

INTERTEST now brings to semiconductor fine and gross leak testing 1980's hardware and software expertise. Modular construction combined with the latest in microprocessor controls updates TEST CONDITION C capabilities in addition to providing an automated Helium "Bomb" capability. **YOU NOW HAVE A CHOICE!**

The INTERTEST 1014-C Pressure System is designed specifically to exceed in all respects the testing parameters per Test Condition C, Method 1014.2 of MIL-STD-883B. In addition, Helium "Bombing" per Condition A is furnished as an integral part of the INTERTEST 1014-C.

**MICROPROCESSOR CONTROL**

The 1014-C uses reliable micro-electronics to control and monitor all system functions. The basic micro-processor is the identical proven hardware also used in the INTERTEST Fine Leak, Bubble Tester and Centrifuge Product Lines. Utility is accomplished by software implementation to the 1014-C end application.

**ACTIVATION TANK LIQUID LEVEL**

The activation tank(s) utilize unique solid state level sensors. With the absence of any moving parts, level detection is accomplished IN THE TANK(S). False outputs due to pressure surges and/or condensate buildup on the sensor are eliminated.

**ACTIVATION TANK PRESSURE**

Activation Tank(s) pressure is individually front panel displayed in digital engineering units. Activation pressure(s) is front panel set digitally in engineering units.

**SYSTEM CALIBRATION**

All system instrumentation and sensors have provision for external calibration as required by MIL-STD-883. Additionally, internal self calibration is provided.

**HOST COMPUTER COMPATIBILITY**

Microprocessor electronics provides either RS-232 or IEEE-488 bus interface.

**HEAVY DUTY VACUUM SYSTEM**

A heavy duty industrial type vacuum system is furnished insuring long trouble free service.

**STORAGE TANK LIQUID LEVEL**

The storage tank liquid level is continuously monitored utilizing a solid state level sensor. Digital FRONT PANEL readout of liquid level is displayed in direct reading engineering units (either gallons or liters).

**BUILT-IN FILTRATION**

Flourinert liquid is continuously filtered by means of an internal 0.45 Micron Filter assuring compliance to this key element of MIL-STD-883.

**DIGITAL TIMERS**

Vacuum and Pressure Soak Times are individually set by front panel digital set units. Actual soak time(s) is individually read out in digital time.

**TROUBLE SHOOTING**

Internal lighting, system supervisory check points with manual override controls maximize service utility and minimize service downtime.

**12 MONTH WARRANTY**

The INTERTEST 1014-C Pressure System is warranted unconditionally for twelve months including all purchased system components. Certain electronic components are warranted for 24 months.

**OFFSHORE UTILITY**

The electrical systems of the INTERTEST 1014-C provides complete compatibility with AC distribution voltages and frequencies found in all non-continental USA locations.

**SPECIFICATIONS**

Number of Chambers	2
Size	51" High x 32" Deep x 42" Wide
Weight	1200 pounds packed for export
Pressure Soak Timer Controller	0-100 Hrs Set in 1.0 SECOND increments—2 Provided
Vacuum Soak Timer Controller	0-100 Hrs Set in 1.0 SECOND increments—2 Provided
Chamber Digital Pressure Indicator	0-150 psia—2 Provided
Chamber Pressure Controller	ATM to 0.1 Torr—2 Provided
Vacuum Pump	Heavy Duty Industrial Type System
Activation Chamber Size	2 each 3.6 Gallons
Flourinert Storage Capacity	12.0 Gallons
Gas Supply	Regulated N <sub>2</sub> @ 90 psig or filtered air
System Front Panel Controls	Push Buttons FOR "POWER," "HELIUM-FC," "START"
Pneumatic Connections	Quick Disconnect for N <sub>2</sub> and Helium
Power	240/120 VAC @ 25 A
Filtration	Integral 0.45 Micron
Fixtures	2—Parts Stick Buckets—22" Depth 2—Filler Block Sets

**DISTRIBUTED BY****INTERTEST**

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# INTERTEST 1014C GROSS AND HELIUM FINE LEAK

## PRESSURIZATION SYSTEM

### ----- INTRODUCTION -----

THE DEMAND FOR HIGH PERFORMANCE, HIGH RELIABILITY, AND SOPHISTICATED ELECTRONICS, HAS CREATED AN INCREASE IN THE NUMBER AND REQUIRED ACCURACY OF QUALITY CONTROL TESTS FOR ELECTRONIC COMPONENTS. BECAUSE OF THIS DEMAND, INTERTEST HAS INCORPORATED TWO METHODS OF DETERMINING LEAK RATES INTO ONE SYSTEM.

