

LEAK TEST CATALOG

INNOVATIVE ENGINEERING AND UNPARALLELED CUSTOMER SUPPORT
SINCE 1984



PRODUCTS AND SERVICES FOR FACTORY AUTOMATION



VALIDATED RESULTS FROM CONCEPT TO PRODUCTION



Same Test Cavity

R&D

An easy-to-use interface and a large touchscreen make the **Zaxis 7i** an adaptable R&D machine.



Same Firmware

Pilot Run

Keep the interactivity while saving on valuable production space with the **Zaxis Isaac HD**.



Same Quality

Automation

Purpose built to be an automation workhorse, the ultra-compact **iKit** is about the size of a novel.



Same Results

Table of Contents

About Us

- [04 Zaxis](#)
- [05 Industries](#)
- [06 Engineering](#)

Configuration

- [09 Table](#)
- [11 Form](#)

Products

- [14 Zaxis PD](#)
- [18 Zaxis iKit](#)
- [24 Zaxis Isaac HD](#)
- [31 Zaxis 7i](#)

Options & Accessories

- [38 Communication](#)
- [40 zHMI](#)
- [41 Regulators](#)
- [42 Sensors](#)
- [44 Valves](#)
- [47 Sequencers](#)
- [48 Enclosures](#)
- [49 Power & Cables](#)
- [52 Hardware](#)
- [54 Service Kit](#)

Fixtures

- [55 Chamber/Drawer](#)
- [56 Camtrak](#)
- [57 Multi-Lumen Catheter](#)
- [58 Quick Connects](#)
- [58 Extended Chassis](#)
- [59 Clam Shell](#)
- [60 Custom Fabrication](#)

Applications

- [62 What is a Leak Rate](#)
- [63 Pressure and Vacuum Decay](#)
- [64 Occlusion](#)
- [65 Mass Flow](#)
- [66 Burst](#)
- [67 Chamber](#)
- [68 Pressure Cracking](#)
- [69 Cell Manufacturing](#)
- [70 Maintaining Validation in Product Development](#)
- [73 What is a Multi-Tester](#)

Service & Support

- [74 Repair/Service](#)
- [75 Calibration](#)
- [76 Warranty](#)
- [77 Terms & Conditions](#)
- [78 Glossary](#)



The Inventor of the Multi-Tester

Located in the heart of Salt Lake City, Utah we have maintained a culture of innovation and success. Still a privately-owned company, we continue to engineer the world's finest leak testing and precision pumping technologies used by Fortune 500 companies around the world. We are excited about our growth and the amazing people who have helped us along the way. Stay tuned to Zaxisinc.com to be the first to know what new technologies we are developing.

We came from humble beginnings. We were literally working out of a garage, but our little garage company has grown into an industry leader. That small company heritage is something we take pride in. We try to act as small as we can when it comes to our customers. We're not interested in the sell-and-forget business. We want to deliver precision products to exceptional customers and build lasting relationships.

Since our humble beginnings, we have come a long way. In the fall of 2014, we expanded into a 20,000+ SQFT facility to manage our future growth. We are excited to innovate new technologies with the growing Zaxis force and we look forward to meeting you soon. We hope that you find all of your solutions here with us and if not, we hope to provide them for you in the near future.

See [page 72](#) for more information on Multi-Testers.

Key Industries

Zaxis products are applicable to all manufacturing industries, the following are a small sample of industries served.



Life Science

Leak testing for medical manufacturing is the Zaxis specialty. Zaxis has 30+ years of experience creating custom leak test solutions for the entire spectrum of medical device manufacturing.

Accuracy and repeatability are critical aspects to Medical manufacturing. All Zaxis leak testers are meticulously configured to meet the stringent demands of medical applications.

See [page 57](#) for more on catheter leak testing, or [page 56](#) for more on IV Set leak testing.



EV & Aerospace

The components used to make Electronic Vehicles (EV) and Aerospace equipment are both highly technical and rugged. These parts need to operate at peak proficiency in often very volatile situations.

Zaxis leak testers can validate the ingress or egress of manufactured parts to ensure proper assembly and operation of components that face the most extreme situations.

See [page 63](#) for more on vacuum testing, or [click here](#) for more on battery testing.



Electronics

Electronics as large as cell phone tower sensors and as small as underwater LEDs, as well as many other sealed devices, need non-destructive tests during production that validate the manufacturing process.











At Zaxis we often apply a water to gas correlation which gives us the capability to perform non-destructive test on electronics. Many such tests are performed to validate IP ratings.

See [page 67](#) for more on Chamber Leak Testing.

Engineering

Features

Zaxis' instruments are built to meet a dynamic manufacturing environment. Quality, speed, and repeatability are at the forefront of the Zaxis design process. The compact size of the Zaxis testers enables them to be utilized in close proximity to test fixtures. By reducing the test cavity volume, the test sensitivity increases, and test times can be decreased. A small internal volume, when combined with integrated sensors and a 24-bit analog to digital converter, allow Zaxis to offer the highest sensitivity on the market.

 Low Internal Volume < 1 cm ³ internal test volume	 Lock Screens lock up to 3 screens for different users	 Intuitive User Interface same interface across all products	 Media Compatibility clean, dry, noncorrosive gasses	 High Resolution 0.00001 PSI See Page 08 about our A/D Converter
 Communication 24 VDC PLC I/O, Ethernet (TCP/IP, EtherNet/IP)	 Time 0.1-999.9 seconds	 Onboard Computing stored programs and statistical data	 Multiple Engineering Units PSI, in of H ₂ O, kPa, mbar, mmHg, cmH ₂ O	 Touch Screen Interface easy set-up and operation

User Interface

The Zaxis Human Machine Interface (zHMI) allows you to control and monitor your leak testers remotely. For more information on the zHMI see [page 40](#).







The TSi (Touch Screen Interface) is a built-in or detachable liquid crystal touch screen display, designed for test adaptability and ease of use. Interface options include: Touchscreen Calibration, Clock, I/O Setup, Data Logging, Lock Tester, Change PIN, Serial Port, Ethernet Settings.

- Easily programmable parameters (*test times and limits*)
- Two test displays; Large Numeric or Graphic Trend Line
- Seven selectable engineering units (*psig, mbar, mmHg, inH₂O, kPa, cmH₂O, inHg, sccm*)
- Simple calibration
- Data Logging
- Lock tester parameters, calibration, or current program (*physical barrel key is optional*)
- Included Stylus for ease and accuracy of touch screen interaction

Easy Set-up and Operation

One of the key benefits to the Zaxis family of leak testers is ease of use. Just a few quick steps will get any Zaxis leak tester from out of box to fully operational.



1. The first thing you see when turning on your tester is the About screen which contains important information such as the serial number. After about 10 seconds the About screen will automatically change to the Run screen.
2. On the Run screen select the  Parameters button.
3. On the Parameters Pressure screen  set your test type (*in the top bar*) and your test pressure.
4. Select the Parameters Settings screen  to set your test timers and limits.
5. If applicable, select the Parameters Fixture screen  to set the timer for your fixture clamps.
6. Press the  to get to the run screen and the  Green Start button to initiate your test.

Why Do These Features Matter?

Every feature and enhancement we put into our leak tester technology is aimed at improving **resolution, accuracy, repeatability, speed, communication, and ease of use**. Speak to one of our sales representatives today about how Zaxis can streamline your product testing.
Email: sales@zaxisnc.com **Phone:** 801-264-1000



Connectivity

Options Include: USB, I/O, RS232, Ethernet TCT/IP, and EtherNet/IP®

Flexible communication options allow you to connect your Zaxis leak tester to automation networks in a way that works best for you.

For communication options see [page 38](#).



Internal Components

Configurable Options Create the Perfect Tester for Any Application

To offer the highest performing and broadest range of configurations, Zaxis employs a wide selection of internal components. Depending on the desired pressure range, fill volume, and test speed/throughput, a variation of valves, regulators, sensors, and more can be specially configured.

For leak tester options see [page 38](#).

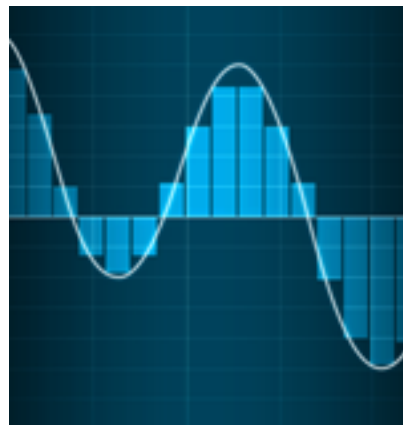


Calibration

NIST Traceable Calibration

Zaxis offers NIST traceable calibration for all Zaxis Inc. products. To learn more about calibrating your Zaxis leak tester, see the Service section of this catalog on [page 73](#).

To schedule an annual calibration with Zaxis, email us at service@zaxisinc.com or call us at 801.264.1000



24-Bit Analog-to-Digital Converter

Very Low Noise + Digital Filtering

The Zaxis family of leak testers each contain an extremely high-resolution analog-to-digital converter. The converter contains a programmable gain amplifier that allows us to optimize resolution up to 23 bits-noise free, with a data rate of up to 30k samples per second. The amplified differential input signal is measured against a differential reference by a delta-sigma modulator. The modulator output is then sent to a programmable low-pass digital filter which produces a high-resolution digital output.

Leak Tester Configuration Table

Use this table as a guide in deciding which configuration will best suit your application.

	 Zaxis PD	 iKit	 Zaxis Isaac HD	 Zaxis 7i
Display	4.3"	4.3" Detachable	4.3"	7"
Dimensions	6" W, 6" H, 6.5" D	3" W, 6" H, 6" D	7" W, 6" H, 9" D	10" W, 8" H, 9" D
Max Pressure	120 psi positive/ -14.7 psi vacuum	500 psi positive/ -14.7 psi vacuum	1,000 psi positive/ -14.7 psi vacuum	1,000 psi positive/ -14.7 psi vacuum
Regulator	Built in Electronic	External Manual or Built in Electronic	Built in Manual or Electronic	Built in Manual or Electronic
Connectivity	USB, I/O, Ethernet (TCP/IP)	RS232, I/O, Ethernet (TCP/IP or EtherNet/IP™)	USB, I/O, RS232, Ethernet (TCP/IP or EtherNet/IP™)	USB, I/O, RS232, Ethernet (TCP/IP or EtherNet/IP™)
Valves*	Type 1	Types 1-3	Types 1-4	Types 1-4
# of Test Types	1	1	Up to 5	Up to 5
Test Type Options[§]	PD, VD	PD, VD, Occ, F, PR**	PD, VD, Occ, F, B, K, PR, VR PV, PB, PF, PBK, PFB, PVB, PVF, PVR, PFBK, PVFBK	PD, VD, Occ, F, B, K, PR, VR PV, PB, PF, PBK, PFB, PVB, PVF, PVR, PFBK, PVFBK
Multi-Test Options[§]	N/A	PV		
Multichannel	N/A	N/A	Concurrent or Sequential	Concurrent or Sequential
Stored Programs	4	100	100	100
Resolution	0.0001 PSI	0.0001 PSI	0.0001 PSI	0.0001 PSI
Power	120/230 VAC, 50/60 Hz 100 Watts	Optional External 24 VDC 60 Watts	120/230 VAC, 50/60 Hz 100 Watts	120/230 VAC, 50/60 Hz 100 Watts

* Valve Selection is based on pressure and flow requirements. Please contact a Zaxis sales representative for more information.

[§] Pressure Decay (PD), Vacuum Decay (VD), Occlusion (Occ), Mass Flow (F), Burst (B), Pressure Cracking (K), and Chamber (PR), Vacuum Chamber (VR). See [page 61](#) for more information on the different test types.

** Limited Volume.



Building a Leak Tester

The modular design of Zaxis leak testers enables us to meet the demands of a wide variety of applications.

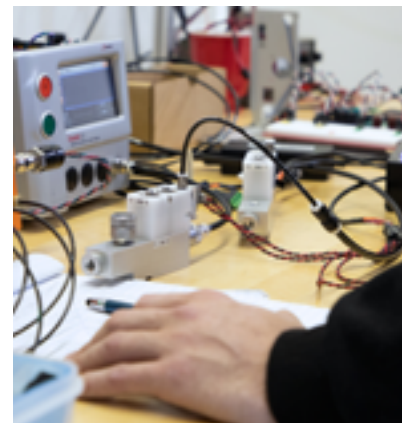
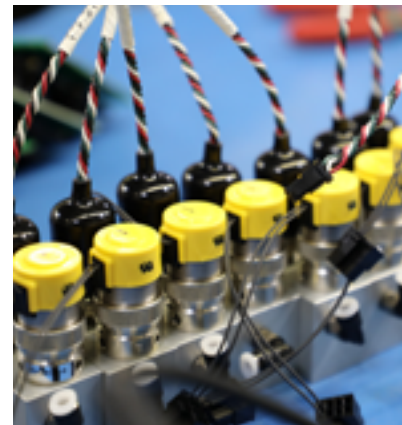
1 **Test Type** – Knowing the test type or combination of test types that you would like to run on your part is the first step to selecting the perfect leak tester for your application.

2 **Ports/Sequencer** – Does your part have a single port or multiple ports, much like a multi-lumen catheter? Are you running a test, such as an occlusion test, that requires the use of a downstream port?

3 **Pressure Range & Volume** – What is your target pressure range? What is the amount of volume that has to reach that designated pressure?

4 **Desktop/Automation** – What situation will your tester be used in? Will it be used in R&D where a large interactive screen is beneficial, or will it live on a production line where space is a valuable commodity?

5 **Speed** – Valves with differing orifice size can affect test time. What throughput would you like to achieve?



Configuration Form

THIS FORM COLLECTS THE INFORMATION NECESSARY FOR ZAXIS TO CREATE A QUOTE FOR THE IDEAL LEAK TESTER CONFIGURATION FOR YOUR APPLICATION.

