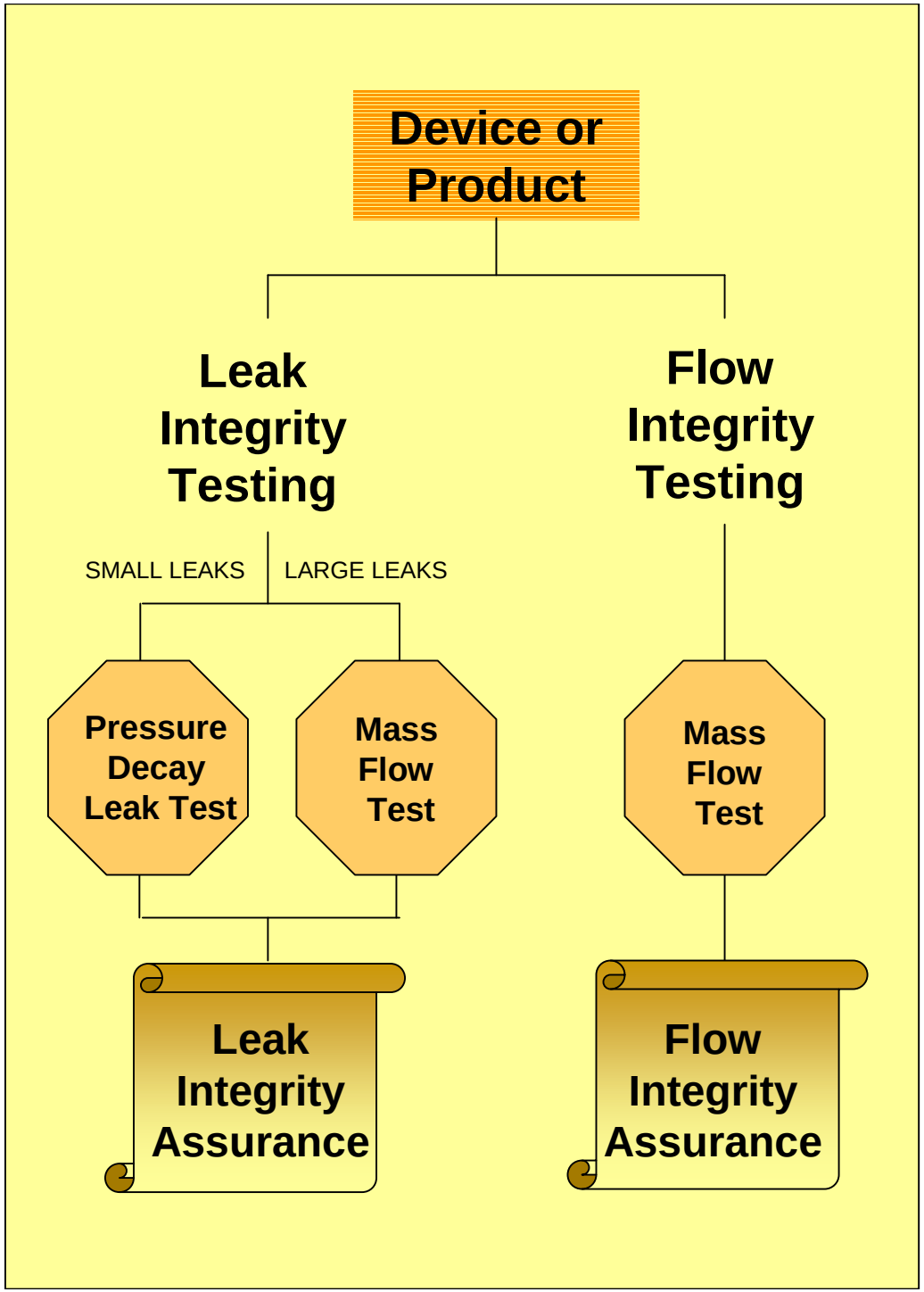
- *Heating and Air Conditioning Coils*
- *Heat Exchangers*
- *Home Appliances*
- *Film Canisters/Pouches*
- *Spray Nozzles*
- *Faucets, Valves and Couplings*
- *Refrigerator Assemblies*
- *Pumps*
- *Food and Beverage Containers*
- *Toner Cartridges*
- *Tubing and Hoses*
- *Water Filters*

Why is Leak Testing Important?