THE GROSS LEAK PROCESS IS FOR PACKAGE LEAKS THAT ARE GREATER THAN  $1 \times 10^{-4}$  AND CAN BE DETECTED WITH THE HUMAN EYE. THE HELIUM FINE LEAK PROCESS HAS THE CAPABILITY TO DETERMINE LEAK RATES RANGING FROM  $1 \times 10^{-4}$  TO MICROSCOPIC PERFORATIONS OF  $1 \times 10^{-11}$ . BOTH METHODS SATISFY THE REQUIREMENTS OF MILITARY STANDARD 883-B AND CAN BE ACCOMPLISHED INDEPENDENTLY WITH THE INTERTEST 1014C SYSTEM.

THE DEVICES TO BE TESTED FOR GROSS LEAKS ARE PLACED IN THE CHAMBER AND A VACUUM OF 5 TORR IS DRAWN AND MAINTAINED FOR AN APPROPRIATE AMOUNT OF TIME. WITHOUT BREAKING THE VACUUM, THE F.C. FLUID, WHICH SERVES AS A DETECTOR FLUID, IS DRAWN INTO THE CHAMBER TO COVER THE DEVICES. A PRESSURE OF 60 TO 90 PSIG, DEPENDING UPON THE INTERNAL VOLUME OF THE COMPONENTS, IS THEN APPLIED FOR AN APPROPRIATE TIME PERIOD. AFTER THE PRESSURE IS RELEASED, THE DEVICES ARE REMOVED AND KEPT IN A BATH CONTAINING THE DETECTOR FLUID UNTIL THE BUBBLE TEST IS CARRIED OUT.

WHEN READY TO TEST, THE DEVICES ARE REMOVED FROM THE DETECTOR FLUID AND ALLOWED TO DRY FOR THREE MINUTES. ANY FLUID LEFT ON THE EXTERIOR OF THE DEVICES WILL EVAPORATE DURING THIS TIME. THE DEVICES ARE THEN TESTED BY IMMERSING THEM IN THE INDICATOR FLUID AT  $125^{\circ} \pm 3^{\circ}$ . ANY LOW BOILING DETECTOR FLUID ENTRAPPED WITHIN A LEAKY DEVICE WILL RAPIDLY VAPORIZE AT THIS TEMPERATURE. THE RESULTING STREAM OF BUBBLES READILY IDENTIFIES A LEAKING DEVICE.

THE HELIUM FINE LEAK PROCESS INVOLVES HOLDING THE DEVICES UNDER A VACUUM AND THEN PRESSURIZING THEM WITH HELIUM GAS FOR AN APPROPRIATE AMOUNT TIME. THE DEVICES ARE REMOVED FROM THE CHAMBER WITH THE LEAKING COMPONENTS CONTAINING HELIUM MOLECULES. THE ENTRAPPED MOLECULES, IF ANY, WILL BE EVACUATED AND DETECTED USING A MASS SPECTROMETER AS THE SENSING DEVICE.

THE COMBINATION OF THESE PROCESSES MAKES THE SYSTEM EXTREMELY SUITABLE FOR LARGE VOLUME TESTING ENVIRONMENTS SINCE THE PER UNIT COST IS DRASTICALLY REDUCED. MOREOVER, THE SENSITIVITY OF THE GROSS AND HELIUM FINE LEAK TESTS REMAIN EXTREMELY HIGH OVER THE ENTIRE LEAK RATE SPECTRUM