Test Types (see [page 62](#))

Pressure Decay (PD) <input type="checkbox"/>	Occlusion (Occ) <input type="checkbox"/>	Crack (K) <input type="checkbox"/>
Vacuum Decay (VD) <input type="checkbox"/>	Downstream Occlusion (DO) <input type="checkbox"/>	Chamber (PR) <input type="checkbox"/>
Mass Flow (F) <input type="checkbox"/>	Burst (B) <input type="checkbox"/>	Vacuum Chamber (VR) <input type="checkbox"/>
Pressure/Burst (PB) <input type="checkbox"/>	Pressure/Burst/Crack (PBK) <input type="checkbox"/>	Pressure/Flow (PF) <input type="checkbox"/>
Pressure/Flow/Burst (PFB) <input type="checkbox"/>	Pressure/Flow/Burst /Crack (PFBK) <input type="checkbox"/>	Pressure/Vacuum (PV) <input type="checkbox"/>
Pressure/Vacuum/Burst (PVB) <input type="checkbox"/>	Pressure/Vacuum/Flow (PVF) <input type="checkbox"/>	Pressure/Vacuum/Flow/Burst/Crack (PVFBK) <input type="checkbox"/>

Ports

1 2 3 4

Channel Sequencer

Concurrent Sequential

Part Parameters

Test Pressure _____

Internal Part Volume _____

Desired Test Speed _____

Target Leak Rate _____

Product Under Test _____

Regulator

Electronic Manual 2nd Manual

Environment

Benchtop Automation

Communication

PLC I/O RS232 USB

Ethernet (TCP/IP) EtherNet/IP™

Options (see [page 38](#) for available options)



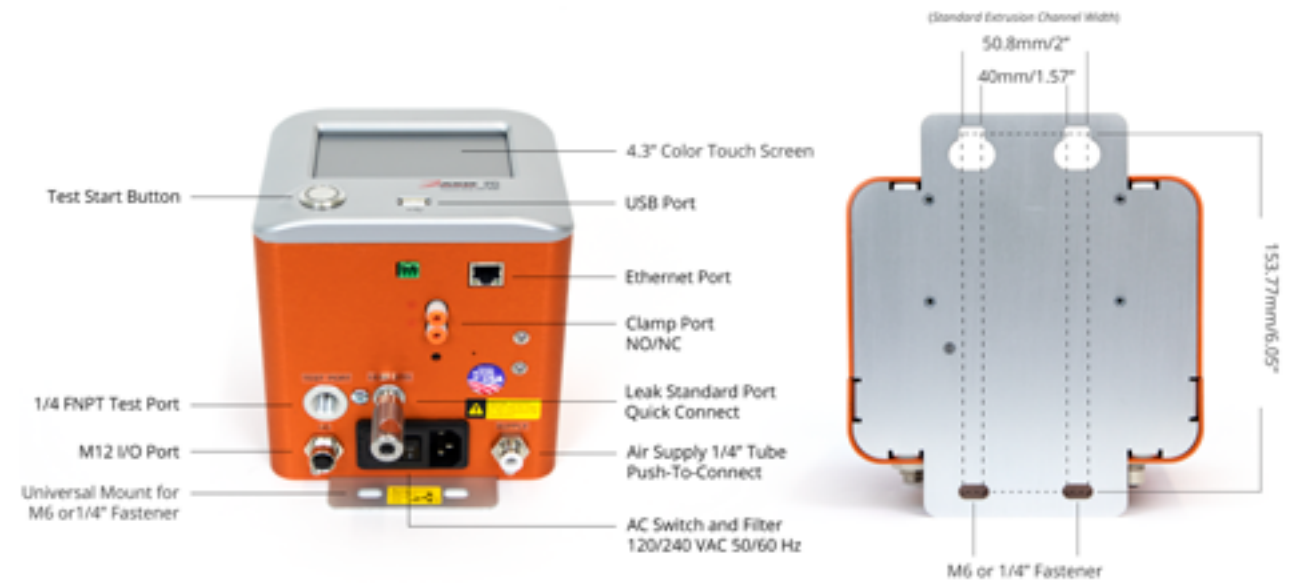
Products

Configurable Leak Testers

Zaxis' instruments are built to meet a dynamic manufacturing environment. Quality, speed, and repeatability are at the forefront of the Zaxis design process. The compact size of the Zaxis testers enables them to be utilized in close proximity to test fixtures. A small internal volume, combined with integrated sensors and a 24-bit analog to digital converter, allow Zaxis to offer the highest sensitivity on the market.

Zaxis PD

The compact size and mounting orientation of the Zaxis PD enables close proximity to leak test fixtures, thereby reducing connection volume. Reducing test connection volume increases test sensitivity and decreases test times, yielding superior performance. All Zaxis leak testers have a small internal test volume. This optimized small internal test volume combined with integrated sensors and a 24-bit A/D converter enables Zaxis' unparalleled performance.



Zaxis PD Specifications

Max Pressure	2 Bar or 8.3 Bar of Positive Pressure, or -1 Bar of Negative Pressure
Power	120-240 VAC 50/60Hz or 60 Watt 24 VDC
Test Port Fitting	1/4 FNPT female bulkhead
Connectivity	USB, RS232, I/O, Ethernet TCP/IP
Dimensions	6" wide, 6" high, 6.5" deep
Display	4.3" Color Touchscreen
Regulator	Built in Electronic
Compatible Valve Types	Type 1
Stored Programs	4 - allows you to run multiple parameters through a single port
Max # of Ports	1
Max # of Test Types	1
Compatible Test Types	PD or VD
Compatible Multi-Test Types	N/A
Time	0.1-999.9 seconds
Resolution	0.0001 PSI



Compact Size

saves valuable manufacturing space



Lower Cost

Fit more testers into your budget and increase throughput



Automatic Pressure Control

Multiple tests with varying pressures without manual adjustment



Wall Mountable

with bottom mounted connectors saving bench space



USB Port

for easily accessible data collection

Zaxis-PD Models

Test Type	Pressure	Power	Part Number
Pressure Decay	2 Bar	120-240 VAC 63Hz	PN: 400035
Pressure Decay	2 Bar	60 Watt 24 VDC	PN: 400038
Pressure Decay	8.2 Bar	120-240 VAC 63Hz	PN: 400036
Pressure Decay	8.2 Bar	60 Watt 24 VDC	PN: 400039
Vacuum Decay	-1 Bar	120-240 VAC 63Hz	PN: 400037
Vacuum Decay	-1 Bar	60 Watt 24 VDC	PN: 400040

Application Examples for the Zaxis PD

THE ZAXIS PD IS A SIMPLE YET POWERFUL LEAK TESTER. THESE ARE JUST A FEW EXAMPLES OF APPLICATIONS PERFECTLY SUITED FOR THE ZAXIS PD. FOR MORE LEAK TESTING APPLICATIONS SEE [PAGE 62](#).



Cell Manufacturing

Cellular manufacturing is a lean manufacturing model. The goal of cell manufacturing is to save time and space on the assembly floor by grouping machines together by the specific task they accomplish. These grouped machines, or “cells” are then lined up in the form of an assembly line. The Zaxis PD has been specifically designed to fit in a manufacturing cell.

For more information on Cell manufacturing [Click Here](#) or see [page 69](#).



Pressure Decay

In this test, a product is attached to a leak tester and filled with air. During the test, any decrease in air pressure over time signifies a leak.

For more information on Pressure Decay leak testing see [page 63](#).



Vacuum Decay

Rather than filling a part to a positive pressure, vacuum is pulled, and egress is tested.

For more information on Vacuum Decay leak testing see [page 63](#).

Zaxis PD Suggested Accessories

GO TO [PAGE 49](#) TO SEE ALL LEAK TESTER ACCESSORIES. PREVENTIVE MAINTINENCE KITS CAN BE FOUND ON [PAGE 54](#).

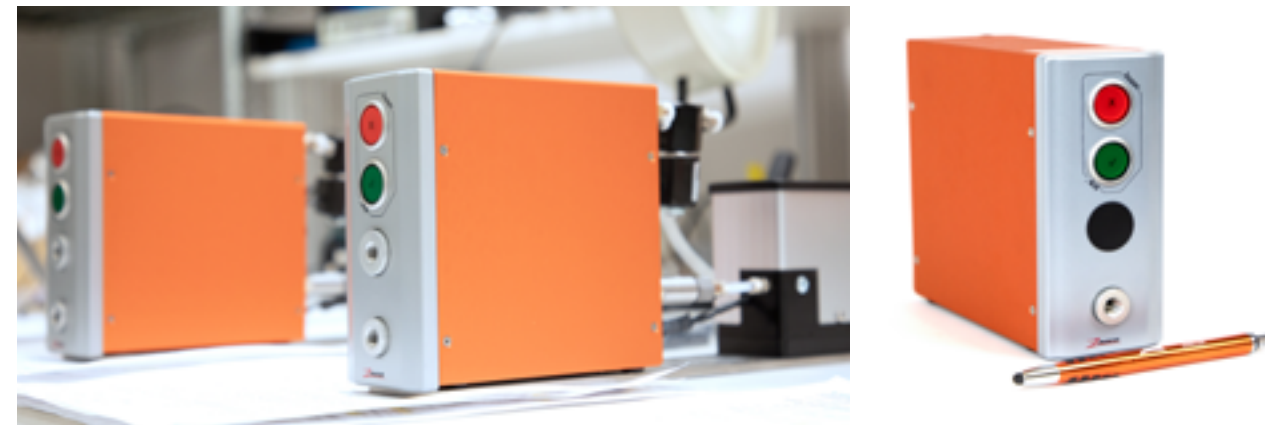
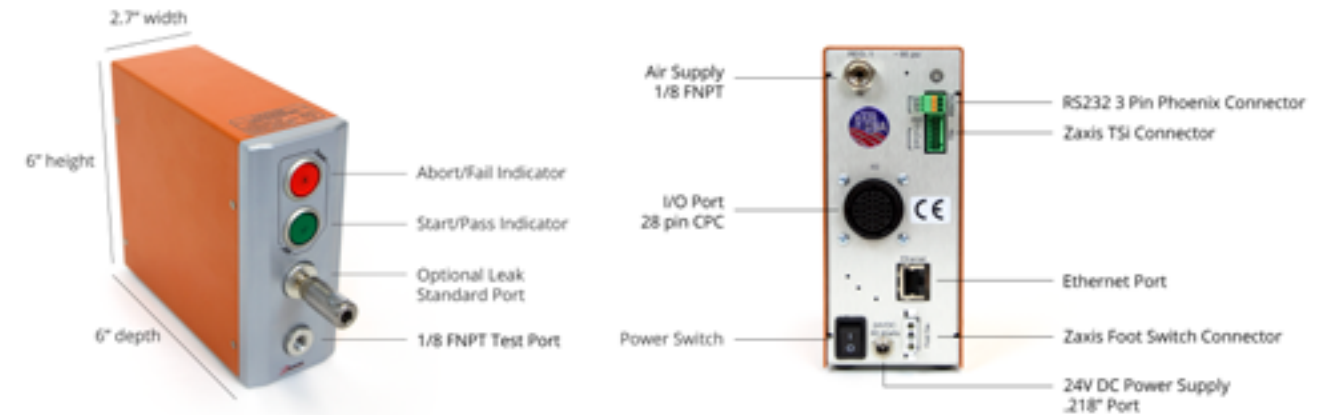


Leak Standard (see [page 53](#))

Description	Part Number
Calibrated Leak Standard NIST. Single point.	PN: 400190

iKit

The compact size and mounting orientation of the iKit enable it to be utilized in close proximity to test fixtures which is ideal for automated leak testing. By reducing the test connection volume, the test sensitivity increases, and test times can be decreased. Designed to meet today's quality assurance demands the small internal volume combined with integrated sensors and a 24-bit analog to digital converter allow Zaxis to offer a leak tester with the highest sensitivity on the market. The iKit is configured with one channel. For multiple channel applications multiple iKits can be cascaded for truly synchronous operation.



iKit Specifications

Max Pressure	500 PSI of Positive Pressure or -14.7 PSI of Vacuum
Power	24 VDC, 60 Watts
Test Port Fitting	1/8 FNPT female bulkhead
Connectivity	RS232, I/O, Ethernet TCP/IP, EtherNet/IP™ (see page 38)
Dimensions	3" wide, 6" high, 6" deep
Display	Detachable 4.3" Color Touchscreen
Regulator	External Manual or Electronic (see page 41)
Compatible Valve Types	Types 1-3 (see page 44)
Stored Programs	100 - allows you to run multiple parameters through a single port
Max # of Ports	1
Max # of Test Types	2
Compatible Test Types	PD, VD, Occ, F or PR* (see page 62)
Compatible Multi-Test Types	PV (see page 62)
Time	0.1-999.9 seconds
Resolution	0.0001 PSI

Allen Brady-Rockwell Automation Compatible

Zaxis has implemented EtherNet/IP in both our automated leak testers and our Electronic Variable Metering Pump (eVmP). EtherNet/IP is an industrial network protocol designed for real time communication between all devices, not just those connected to controllers. See [page 39](#) for more information.



EtherNet/IP™

Allen-Bradley / Rockwell Automation Compatible



Detachable Touchscreen

makes operation simple and space saving



Small Footprint

designed for close connection to the product on a production line



Small Internal Volume

increases sensitivity, decreases cycle time



Ultra-Sensitive

thanks to a 24-bit analog to digital converter

iKit Models

Test Type(s)	Communication	Part Number
Pressure Decay	PLC I/O	PN: 400030
Mass Flow	PLC I/O	PN: 400214
Vacuum Decay	PLC I/O	PN: 400204
Chamber	PLC I/O	PN: 400211
Pressure Decay & Vacuum Decay	PLC I/O	PN: 400210
Pressure Decay & Downstream Occlusion	PLC I/O	PN: 400208

Application Examples for the Zaxis iKit

THE ZAXIS IKIT WAS SPECIFICALLY DESIGNED TO MAKE AUTOMATED LEAK TESTING FASTER AND MORE ACCURATE. FOR MORE LEAK TESTING APPLICATIONS SEE [PAGE 62](#).