Your motivation for testing is to ensure that material that is supposed to remain in your product stays there, and that nothing in the outer environment that is not intended to get into your product can enter.

Perhaps your product is designed to contain a material without losing any of the contents or to transfer a material or solution intact from one point to another. Your product may be an integral component in a complex mechanical system, or, your product may be designed to enclose hazardous, valuable or fragile materials.

Whatever issue you are facing, it has become apparent that testing is important. Leaks mean product failure. A leak or seal weakness may lead to material leakage, environmental contamination, loss of sterility or component failure. In all cases, leaks mean waste of manufactured product, and leaks that are not found will surely lead to customer complaints!



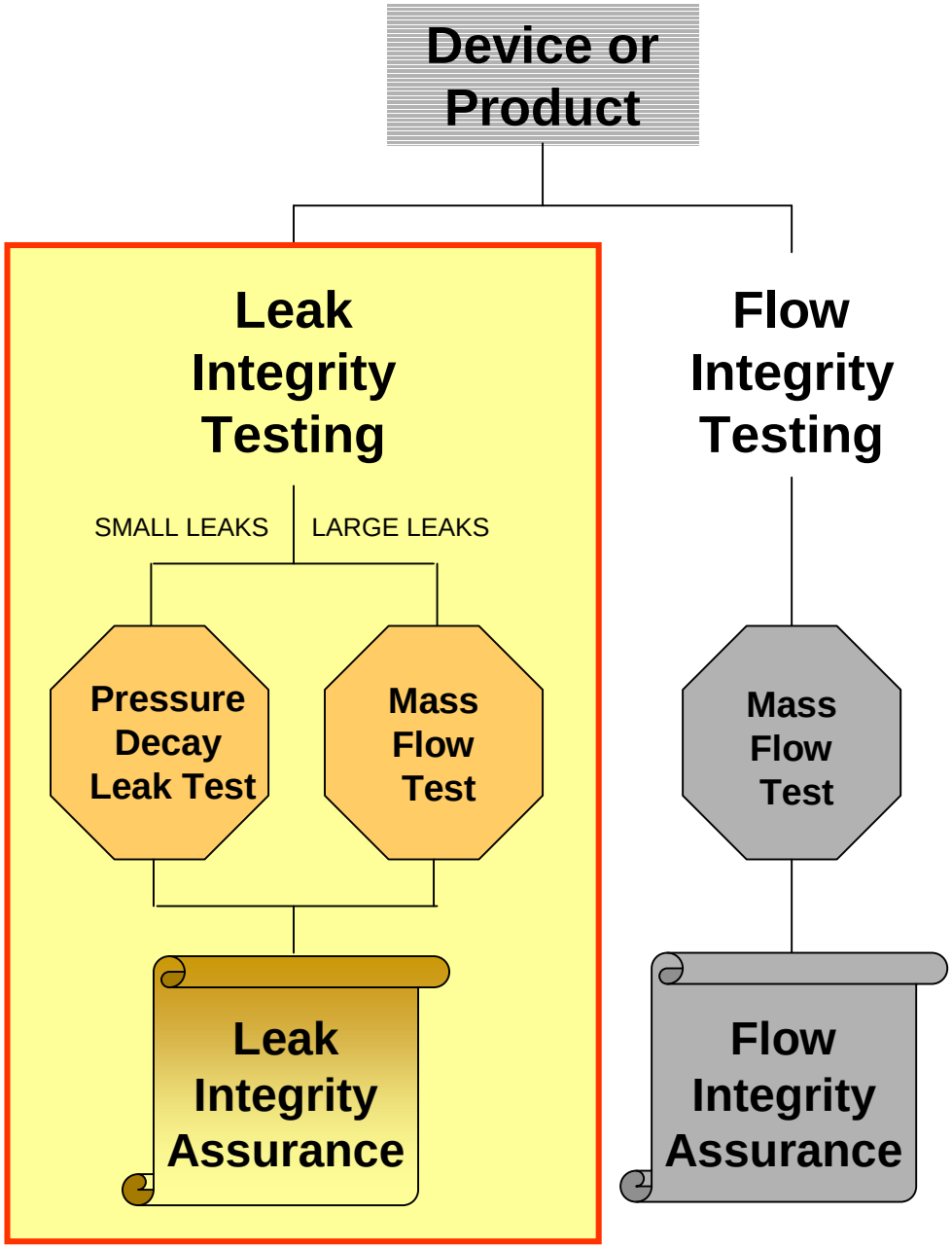
An Overview of Device or Product Integrity Testing

Whether you manufacture medical devices, auto parts, or other products, it is essential to provide assurance of product quality.