Full Automation

Fully automated production requires speed, accuracy, repeatability, and good communication. The Zaxis iKit is small enough to be placed right on the production line, saving volume and test time while increasing test accuracy. See [page 70](#) for more information on product production.



Mass Flow

This test measures flow rate through an object. Objects that have a flow rate that falls between the max flow value and the min flow value pass while those that do not, fail.

For more information on Mass Flow leak testing see [page 65](#).



Pressure Decay

In this test, a product is attached to a leak tester and filled with air. During the test, any decrease in air pressure over time signifies a leak.

For more information on Pressure Decay leak testing see [page 63](#).

iKit Options

GO TO [PAGE 38](#) TO SEE ALL LEAK TESTER OPTIONS INCLUDING REGULATORS, VALVES, AND MORE.



Communication (see [page 38](#))

Description	Part Number
RS232	Included in Model Build
PLC I/O	Included in Model Build
Ethernet TCP/IP	Included in Model Build
EtherNet/IP™	PN: 400185

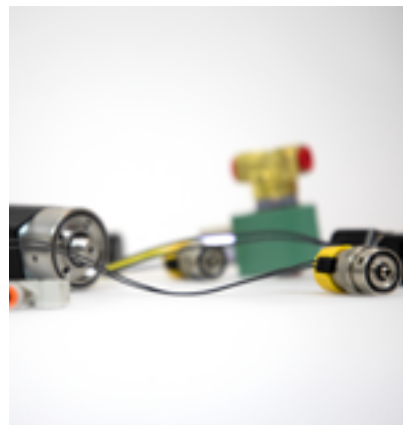


Regulators (see [page 41](#))

Description	Part Number
External Manual*	Included in Model Build
External Electronic* [§]	Included in Model Build

* The iKit can use **either** an external manual **or** an external electronic regulator.

[§] Enables the iKit to perform a Burst test.



Valves (see [page 44](#))

Description	Part Number
Type 1 - up to 107 PSI	Included in Model Build
Type 2 - up to 300 PSI	Included in Model Build
Type 3 - up to 700 PSI	Included in Model Build
Downstream Occlusion (page 46)	PN: 400184
Clamp Valve (page 46)	PN: 300229
Internal Leak Standard Valve (page 47)	Dependent on Pressure Range



zHMI* (see [page 40](#))

Description	Part Number
Zaxis software package for leak tester control and data collection via PC.	PN: 400051

*EtherNet/IP™ is required to use zHMI



Detachable TSi (see [page 49](#))

Description	Part Number
4.3" detachable color touch screen	PN: 400046
7" detachable color touch screen	PN: 300133-TSi VMP



Power (see [page 51](#))

Description	Part Number
ikit Power Supply	PN: 300631

iKit Accessories

GO TO [PAGE 49](#) TO SEE ALL LEAK TESTER ACCESSORIES. PREVENTITIVE MAINTINENCE KITS CAN BE FOUND ON [PAGE 54](#).



Custom Leak Standard (see [page 53](#))

Description	Part Number
Calibrated Leak Standard NIST. Single point.	PN: 400190

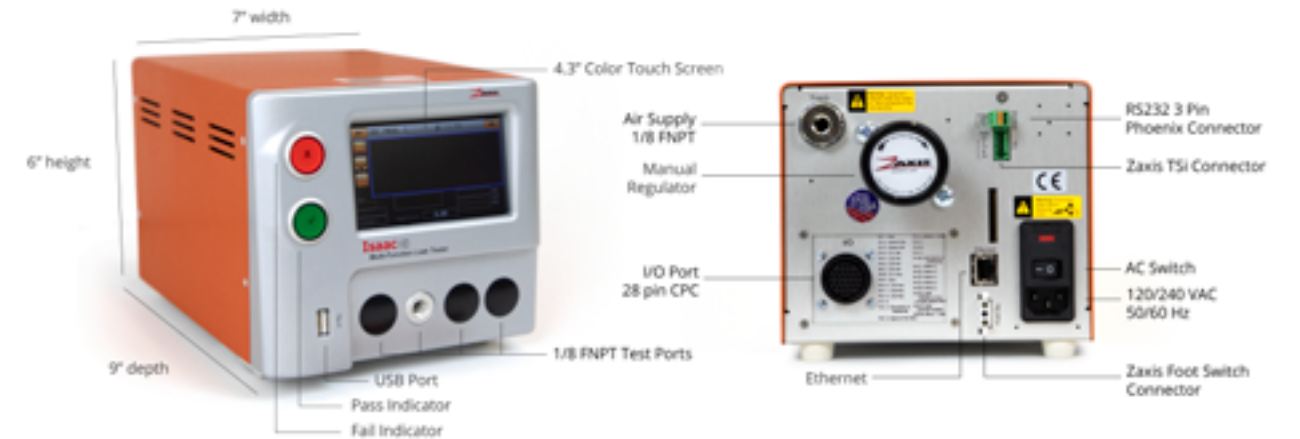
Special Project Configuration

Sometimes the best solutions are not the standard ones. Speak to one of our Sales Engineers today about your special project.

Email: sales@zaxisinc.com
Phone: 801.264.1000

Zaxis Isaac HD

We combine industry leading performance and flexibility into a single product, the Zaxis Isaac HD. The Zaxis Isaac HD offers unparalleled test stability and repeatability. It features a large full-color display that makes test setup and execution simple and fast. The Zaxis Isaac HD can meet all your air leak test needs. It can test everything from pressure decay, vacuum decay, mass flow, pressure cracking, burst pressure, chamber, and much more. It's a state-of-the-art air leak test powerhouse.



Zaxis Isaac HD Specifications

Max Pressure	1000 PSI of Positive Pressure or -14.7 PSI of Vacuum
Power	120/230 VAC, 50/60 Hz auto sensing, 100 Watts
Test Port Fitting	1/8 FNPT female bulkhead
Connectivity	USB, RS232, I/O, Ethernet TCP/IP, EtherNet/IP™ (see page 38)
Dimensions	7" wide, 6" high, 9" deep
Display	4.3" Color Touchscreen
Regulator	Built in Manual or Electronic (see page 41)
Compatible Valve Types	Types 1-4 (see page 44)
Stored Programs	100 - allows you to run multiple parameters through a single port
Max # of Ports	4
Max # of Test Types	5
Compatible Test Types	PD, VD, Occ, F, B, K, PR, or VR (see page 62)
Compatible Multi-Test Types	PV, PB, PF, PBK, PFB, PVB, PVF, PVR, PFBK, or PVFBK (see page 62)
Time	0.1-999.9 seconds
Resolution	0.0001 PSI



Multiple Test Types
up to 5 test types in one machine



EtherNet/IP™
Allen-Bradley / Rockwell Automation Compatible



Modular Design
highly configurable with wide pressure range & multiple communication options



Intuitive Interface
for simple set-up and operation



Ultra-Sensitive
thanks to a 24-bit analog to digital converter

Common Zaxis Isaac HD Models

Don't See the configuration you are looking for? Speak to a leak test specialist. +1.801.264.1000

Test Type(s)	# of Channels (sequencer)	Part Number
Pressure Decay	1	PN: 400133
	2 (sequential)	PN: 400069
	2 (concurrent)	PN: 400066
	3 (sequential)	PN: 400088
	3 (concurrent)	PN: 400087
	4 (sequential)	PN: 400099
	4 (concurrent)	PN: 400097
Vacuum Decay	1	PN: 400150
	2 (sequential)	PN: 400081
	2 (concurrent)	PN: 400082
	3 (sequential)	PN: 400045
	3 (concurrent)	PN: 400095
	4 (sequential)	PN: 400111
	4 (concurrent)	PN: 400115
Mass Flow <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400121
Backpressure Flow	1	PN: 400122
Pressure Chamber <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400141
Vacuum Chamber <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400152
Pressure & Vacuum Chamber <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400149
Pressure Decay, Burst <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400127
Pressure Decay, Burst, Crack	1	PN: 400128
Pressure Decay, Downstream Occlusion <i>For 3 or 4 channel Downstream Occlusion, see page 58.</i>	1	PN: 400140
	2	PN: xxx

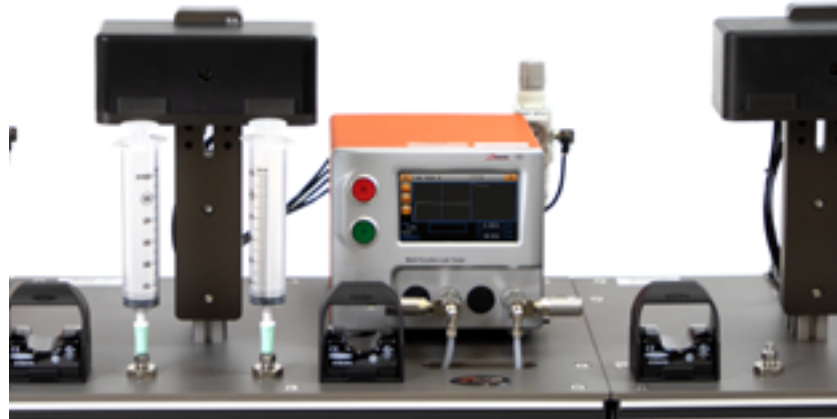
Common Zaxis Isaac HD Models - Continued

Don't See the configuration you are looking for? Speak to a leak test specialist. +1.801.264.1000

Test Type(s)	# of Channels (sequencer)	Part Number
Pressure Decay, Mass Flow	1	PN: 400134
	2 (sequential)	PN: 400070
	3 (sequential)	PN: 400089
	4 (sequential)	PN: 400100
Pressure Decay, Mass Flow, Burst <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400135
Pressure Decay, Mass Flow, Burst, Crack	1	PN: 400137
Pressure Decay, Vacuum Decay	1	PN: 400142
	2 (sequential)	PN: 400075
	2 (concurrent)	PN: 400077
	3 (sequential)	PN: 400091
	3 (concurrent)	PN: 400093
	4 (sequential)	PN: 400104
	4 (concurrent)	PN: 400106
Pressure Decay, Vacuum Decay, Mass Flow, Burst <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400147
Pressure Decay, Vacuum Decay, Mass Flow	1	PN: 400146
	2 (sequential)	PN: 400079
	3 (sequential)	PN: 400094
	4 (sequential)	PN: 400107
Pressure Decay, Vacuum Decay, Mass Flow, Burst, Crack <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400148

Application Examples for the Zaxis Isaac HD

THE ZAXIS ISAAC HD CONTAINS UP TO FOUR TEST PORTS AND CAN RUN UP TO 5 TEST TYPES IN A SINGLE MACHINE. FOR MORE LEAK TESTING APPLICATIONS SEE [PAGE 61](#).



First Article Production

Keep the interactivity of the Zaxis 7i, while saving on valuable production space with the Zaxis Isaac HD.

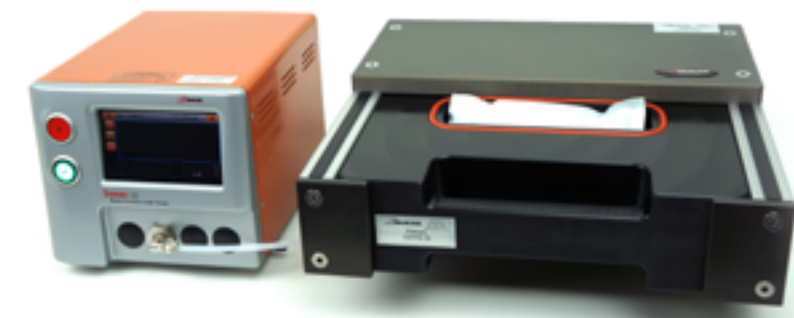
See [page 69](#) for more information on Prototyping & First Article Production.



Multi-Lumen Catheter

Zaxis has developed a fixture specifically designed to test lumens with multiple chambers.

See [page 57](#) for more information on leak testing multi-lumen catheters.



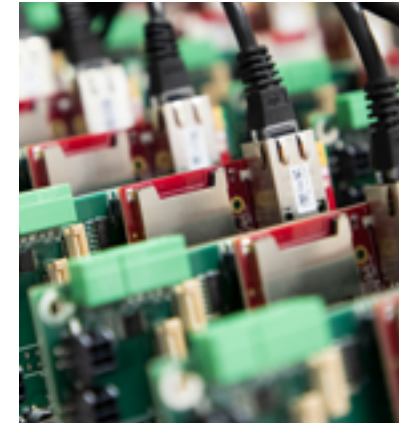
Sealed Components

Electronics such as implantable medical devices, or consumer electronics like cell phones and watches, need non-destructive tests during production to validate the manufacturing process.

Learn more about sealed component testing on [page 66](#).

Zaxis Isaac HD Options

SEE ALL LEAK TESTER OPTIONS INCLUDING REGULATORS, VALVES, AND MORE ON [PAGE 38](#).



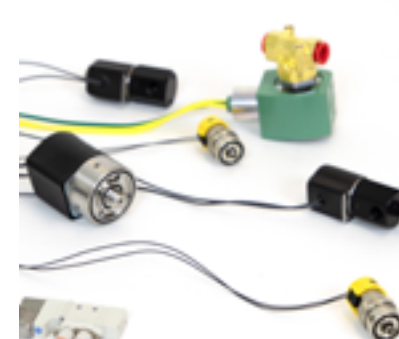
Communication (see [page 38](#))

Description	Part Number
USB	Included in Model Build
RS232	Included in Model Build
PLC I/O	PN: 300340 (sinking) PN: 300339 (sourcing)
Ethernet TCP/IP	Included in Model Build
EtherNet/IP	PN: 400185



Regulators (see [page 41](#))

Description	Part Number
Manual	Included in Model Build
2nd Manual	PN: 400244
Electronic	PN: 300369



Valves (see [page 44](#))

Description	Part Number
Type 1 - up to 107 PSI	Included in Model Build
Type 2 - up to 300 PSI	Included in Model Build
Type 3 - up to 700 PSI	Included in Model Build
Downstream Occlusion <small>(page 46)</small>	PN: 400184
Clamp Valve <small>(page 46)</small>	PN: 300229
Internal Leak Standard Valve <small>(page 47)</small>	Dependent on Pressure Range

Zaxis Isaac HD Accessories

GO TO [PAGE 49](#) TO SEE ALL LEAK TESTER ACCESSORIES. PREVENTITIVE MAINTINENCE KITS CAN BE FOUND ON [PAGE 54](#).



Custom Leak Standard (see [page 53](#))

Description	Part Number
Internal Leak Standard Valve <small>(page 47)</small>	Dependent on Pressure Range
Calibrated Leak Standard NIST. Single point.	PN: 400190



zHMI (see [page 40](#))

Description	Part Number
Zaxis software package for leak tester control and data collection via PC.	PN: 400051

Zaxis 7i

The most sizable leak tester in the Zaxis family is the 7i. Featuring a broad 7-inch touch screen for ease of use, a larger internal capacity, and USB port. The Zaxis 7i is the big brother of our leak tester family. Its internal capacity allows for larger valves, resulting in faster test times for applications with larger test volumes.



Speak to a Sales Representative

For questions about leak testers or test types please contact us at sales@zaxisinc.com or 801.264.1000.



Multiple Test Types
up to 5 test types in one machine



EtherNet/IP™
Allen-Bradley / Rockwell Automation Compatible



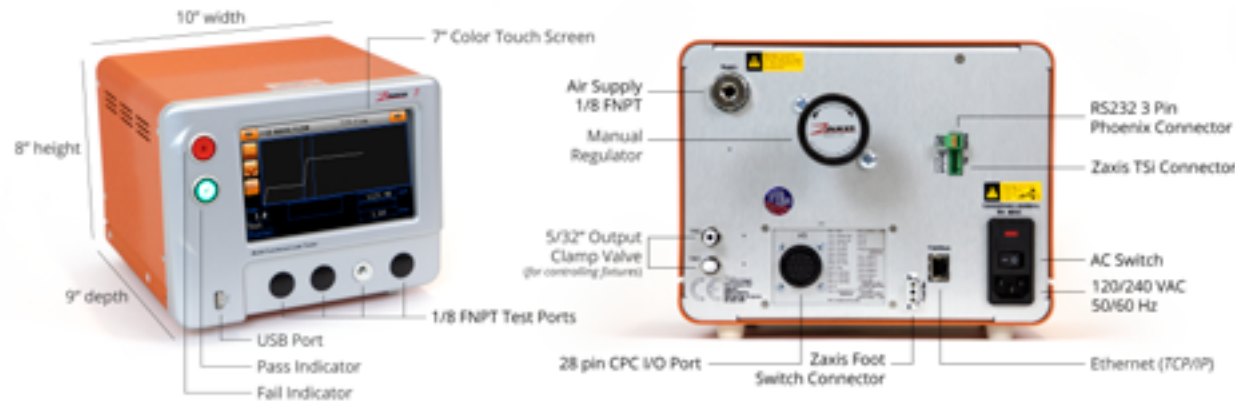
Modular Design
highly configurable with wide pressure range & multiple communication options



Intuitive Interface
for simple set-up and operation



Large Touchscreen
for simple set-up and operation



Zaxis 7i Specifications

Max Pressure	1000 PSI of Positive Pressure or -14.7 PSI of Vacuum
Power	120/230 VAC, 50/60 Hz auto sensing, 100 Watts
Test Port Fitting	1/8 FNPT female bulkhead
Connectivity	USB, RS232, I/O, Ethernet TCP/IP, EtherNet/IP™
Dimensions	10" wide, 8" high, 9" deep
Display	7" Color Touchscreen
Regulator	Built in Manual or Electronic
Compatible Valve Types	Types 1-4
Stored Programs	100 - allows you to run multiple parameters through a single port
Max # of Ports	4
Max # of Test Types	5
Compatible Test Types	PD, VD, Occ, F, B, K, PR, or VR
Compatible Multi-Test Types	PV, PB, PF, PBK, PFB, PVB, PVF, PVR, PFBK, or PVFBK
Time	0.1-999.9 seconds
Resolution	0.0001 PSI

Validated Results from Concept to Production

An easy-to-use interface and a large touchscreen makes the **Zaxis 7i** excellent for Research & Development. The internal components of the Zaxis 7i are the same as those used in the Zaxis Isaac HD as well as the Zaxis iKit. All tests validated with the Zaxis 7i in R&D can be run to the same specifications with the same results in First Article production, with the Zaxis Isaac HD, and in fully automated production with the Zaxis iKit. See [page 70](#) for more information.

Common Zaxis 7i Models

Don't See the configuration you are looking for? Speak to a leak test specialist. +1.801.264.1000

Test Type(s)	# of Channels (sequencer)	Part Number
Pressure Decay	1	PN: 400163
	2 (sequential)	PN: 400154
	2 (concurrent)	PN: 400153
	3 (sequential)	PN: 400416
	3 (concurrent)	PN: 400157
	4 (concurrent)	PN: 400158
Vacuum Decay	1	PN: 400145
	2 (sequential)	PN: 400417
	2 (concurrent)	PN: 400418
	3 (sequential)	PN: 400419
	3 (concurrent)	PN: 400420
	4 (concurrent)	PN: 400422
Mass Flow <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400031
Backpressure Flow	1	PN: 400032
Pressure Chamber <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400033
Vacuum Chamber <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400168
Pressure & Vacuum Chamber <i>Want a multi-channel Chamber tester? Speak to a specialist.</i>	1	PN: 400055
Pressure Decay, Burst <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400162
Pressure Decay, Burst, Crack	1	PN: 400052
Pressure Decay, Downstream Occlusion <i>For 3 or 4 channel Downstream Occlusion</i>	1	PN: 400423
	2	PN: 400424

Common Zaxis 7i Models - Continued

Don't See the configuration you are looking for? Speak to a leak test specialist. +1.801.264.1000

Test Type(s)	# of Channels (sequencer)	Part Number
Pressure Decay, Mass Flow	1	PN: 400164
	2 (sequential)	PN: 400155
	3 (sequential)	PN: 400425
	4 (sequential)	PN: 400159
Pressure Decay, Mass Flow, Burst <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400426
Pressure Decay, Mass Flow, Burst, Crack	1	PN: 400427
Pressure Decay, Vacuum Decay	1	PN: 400165
	2 (sequential)	PN: 400060
	2 (concurrent)	PN: 400428
	3 (sequential)	PN: 400429
	3 (concurrent)	PN: 400430
	4 (sequential)	PN: 400431
Pressure Decay, Vacuum Decay, Mass Flow, Burst <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400143
Pressure Decay, Vacuum Decay, Mass Flow	1	PN: 400166
	2 (sequential)	PN: 400156
	3 (sequential)	PN: 400432
	4 (sequential)	PN: 400362
Pressure Decay, Vacuum Decay, Mass Flow, Burst, Crack <i>Want a multi-channel Burst tester? Speak to a specialist.</i>	1	PN: 400296

Application Examples for the Zaxis 7i

THE ZAXIS 7i IS THE MOST ROBUST MACHINE IN THE ZAXIS LEAK TESTER FAMILY. FOR MORE LEAK TESTING APPLICATIONS SEE PAGE 61.



Multi-Test

Frequently, assembled parts require multiple test types for quality validation. A simple IV set could use a Pressure Decay test to make sure seals don't leak, an Occlusion test to ensure no pathway is obstructed or restricted, a crack test for any integrated valves, and so on.

See [page 72](#) for more information on Multi-Test combinations.



R&D

An easy-to-use interface and large touchscreen make the Zaxis 7i excellent for Research & Development.

See [page 69](#) for more information on leak testing during Research and Development.



Ventilator Testing

The spacious internal capacity of the Zaxis 7i can house larger valves, which are necessary to test larger volumes like those found in ventilator tubing and assemblies.

[Click here](#) for more information on testing ventilator tubing and assemblies.

Zaxis 7i Options

SEE ALL LEAK TESTER OPTIONS INCLUDING REGULATOR, VALVES AND MORE ON [PAGE 38](#).



Communication (see [page 38](#))

Description	Part Number
USB	Included in Model Build
RS232	Included in Model Build
PLC I/O	PN: 300340 (sinking) PN: 300339 (sourcing)
Ethernet TCP/IP	Included in Model Build
EtherNet/IP™	PN: 400185



Regulators (see [page 41](#))

Description	Part Number
Manual	Included in Model Build
2nd Manual	PN: 400244
Electronic	PN: 300369



Channel Sequencer (see [page 47](#))

Description	Part Number
Concurrent	Included in Model Build
Sequential	Included in Model Build



Nema Rated 4X Enclosure (see [page 48](#))

Description	Part Number
Offers the same functionality as the Zaxis Isaac HD or Zaxis 7i leak tester in a larger sealed enclosure.	PN: 400308



Valves (see [page 44](#))

Description	Part Number
Type 1 - up to 107 PSI	Included in Model Build
Type 2 - up to 300 PSI	Included in Model Build
Type 3 - up to 700 PSI	Included in Model Build
Downstream Occlusion (page 46)	PN: 400184
Clamp Valve (page 46)	PN: 300229
Internal Leak Standard Valve (page 47)	Dependent on Pressure Range

Special Project Configuration

Sometimes the best solutions are not the standard ones. Speak to one of our Sales Engineers today about your special project.

Email: sales@zaxisinc.com
Phone: 801.264.1000

Options

Options refer to the specific build of a leak tester.

Communication



USB

Model	Availability	Part Number
Zaxis iKit	N/A	
Zaxis PD, Zaxis Isaac HD, Zaxis 7i	Standard	Included in Model Build

The Isaac HD, Zaxis PD and Zaxis 7i come with a USB port which can be used for data logging and program saving. With a USB flash drive plugged in, and USB data logging enabled, you can save all test output data to an excel spreadsheet. This includes information such as date, time, program name, program number, decay rates, flow rates and pass/fail results. If you would like to back up your program setup or transfer a program to another tester, you can save and load programs with a USB flash drive.



RS-232

Model	Availability	Part Number
Zaxis PD	N/A	
Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	Standard	Included in Model Build

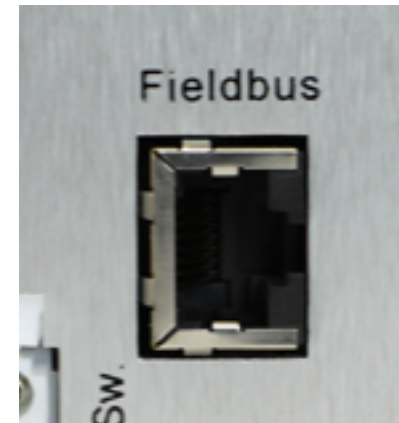
RS-232 is a serial communication system used to transmit data between data-terminal equipment and data-circuit-terminating equipment (such as a modem). Introduced in 1960 and still widely used today due to its simplicity and past pervasiveness in industrial settings.



PLC I/O

Model	Availability	Part Number
Zaxis PD, Zaxis iKit*	Standard	Included in Model Build
Zaxis HD, Zaxis 7i	Optional Extra	PN: 300340 (sinking)
Zaxis HD, Zaxis 7i	Optional Extra	PN: 300339 (sourcing)

Programmable logic controllers that can range from small devices with few input/outputs (I/O) to large modular networks with thousands of I/O.



Ethernet TCP/IP

Model	Availability	Part Number
Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	Standard	Included in Model Build

Transmission Control Protocol and Internet Protocol (TCP/IP) are a set of communication protocols used on the internet and similar computer networks through ethernet cables.



EtherNet/IP™

Model	Availability	Part Number
Zaxis PD	N/A	
Zaxis iKit*, Zaxis Isaac HD, Zaxis 7i	Optional Extra	PN: 400185

EtherNet/IP™ is an industrial network protocol designed for real time communication between all devices, not just those connected to controllers. Often on factory floors, electronics have to withstand extreme temperatures, vibrations, or particulate matter. The robust hardware, by itself, is optimal for a factory environment. The Ethernet cable also saves time and frustration during set up. I/O network configuration can be daunting and time consuming as it requires the individual stripping and configuring of each wire whereas an Ethernet cable is simply plugged in.

zHMI

REMOTE MONITORING & CONFIGURATION OF ZAXIS DEVICES

The Zaxis Human Machine Interface (zHMI) software can monitor up to 30 devices at once. The user-friendly interface makes operations such as start/stop or changing device parameters simple for individual devices or updating every device connected at once. The software can display live production statistics and save production history. The zHMI has a simple backup and restore function that will save important device settings.

[Click Here](#) for more information and a **walkthrough video.**

- Data archiving limited by disk space only, typically 10 Gb.
- Displays real time data.
- Full turnkey solution with one click discovery of new leak testers.
- Easy data export and import to SQL databases, Excel, etc.
- Easy setup from one to many leak testers.
- Simple backup and restore of leak tester parameters.
- Comparison of all leak tester parameters.
- Different user permission levels.
- Simple calibration



Any Time Anywhere



Change Settings



Collect Data



Live Production Statistics

Regulators



Manual Regulator

Model	Availability	Part Number
Zaxis PD	N/A	
Zaxis iKit	Standard (external)	Included in Model Build
Zaxis Isaac HD, Zaxis 7i	Standard	Included in Model Build

Regulators make sure your air supply is at a correct and consistent pressure for your tests. Manual regulators maintain a single pressure setting and are highly stable. Manual regulators are available in several pressure ranges.



Second Manual Regulator

Model	Availability	Part Number
Zaxis PD, Zaxis iKit	N/A	
Zaxis Isaac HD, Zaxis 7i	Optional Extra	PN: 400244

A second manual regulator can be installed, including a regulator selection valve. The second regulator will provide an alternative pressure range that can be introduced to the test circuit through the regulator selection valve.