Leak and flow testing are a valuable way to enable your QC Department to provide ***assurance of your product's integrity.***

Large or small leaks can be quantified using pressure decay and mass flow testing, and mass flow testing can also identify obstructions in flow-through parts.

The end result is that you, the manufacturer, will gain CONTROL over your manufacturing process, and QUALITY ASSURANCE in the field.

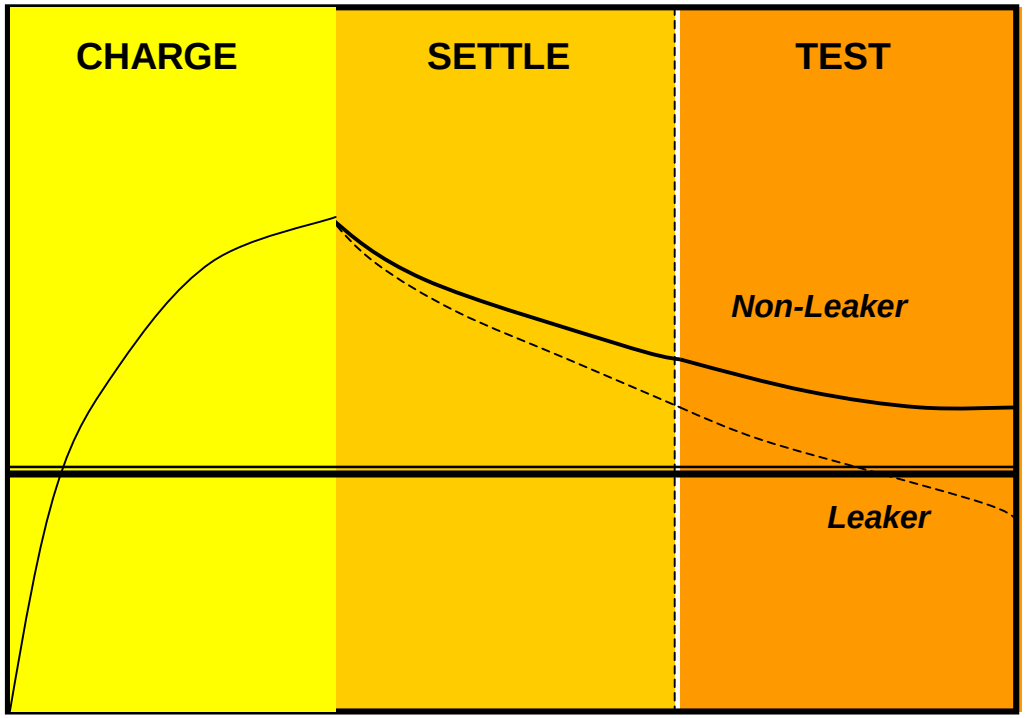


Leak Integrity Testing with the

TME

SOLUTION

Pressure Decay Leak Testing with the TME *SOLUTION*



The Leak Test Cycle

Load/Unload*,are the times it takes to engage and disengage your part from the TME *SOLUTION.

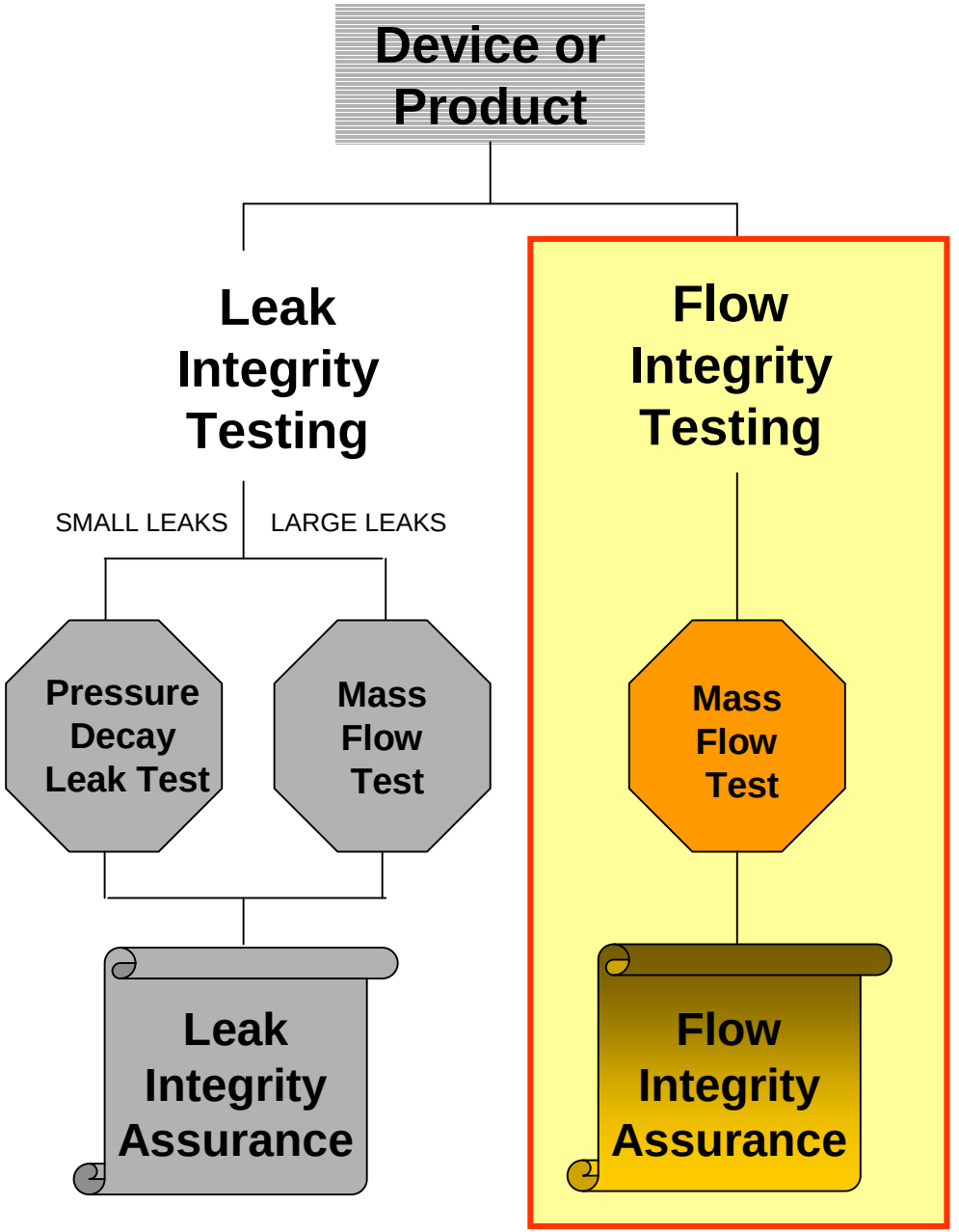
***Charge* is the period of time in which the part is being pressurized to the predetermined test pressure.**

***Settle* is the time in which the part or package is allowed to stabilize after pressurization.**

***Test* is the actual time allowed in which to detect the pressure decay that would indicate a leak.**

If your part or package possesses a gross leak, as for example an unsealed joint, that prohibits complete pressurization, the TME *SOLUTION* will report a gross leak failure. Once pressurized and stabilized, the TME *SOLUTION* will measure the decay of the pressure inside the test part or package over a predetermined period of time. If the pressure decay does not reach the leak limit, the TME *SOLUTION* will report a good part.

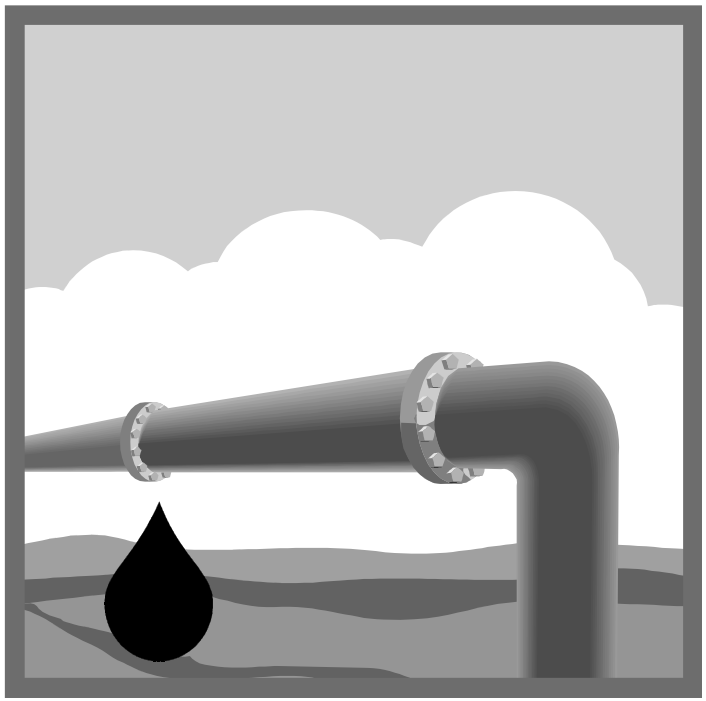
Mass Flow Testing with the TME *SOLUTION*