Electronic Regulator

Model	Availability	Part Number
Zaxis PD	Standard	Included in Model Build
Zaxis PD, Zaxis Isaac HD, Zaxis 7i	Standard	Included in Model Build

With an electronic regulator, when a test pressure is changed the regulator automatically adjusts to compensate. This is particularly useful when an application needs several tests at different pressures, or when multiple parts or applications will be tested with the same unit.



High Bleed

Model	Availability	Part Number
Zaxis PD	N/A	
Zaxis iKit	Optional Extra	Dependent on Configuration
Zaxis Isaac HD	Optional Extra	Dependent on Configuration
Zaxis 7i	Optional Extra	Dependent on Configuration

The high bleed option includes an extra valve that is open to atmosphere. This allows the electronic regulator to produce a signal higher than test pressure, while “bleeding off” most of the air. This is used to achieve an ultra-low-test pressure.

Sensors

NOT SURE WHICH SENSOR BEST SUITS YOUR APPLICATION? SPEAK TO ONE OF OUR LEAK TEST SPECIALISTS.
EMAIL: SALES@ZAXISINC.COM OR CALL: 801-264-1000



Sensor Calibration

We calibrate every leak tester we produce. Leak testers should be calibrated once a year.



What is

Full Scale Accuracy?

Full scale refers to the entire range of the sensor, not just the range of test being run. Example: if a test is running at 180 psi and the sensor in use is rated for 200 positive psi and 14.7 negative psi, then full scale refers to 214.7 psi, not the 180 psi test pressure.



Trusted Sensors

The sensors listed on the following page are some of our most rigorously tested and trusted sensors. There may be more delicate sensor options available, but these are the ones that we trust to be repeatable, test after test in a manufacturing setting.

Pressure Only Sensors

Pressure Range	Model Compatibility	Part Number
3 PSI Positive Pressure	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300016
5 PSI Positive Pressure <i>Differential</i>	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300268
500 PSI Positive Pressure	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300195
1000 PSI Positive Pressure	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300196

Pressure & Vacuum Sensors

Pressure Range	Model Compatibility	Part Number
15 PSI of Positive Pressure & 14.7 of Negative Pressure	Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300203
30 PSI of Positive Pressure & 14.7 of Negative Pressure	Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300204
100 PSI of Positive Pressure & 14.7 of Negative Pressure	Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300205
200 PSI of Positive Pressure & 14.7 of Negative Pressure	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300246
300 PSI of Positive Pressure & 14.7 of Negative Pressure	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300255

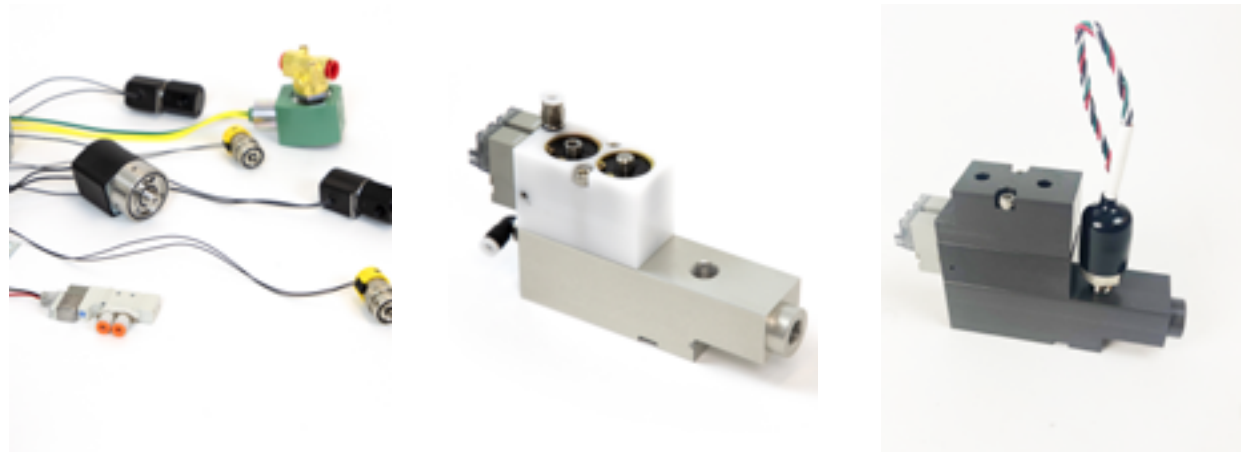
Flow Sensors

Pressure Range	Model Compatibility	Part Number
1000 sccm (68 PSI)	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300336
6000 sccm (408 PSI)	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300337
M-Series	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	Dependent on Pressure Range
Whisper	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	Dependent on Pressure Range
Flow Control	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	Dependent on Pressure Range

Don't See the sensor range you are looking for? Speak to a leak test specialist for more options. +1.801.264.1000

Valves

NOT SURE WHICH VALVES BEST SUITS YOUR APPLICATION? SPEAK TO ONE OF OUR LEAK TEST SPECIALISTS.
EMAIL: SALES@ZAXISINC.COM OR CALL: 801-264-1000



Zaxis carries a wide variety of valves to support multiple applications. Most notable are our proprietary Type 2 valves, designed for sensitivity, speed, and thermal stability. Zaxis valves and valve manifolds are aseptic and made with the highest quality materials, perfect for use in testing medical products. The internal test volume held within the test manifold is as small as possible, at less than 1 cubic centimeter. Pilot air actuates the Type 2 valves, which eliminates much of the heat transfer created by standard solenoid/poppet valves. Excess heat transferred into a small sensitive part can adversely affect the test pressure, causing lower test sensitivity and longer test times.



Air Actuated
(Type 2 valves only)



Low Wattage
Less than 1 watt



Aseptic
highest quality materials



Low Internal Volume
Less than 1cc



High Quality Materials

Valve Ranges

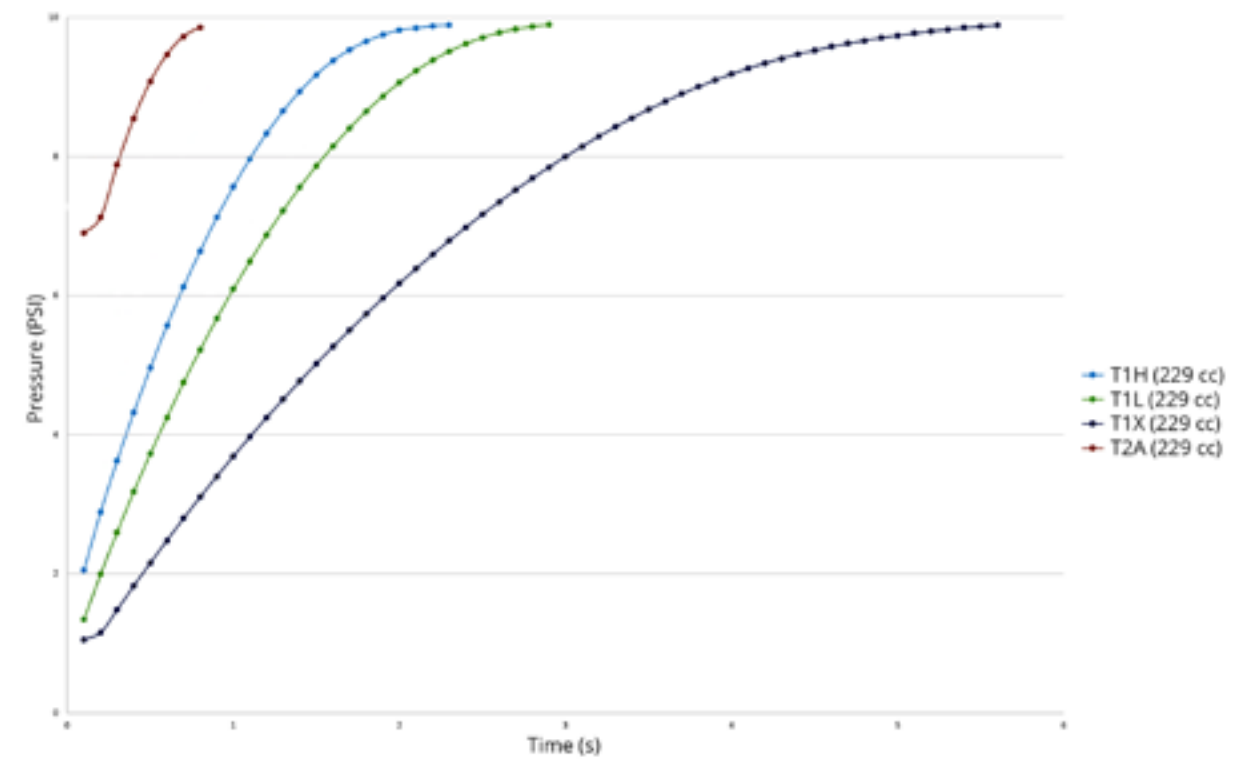
Zaxis uses the highest quality thermally isolated aseptic valves, excellent for use in clean room applications found in the medical field. Knowing your test specification such as test pressure, test volume, and desired speed/flow rate, will help determine which valves to use for your application.

The graph below illustrates the fill time difference between the Type 1H, Type 1L, Type 1X, and Type 2A valves each filling 92 cc of volume and 229 cc of volume at 10 psi.

Valve Types

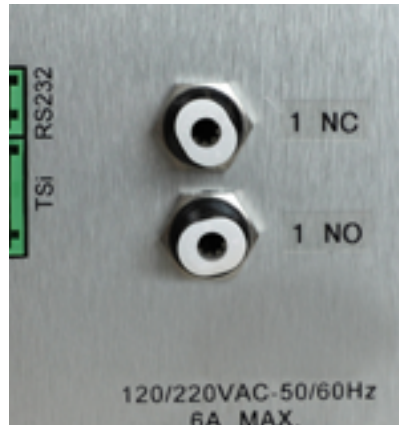
Valve Type	Max PSI	Flow: Liters Per Minute at 10 psi*	Compatible Testers
Type 1	Up to 100 PSI	7.4 SLPM	Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i
Type 2	Up to 300 PSI	25 SLPM	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i
Type 2 B	Up to 150 PSI	55 SLPM	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i
Type 3	Up to 750 PSI	4 SLPM	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i
Type 4	Up to 900 PSI	13.4 SLPM	Zaxis iKit, Zaxis Isaac HD, Zaxis 7i
High Flow A	30 PSI		Zaxis Isaac HD, Zaxis 7i

* Flow readings determined off a specific test set up, readings may vary.



We will configure your tester based on your parameters.

Our experienced engineers will use your specifications to configure your tester's valves and sensors to best fit your needs. Once your tester is configured, we can create a service kit for your test circuit configuration. For more information on service kits and recommended spare parts, see **page 54**.



Clamp Valve

Model Compatibility	Part Number
Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	PN: 300229

A clamp valve is an internal seal/pinch valve that can activate external pneumatic devices. To operate a fixture, a Clamp Valve must be installed on your leak tester. These valves consist of NO (Normally Open) and NC (Normally Closed) air output ports which activate/deactivate the attached fixture.



Downstream Occlusion Release

Model Compatibility	Part Number
Zaxis Isaac HD, Zaxis 7i	Dependent on Configuration

Downstream occlusion release valves are necessary to run a thorough Occlusion test. See [page 58](#) for more information about an extended chassis for downstream occlusion release valves. To learn more about occlusion testing, see [page 64](#).



Dual Port Fill

Model Compatibility	Part Number
Zaxis Isaac HD, Zaxis 7i	PN: 300376

Fill from two ports at the same time. Ideal for applications such as check valves to assure both sides of the application are functioning as intended.



Fast Fill

Model Compatibility	Part Number
Zaxis Isaac HD, Zaxis 7i	PN: 400174

This internal valve is added for large fill volumes. It contains a larger orifice than the test circuit valves. The larger valve will fill the part volume to 90+% of test pressure. The large valve will then shut off and the test circuit valves will complete the part fill to test pressure.



Internal Leak Standard Valve

Model Compatibility	Part Number
Zaxis PD, Zaxis iKit, Zaxis Isaac HD, Zaxis 7i	Dependent on Pressure Range

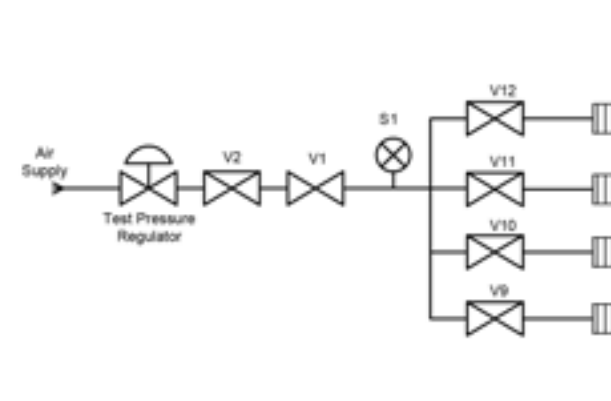
An extra valve is added to the test circuit. This valve is normally closed. When activated this valve will send the test pressure down as secondary path to a leak standard (see [page 53](#)). The leak standard will challenge the tester's accuracy. The internal leak standard valve allows you to run this challenge without plugging a leak standard into the main test port.

Multi-Channel Testing

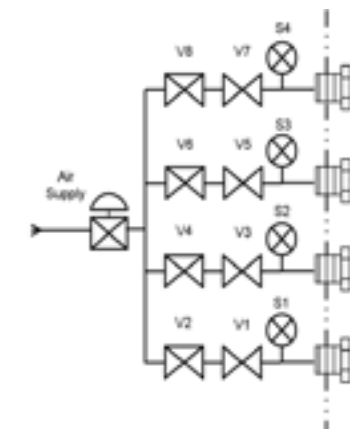
AVAILABLE FOR THE [ZAXIS ISAAC HD](#) AND [ZAXIS 7i](#)

Concurrent testers run a single test on multiple channel outputs. Each channel has an independent set of test pneumatics and pressure sensors. Pressure and Vacuum Decay can be used on concurrent models.

Sequential testers have a single sensor that is routed to test through one of four channel outputs, testing only one output at a time. The channels that are idle during test are naturally vented to atmosphere, allowing for cross-wall or inter-lumen inspection. All test types except Crack can be ran sequentially.



Sequential



Concurrent

Enclosures



Nema Rated 4x Enclosure

A Zaxis multi-tester built into a NEMA 13 enclosure offers the same functionality as the Zaxis Isaac HD or Zaxis 7i leak tester in a larger sealed enclosure. Excellent for use in large industrial areas, the orientation of the NEMA enclosure's fittings can be customized to suit your environment.

- Tightly sealed enclosure to help reduce dust accumulation in warehouse environments
- Several size options
- Large internal capacity allowing for larger valves

Special Project Configuration

Sometimes the best solutions are not the standard ones. Speak to one of our Sales Engineers today about your special project.

Email: sales@zaxisinc.com

Phone: 801.264.1000

Accessories

Accessories refer to add-ons that can accompany a leak tester.

Power & Communication Accessories

NOT SURE WHAT LEAK TESTER ACCESSORIES YOU NEED? SPEAK TO ONE OF OUR LEAK TEST SPECIALISTS.

EMAIL: SERVICE@ZAXISINC.COM OR CALL: 801-264-1000



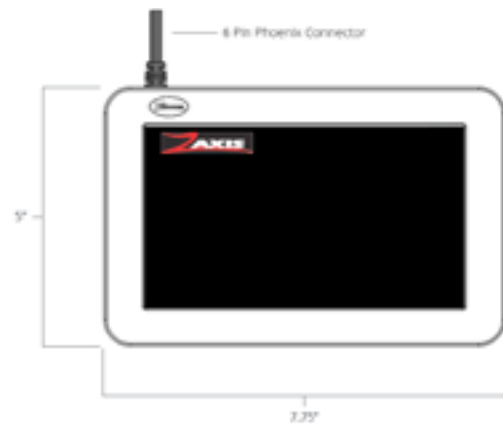
Detachable Touchscreen Interface

PN: 400046

The 4.3" HD Touch Screen is designed to communicate, program, and teach the Zaxis iKit over RS232, and includes the communication cable.

Specifications

Dimensions	4.75" wide, 5" high, 1" deep
Weight	1.4lbs
Part Name	Tsi-Vc
Connector	Connect directly to tester via 8 Pin RS485 cable.



Detachable Touchscreen Interface - 7"

Model Compatibility	Part Number
Zaxis iKit	PN: 400031

Includes communication cable with 6 Pin Phoenix connector.

Cable - Touchscreen Interface Connection



Dimensions	Part Number
3 Ft. Length	PN: 300053

The 6 Pin Phoenix connector attaches to the back of the Zaxis iKit.

Cable - USB to RS232



Dimensions	Part Number
6 Ft. Length	PN: 300116

A USB connector on one side with a 3 pin Phoenix connector on the other.

Cable - I/O



Dimensions	Part Number
16 Ft. Length	PN: 300188

I/O cable contains 25 connectors (22 AWG, 2 Ground).

See page 35 of the [Zaxis Leak Tester Manual](#) for I/O connector pin-outs.



External Power Supply

Model Compatibility	Part Number
Zaxis PD, Zaxis iKit	PN: 300631

24-Volt Includes communication cable.



Power Cable

Model Compatibility	Part Number
Zaxis PD, Zaxis Isaac HD, Zaxis 7i	PN: 100961

Power Cable, MENA 5-15p to IEC 60320/C13, with a length of 7'6". All country power cables available.



Foot Switch

Model Compatibility	Part Number
Zaxis PD, Zaxis Isaac HD, Zaxis 7i	PN: 100320

An optional switch that connects to the back of Isaac that the operator can use to start a test cycle. This switch has the same function as the START button on the front of the Isaac.



Bar Code Reader

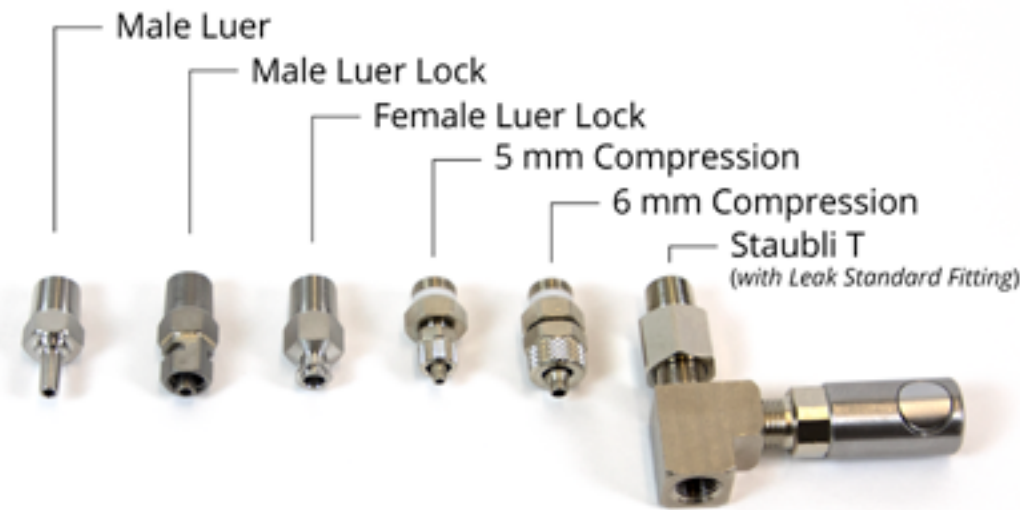
Model Compatibility	Part Number
Zaxis Isaac HD, Zaxis 7i	PN: 100988

Motion-sensing technology detects the natural actions of the user, automatically switching the scanner into the desired scanning mode. Includes 2D Imager, USB/RS-232/Keyboard wedge multiple interface and all-in-one permanent base.

Hardware

NOT SURE WHICH FITTINGS BEST SUITS YOUR APPLICATION? SPEAK TO ONE OF OUR LEAK TEST SPECIALISTS.
 EMAIL: SALES@ZAXISINC.COM OR CALL: 801-264-1000

Fittings



Fitting Type	Description	Part Number
Male Luer	1/8" NPT Male to male luer taper fitting. 316SS	PN: 100057
Male Luer Lock	1/8" NPT Male to male luer lock fitting. 316SS	PN: 100261
Female Luer Lock	1/8" NPT male to female Luer lock fitting. 316SS	PN: 100056
Compression, 5mm Tube	Compatible with 5 mm tubing, M5 male thread, 1/8" NPT/G 1/8 male thread to 5mm tube. Nickle-plated brass. Other sizes availed upon request.	PN: 100199
Compression, 6mm tube	Compatible with 6 mm tubing, 1/8" NPT/G 1/8, 1/4 NPT/G 1/4 male thread to 6mm tube. Nickle-plated brass. Other sizes availed upon request.	PN: 100200
Staubli - Male	1/8" NPT male to quick connect male fitting. Used on Zaxis leak standards to quickly introduce a calibrated leak into the test circuit. Full flow plug. 316SS	PN: 100159
Staubli - Female	1/8" NPT female to quick connect female fitting. Used on Zaxis leak standards to quickly introduce a calibrated leak into the test circuit. Full flow plug. 316SS	PN: 101444
Staubli T-Set	Tee fitting, female socket connector, male plug. Used on Zaxis leak standards to quickly introduce a calibrated leak into the test circuit. Full flow plug. 316SS	PN: 300211

The port on the Zaxis PD is a female 1/4 NPT. The port on the Zaxis iKit, Zaxis Isaac HD, and Zaxis 7i is a female 1/8 NPT. Any compatible fitting may be used. The most common fittings are the Male Luer, Male Luer Lock, Female Luer Lock, 5 mm compression, 6 mm compression and the Staubli T. Please contact a sales representative with any fitting compatibility questions.

Custom Leak Standard

Dimensions	Part Number
4" long, 0.5" diameter	PN: 400190



Calibrated Leak Standard NIST. Single point.

Accuracy - +/- 0.05 SCCM under 5 SCCM, or +/- 1% of calibrated point over 5 SCCM

Range - 0.1 SCCM to 5 SLPM

Fitting - Standard Staubli quick disconnect. Other fittings available upon request.

iKit Mounting Bracket

Dimensions	Part Number
2 7/16" wide by 8" long	PN: 200389
2 7/16" wide by 13" long	PN: 200597



For easy mounting on a production line. Designed to attach to 1" x 2" 80/20 extrusion.

Mist Separator

Description	Part Number
Mist Separator Only	PN: 101548
Regulator/Mist Separator Combo	PN: 100852



Cleans the air going into the tester. Required for Vacuum testing.

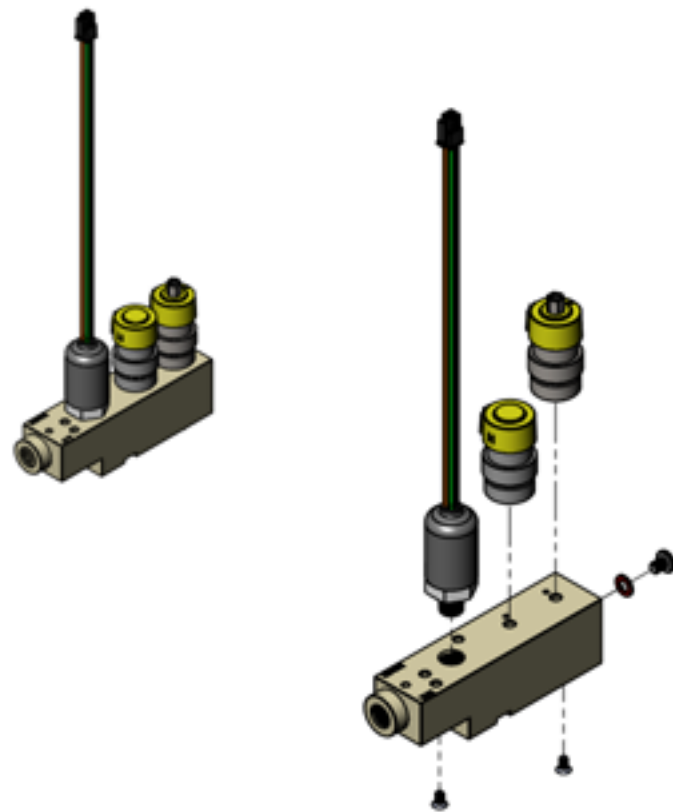
Speak to a Sales Representative

For questions about leak testers or test types please contact us at sales@zaxisinc.com or 801.264.1000.

Service Kit - Recommended Spare Parts

KEEP YOUR PRODUCTION LINE RUNNING BY KEEPING A SERVICE KIT ON HAND

Zaxis leak testers are built to last. Over the years, rigorous operation, dirty supply air, moisture ingress, stripped test port threads, or any number of mishaps may occur. A leak tester service kit is assembled to match the specifications of your leak tester. Order one with the original purchase to ensure your production line does not face the extended downtime that can occur when sending a tester in for repair. Or, only order a service kit should your tester need it.



Service Kit Includes

- Manifold** – Aseptic and made with the highest quality materials. Holds the internal test volume which is less than 1 cubic centimeter. Contains test port with 1/8" NPT female thread.
- 1 **Sensor** – See [page 42](#).
- 2 **Valves** – See [page 44](#).

Tech Note – Each Service Kit should have a correlating tester. Service Kit configuration is based on the serial number of the correlated tester.

Tools Required



Phillips Screwdriver



Spanner Wrench



Pin Extractor



Pin Crimper



Loctite 243

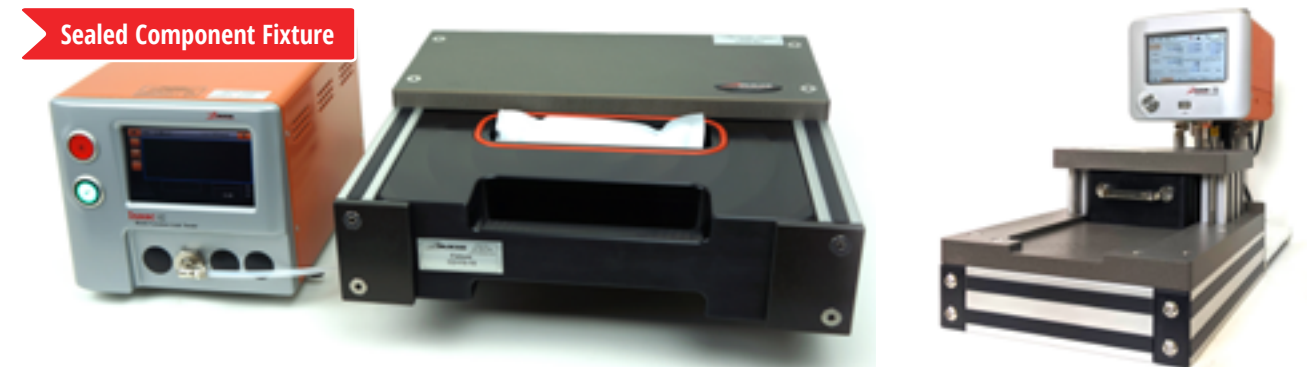
Fixtures

Our specialized engineering team includes mechanical engineers, electrical engineers, software engineers, machinists, and assemblers.

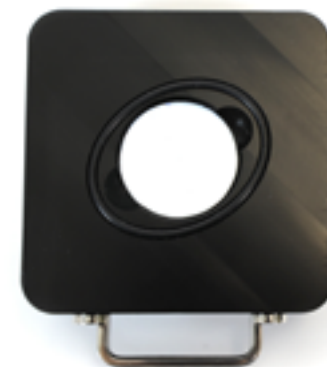
Chamber/Drawer

Specially designed for chamber tests, the Zaxis drawer fixtures come in a variety of sizes to fit your application. Each drawer is built in house and specific to the dimensions of the product being tested. We aim for a snug fit with very little room/volume around your product to achieve the most sensitive test results.

See [page 66](#) for more information on Chamber tests and Sealed Component leak testing.