Mass Flow Testing with the TME *SOLUTION*

Mass Flow Testing for Leakage

Mass flow testing uses intrinsic properties of air to directly measure the amount of air escaping a closed system. A pressure regulator establishes the testing pressure, and then the sensor records any movement of air out of the test system.

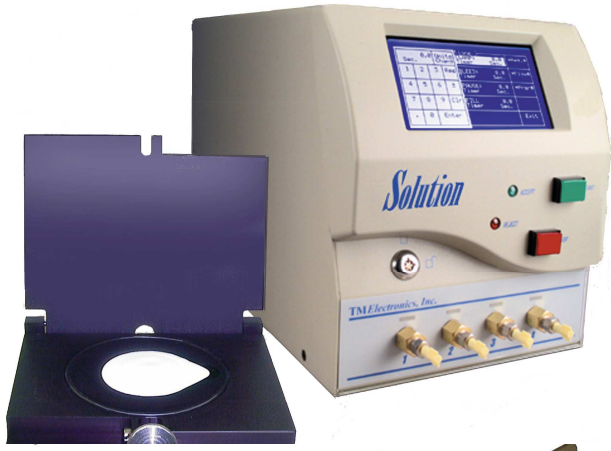


Mass Flow Testing for Obstructions

Test of choice for identifying obstructions in open-ended test parts. The test uses a continual flow model to calculate the blockage in an open-ended device.

Non-Destructive Closed Product or Package Testing with the TME *SOLUTION - C* ™

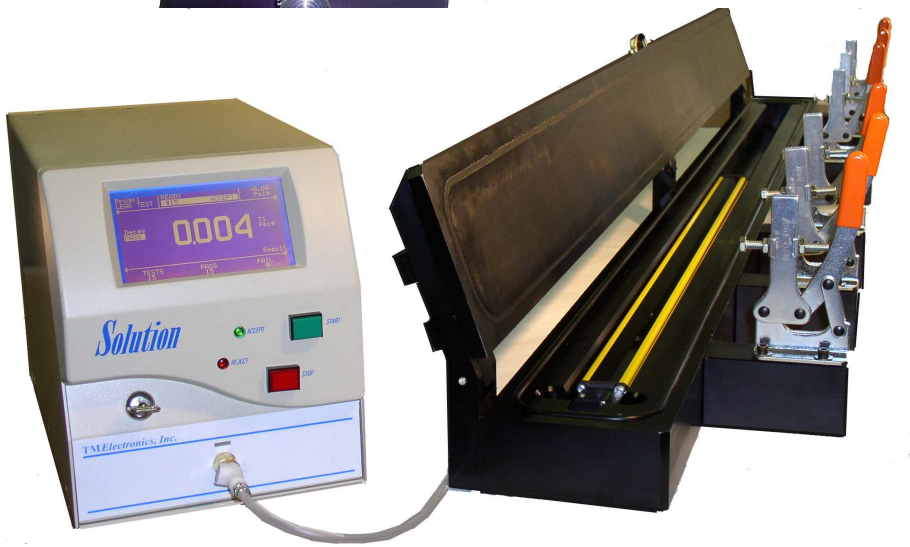
The TME Solution-C uses “Closed Chamber” pressure or vacuum decay testing to leak test a product or package which has no available entry port into its interior volume.