Sealed Component Fixture



- Custom Nests** – Every drawer/nest is tailor made to your product specifications.
- High Test Sensitivity** – The more exact the part fits in the nest, the lower the excess volume which leads to higher test sensitivity.
- Speed** – Reducing test volume also decreases test time.

Camtrak IV Set Leak Tester

This fixture was designed to remove a cap covering both a spike and luer end of an IV tube set, perform a leak and occlusion test, and then re-cap both ends. The test sequence is started with the operator loading the spike into the left nest and luer end in the right nest and lowering the safety lid to the closed position. A magnetic switch located on the door will initiate movement. If the safety door is opened at any time the test will abort and the seals will retract to the home position. If caps are being held, they will be ejected. If the emergency stop is pressed all power and air supplies will be shut off internally to the system, no movement will take place. [Click Here to watch a video!](#)



The removal of the caps will be performed by pneumatic seals. Due to the length of the spike end, the seals must travel to the base of the spike, pull away to a sufficient distance and switch in a seal for the leak test portion of the test. These movements and seals are controlled by the Fixturing Timers. The direction 'In' will be towards the part, the direction 'Out' will be away from the part.

Timer descriptions:

Slide In/Out: The amount of time allowed to drive the seal head In or Out, when the timer expires the FasTest Seal timer is activated.

Slide Up/Down: The amount of time for the seal head assembly to be raised into test elevation or lowered to the cap elevation. (Up is the test position Down is the cap position).

FasTest Seal: The amount of time the seal is activated prior to the seal head retracting using the slide in/out time.

FasTest Unseal: The amount of time allowed for relaxing the seals from the test or capping positions.

Tech Note: The use of flow controls on the pneumatic output tubes will affect the speed of the actuators. With less flow control the actuators will speed up. Excess actuation speed will lessen the life of the actuator.

Multi-Lumen Catheter

Zaxis created a multi-lumen sealing fixture, which allowed for each line to be tested independently and which worked in tandem with a four-channel multi-purpose leak tester to meet the customer's complex challenge. Our complete testing solution provides automatic sealing of the standard luers that entered the leak tester, along with blocking the appropriate points for leak testing and then opening them for flow testing. Whether you need solo vacuum decay leak testing or a more complex combination of tests, Zaxis can design the right solution for your application. Zaxis is dedicated to providing you a comprehensive solution for your leak testing needs. Please reach out to us or download some literature to learn more about our applications and products.



Multi-Lumen Catheter - Vacuum Decay Leak Testing with 4 Channels

Leak testing multi-lumen catheters can be quite expensive. Zaxis minimizes this expense by providing you with the Zaxis Isaac HD. The Zaxis Isaac HD is a four-channel sequential or concurrent leak tester designed for multi-lumen catheter manufacturers. The Zaxis Isaac HD, four channel sequential tester enables you to test multiple ports sequentially thereby negating the need for multiple leak testers bringing you significant cost savings!



The Zaxis Isaac HD or Zaxis 7i four channel sequential testers is ideal for evaluating multi-lumen catheters. The tester can check any product that has multiple parts or multiple passages (up to four) and will test them in sequence. If a catheter with fewer lumens needs to be tested, Zaxis models are available in two and three channels enabling you to maximize your resources more effectively.

Pneumatic Quick Connect

Instant pneumatic connections for smooth or threaded external tubes of various sizes. Optional medical grade materials including FDA approved neoprene seals and clear anodized aluminum construction are available. For questions or quotes on quick connect pneumatic sealers, please speak to a sales representative.



Radial Seal Bracket

Specially designed to hold the quick connect pneumatic sealers. These fixtures are made in-house to custom fit a pneumatic sealer of any size, offering safety and stability for your environment. Bracketts are made to hold one or more radial sealers.



Extended Chassis (Downstream Release)

For proper operation of an Occlusion test, a downstream release is required. The Zaxis iKit, Isaac HD, and 7i allow for these release valves to be built in up to two ports. If more test and release ports are required Zaxis has designed an integrated extended chassis.



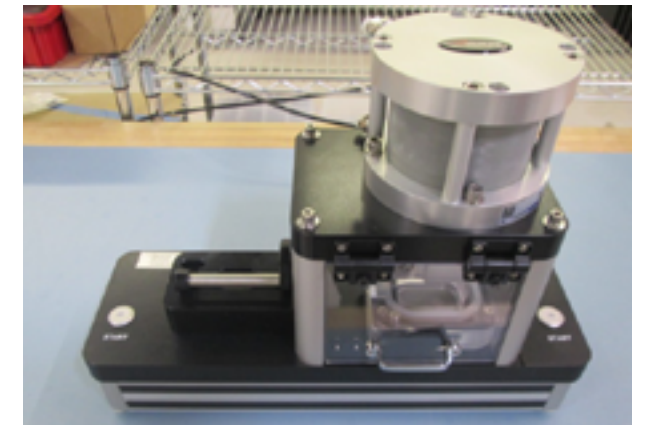
See [page 64](#) for more information about Occlusion testing.

Clam Shell

Catheters with specialty ends such as balloons, foam tips, or funnels often present a sealing issue when leak testing. The Zaxis Clam Shell fixture will seal off the specialty end with a custom nest. A full seal is crucial, and the Zaxis Clam Shell fixture is custom molded around your product's specific dimensions.

Once the fixture is closed, a [pressure decay](#) test is initiated. Following the [pressure decay](#) test, the fixture opens to atmosphere and initiates a [flow test](#). This validates the flow rate and checks for occlusions in the part.

Other applications that have been tested with a clam shell fixture are numerous and include any product that needs a pressure decay test and contains an appendage, such as a transducer.



Special Project Configuration

Sometimes the best solutions are not the standard ones. Speak to one of our Sales Engineers today about your special project.

Email: sales@zaxisinc.com

Phone: 801.264.1000

Custom Fabrication

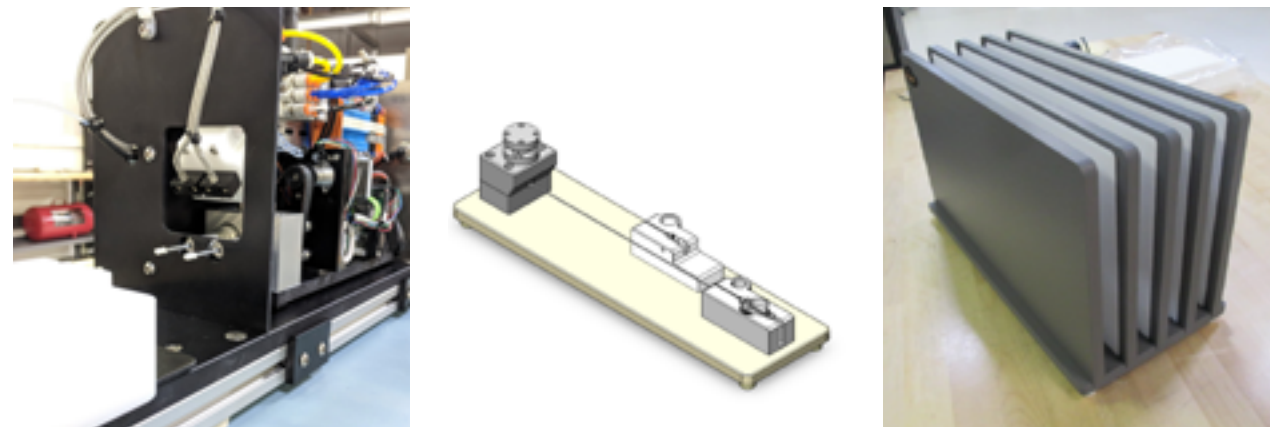
Most air leak tests don't require special fixtures. But when they do, our in-house design and machining staff can build a complete solution to fit our customers' requirements.

Our process is totally collaborative. We take the time to discuss your specific requirements. Once we understand your needs, our design staff starts building a 3D model. That model is shared with you for approval before we move into manufacturing. The approved 3D model is then sent to our CNC machining staff.

The end result of this process is a custom-built sealing solution that will meet your requirements every time.

Need to fit a leak test into your automation process? Once you decide which Zaxis tester works best for your application, tell us about your automation process and safety requirements. We will design something perfect for your environment.

Tech Note: Zaxis does not sell fixtures without leak testers. *Collaboration on custom fixtures can greatly effect turnaround time for leak testers.*



EtherNet/IP™

Allen-Bradley / Rockwell Automation Compatible



Detachable Touchscreen

makes operation simple and space saving



Small Footprint

designed for close connection to the product on a production line



Small Internal Volume

increases sensitivity, decreases cycle time



Ultra-Sensitive

thanks to a 24-bit analog to digital converter

Overcoming Obstacles

When a challenging application cannot be solved by our standard products, we utilize our specialized design, manufacturing, and assembly team. This specialized engineering team includes mechanical engineers, electrical engineers, software engineers, machinists, and assemblers. Zaxis Inc. operates in a 20,000 square foot manufacturing facility optimized for developing custom products for challenging applications. We like being challenged by our customers because it provides a natural well for innovation.



Compliance & Composition

What is your product made of?

Does your part stretch under pressure or is it ridged? Is the material porous? Is the texture rough or smooth? These things affect test time, accuracy, fixture design and quality of port seal.



Product Design

How will the fixture connect to the part under test?

The sealing location and number of seals greatly effect fixture design. Flash in the wrong place can be as bad as rough texture in making a good seal. Testing late in the production process can results in inaccessible sealing locations.



Fixture Safety

Create a safe working environment for your operators.

Fixture safety options include anti-tiedowns, light bars, light curtains, safety shields, part-in-place, and full enclosures.

Applications

A leak test can be performed on a wide variety of applications.

What is a Leak Rate?

A leak test is used to determine if an object, product, or system functions within a specified leak limit. Leaks occur when gas or liquid flow through an object via an imperfection or manufacturing defect such as holes, cracks, weak seals, etc. Leaks always flow from higher pressure to lower pressure; leak testers use pressure to generate and monitor that flow.

A Leak Rate is expressed as a volume per unit time. The rate is found by measuring the change in pressure multiplied by the volume and dividing that by the change in time multiplied by surrounding atmospheric pressure.

- atm** = Atmospheric pressure (psia)
- V** = Test volume (cm³)
- Δp** = The decay in pressure during test time (psi)
- Δt** = The amount of decay time (min.)
- sccm** = Standard Cubic Centimeters per Minute

For example:

- Leak rate = .02psi/0.05min * 50cm³/14.7psia
- Leak rate = 0.4 * 3.401
- Leak rate = 1.36 sccm

Note: For proper use of this equation the change in pressure and the atmospheric pressure need to be expressed in the same unit measurements.



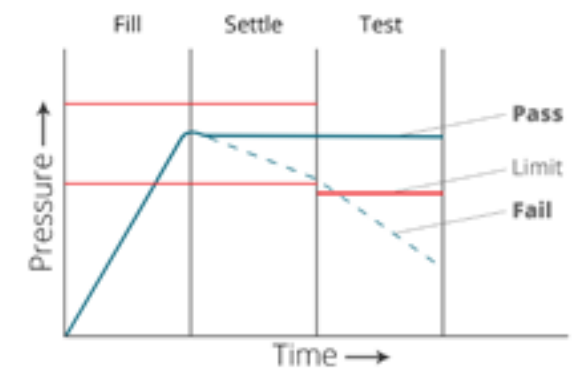
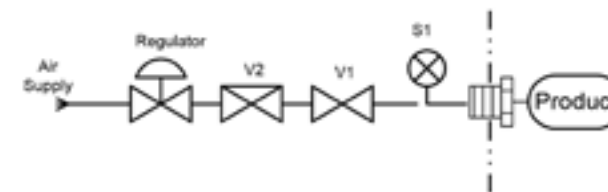
$$\text{Leak Rate (sccm)} = \frac{\Delta p * V}{\Delta t * atm}$$

Pressure & Vacuum Decay

Pressure decay is one of the most widely used methods of leak testing in manufacturing and is ideal for a sealed component with an access port. In this test, a product is attached to a leak tester and filled with air. Once pressurized, the air supply is shut off and the pressure is allowed to settle. During the test any decrease in air pressure over time signifies a leak. If the part does not leak/decay past its predetermined reject value, it is a good part. The sensitivity of this test is dependent upon the product's size and the time interval of the test. Larger objects require a longer cycle time to reach a high enough sensitivity for a quality test. Smaller objects with small internal volumes will require very low cycle time, allowing a high throughput of production.

Vacuum Decay – Vacuum Decay tests are the inverse of the same principle, simply creating a negative pressure instead of a positive pressure

Pressure Decay Diagram -



Sample Applications

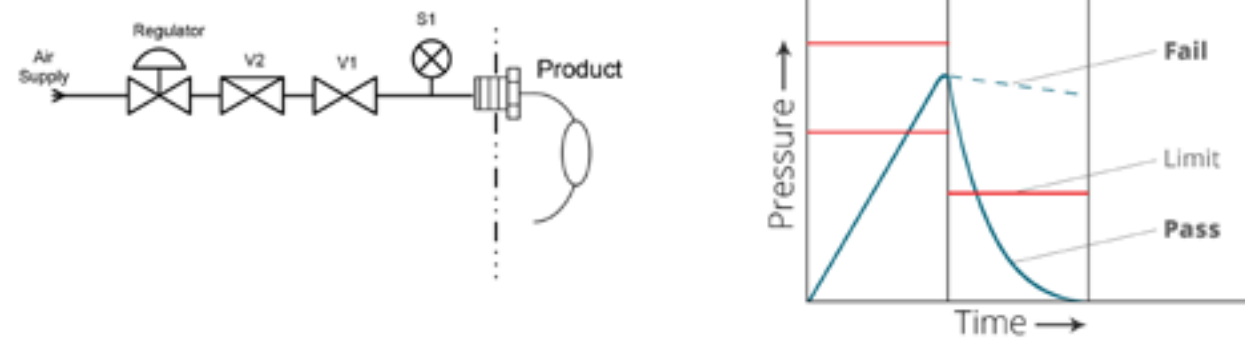
- Bag
- Battery Cell
- Catheter
- Fuel Cell
- Implantable Device
- Ink Cartage
- Infusion Set
- Y Set
- Metering Device
- Needleless Injection
- Radiators
- Tire Tube
- Transmissions
- Tubing



Occlusion

An occlusion test measures the passage of air through an object and signifies if the object's passage is clear or occluded/blocked. This test is an estimated flow using delta pressure. The estimated flow is due to the applied pressure dropping in the test cavity during the test time. To run this test, the product is attached to the test port and filled with regulated air. Once the desired pressure is obtained, all valves are closed off. The air is not allowed to settle, and the test begins immediately after the fill stage. The downstream port is opened to atmosphere during the test and the loss of pressure is measured. If the product exceeds the programed reject value, it is considered a pass. If pressure does not decay past the reject value, it is occluded, and the product does not pass.