Applications include:

Light Bulbs / Safety Curtain Extrusion / Oil Containers / Electrical Motors / Molded Filter Housings

Induction Seal Bottle Caps / Beverage Containers / Snack Food Packages / Liquid-Filled Vials



The TME *Industrial SOLUTION*

Multi-Port Leak and Flow Tester comes in a NEMA-4 Enclosure for Harsh Environments

The Case, External Switches and Indicators All Meet NEMA-4 Specifications

PLC Controls Drive the Programs and Functions - No Need to Open the Case

The **TME** ***Industrial SOLUTION*** provides all the benefits of the TME Solution Leak and Flow Tester:

- Non-Destructive, Clean, Dry Tests with Repeatable, Quantitative Results
- Real Time Statistical Analysis and Quality Control Charts available on screen or as electronic output
- Up to Four Channel Concurrent and Multiple Channel Sequential Leak and Flow Testing

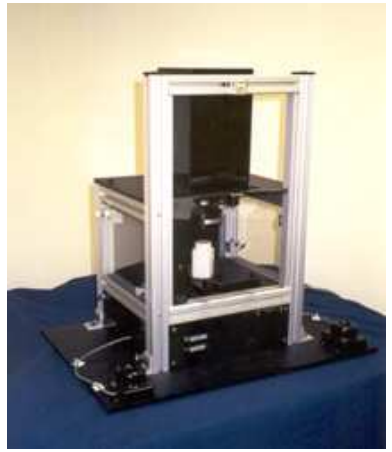
Customize *your* ***SOLUTION***

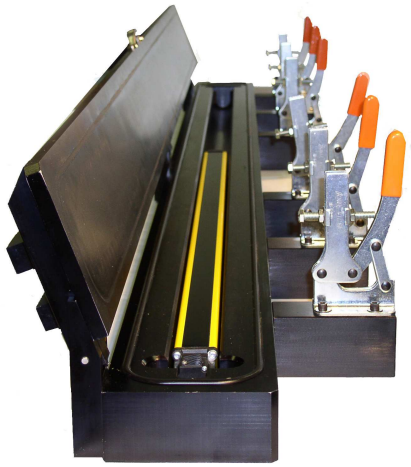
No leak test application is better than its FIXTURES -

and no one is better than TME at designing test fixtures to fit your application!

Application-specific fixtures designed by TME include fixtures for PCR cycle or culture plates, auto components, tubes, multi-lumen catheters, induction sealed bottles, and food containers.

TME applications engineers will work with you to understand your product and your testing goals to provide the best possible testing system for you.





Resolution and the TME *SOLUTION*

The **resolution** of your leak test instrument determines the size of the leak that can be detected. The resolution of your test is defined as the smallest pressure decay (change in internal pressure of your package during the “test” phase of the pressure decay test cycle) that can be detected by your test instrument. The TME Solution Multi-Port Leak and Flow Tester has a maximum resolution of 0.0001 psi (.01 mbar/sec).

Specifications: TME *SOLUTION*

Dimensions .....8 1/2”W x 16”D x 10” H
Power .....110/220V, 50/60Hz, 150 Watt
Controls.....Push Buttons, Touch Pad, Keylock, Power ON/OFF Switch
Test Channels ..... 1, 2, 3 or 4 concurrent or sequential
Test Mode ....Pressure or Vacuum, Single or Differential
Single Tests..... Leak, Flow
Dual Tests.....Leak/Flow, Flow/Leak
Display..... Backlit Blue LCD,40 character x 16 line Alphanumeric/Graphic Display
Units..... PSI, Inches of H_2O, kPa, mbar, more
DATALOG Memory.....Up to 5000 Tests
PROGRAM Memory .....Up to 100 Linkable Test Programs
Statistics..... Mean and Range Charts, Histograms, Std. Dev., Averages, Min/Max, UCL & LCL
Manual Output.....Prints Test Setup Parameters, Current Results, Datalog,Statistics on Demand
Automatic Output.....Current Test Results if Printer is Connected and Ready
Auxiliary Output..... 24V PLC interface
Communications Port.....Two Way Up & Downloadable Programs
Calibration.....NIST Traceable
Timer Ranges..... .1 to 1000 Sec.
MODEL PRESSURE RANGES: ..... 0.5-5, 0.5-30, 2.0-100, 5.0-250 psig; Vacuum 0.2-28 inHg
RESOLUTION: Decay ..... Maximum .0001 psi (.01 mbar/sec)
FLOW RANGE (sccm) .....250 - 5000 - Standard, 10 sccm to 75 lpm available
FLOW RESOLUTION ..... 1 sccm - Standard, 0.01 sccm to 1.5 lpm available

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