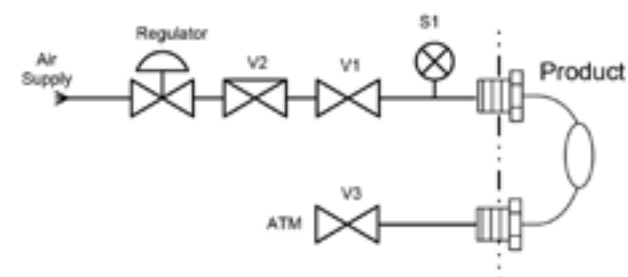
Occlusion Diagram



Downstream Occlusion:

For proper operation of this test, a downstream release is required. The iKit, Zaxis Isaac HD, and Zaxis 7i allow for these release valves to be built in, or you can use a clamp (seal/pinch) valve with any tester to activate an external release.

Downstream Occlusion Diagram



Sample Applications

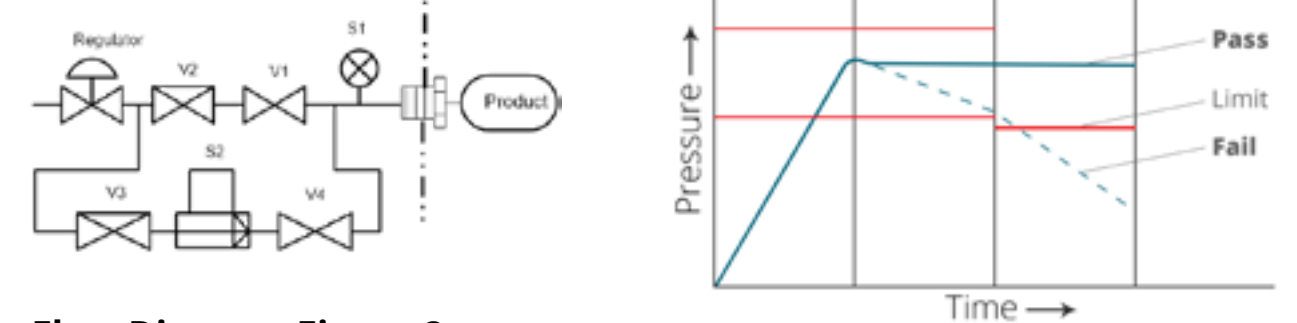
- Catheter
- IV Set
- Hypodermic Needle
- Tubing
- Hydration Bladder Assembly
- Dialysis Tubing
- Medical Fitting
- Medical Connector



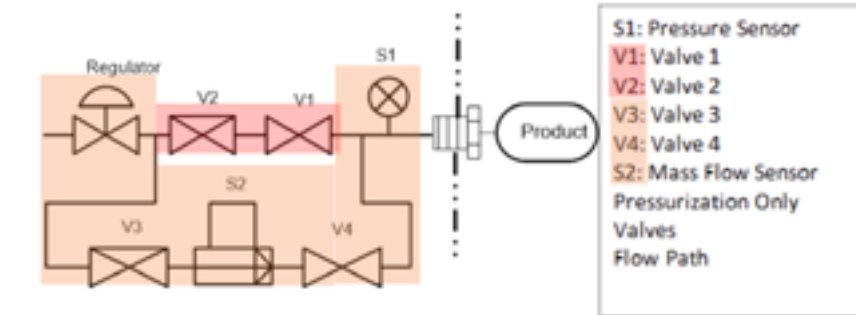
Mass Flow

The part is filled with regulated air until it reaches the test pressure. Valves V1 and V2 are used to pressurize the part to a defined pressure. Once the target pressure is reached, valves V1 & V2 (fig.1) are closed. Valves V3 and V4 remain open. After the test step begins, if there are any leakages in the part, a pressure difference is created across the pressure sensor. This pressure difference is recorded by the pressure sensor. In order to maintain the test pressure in part, more is introduced through the regulator. The air passes through V3, S2 (the mass flow sensor) and V4. The mass flow sensor records how much air continues to flow through the flow path(fig.2). The mass flow rate is measured through the difference in pressure. This mass flow rate reflects the leak rate. The pass/fail criteria are examined at the conclusion of the test step. Both pressure and flow values must be within the Min/Max tolerances.

Flow Diagram Figure 1

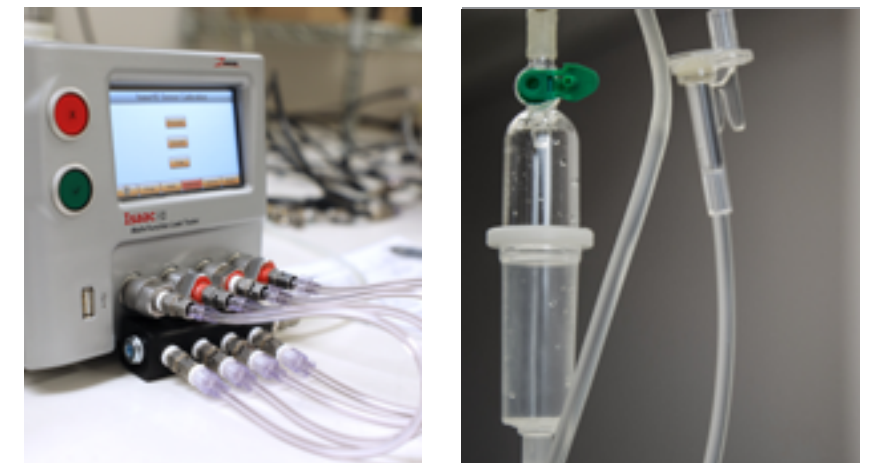


Flow Diagram Figure 2



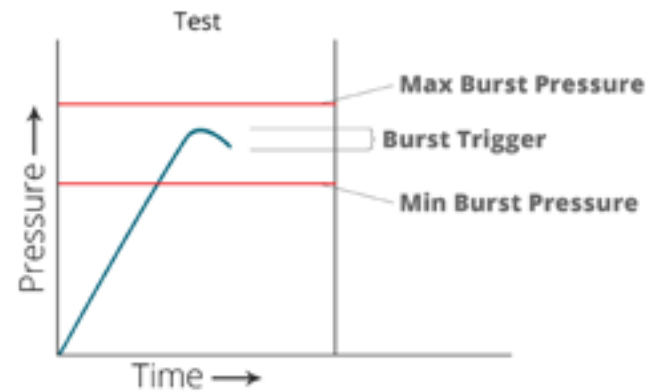
Sample Applications

- Catheter
- Filter
- Infusion Set
- Hypodermic Needle
- Y Set
- Metering Device
- Needleless Injection
- Tubing

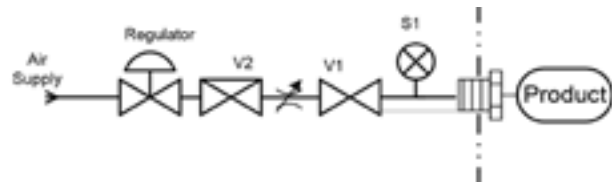


Burst

A Burst test is a destructive pressure test that will measure the maximum pressure at which an object will catastrophically fail or “burst.” During this test, an object is attached to a test port and pressurized with regulated air. Pressure sensors measure the pressure ramp rate and burst event, then compare them to predetermined limits for pass or fail. A leak tester with an electronic regulator allows for a programable ramp rate. This test type is of particular use to design engineers. It can assist with things like material selection and component geometry. A burst test can also be a non-destructive test when run on products such as check valves.



Burst Diagram



Sample Applications

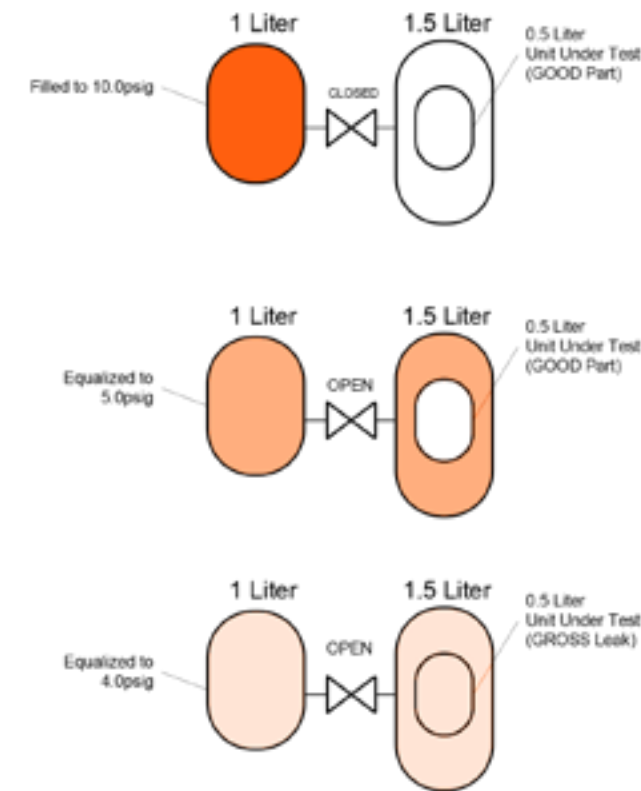
- Catheter Balloons
- Blood Bag
- IV Bag
- Tubing
- Hydration Bladder
- Food Packaging
- Drink Packaging
- Pressure Valve
- Storage and Various Bag



Chamber

A chamber test is used to find leaks in sealed packaging or sealed devices that do not include an opening to use for filling. The best technique to test this kind of product is called metered volume fill. In this test, the product will be placed inside a sealed chamber, ideally a chamber close in volume to the product in order to produce the most precise results. The chamber is then pressurized with a measured amount of regulated air. Once the designated pressure has been reached, the test begins. If the pressure holds, the product passes. If the pressure drops then there is a leak in the product, indicating a failed product.

Some applications call for the use of a vacuum chamber test. A vacuum test allows for less sealing pressure due to the automatic sealing of the fixture. See [page 55](#) for more information on drawer fixtures.



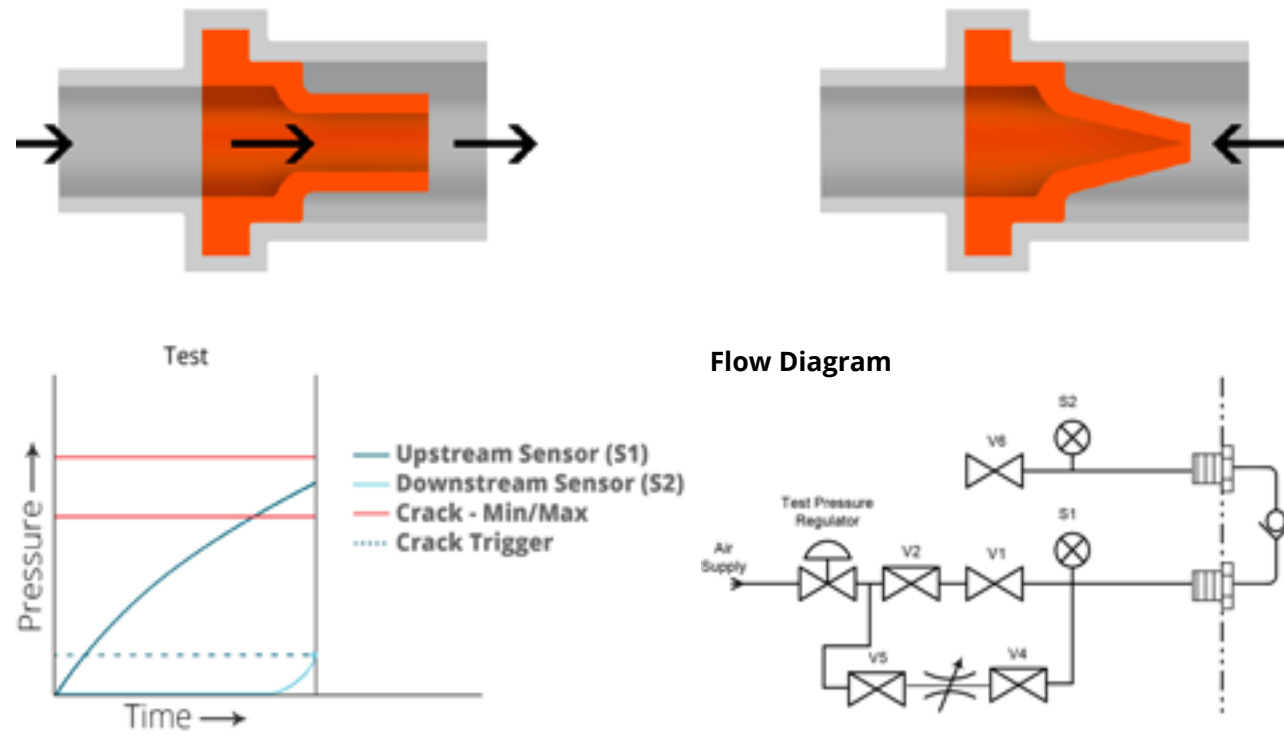
Sample Applications

- Battery Case
- Blister Pack
- Cell Phone
- Cell Tower Antenna
- Electronic Enclosure
- Implantable Device
- Packaging
- Radio
- Sensor/indicator
- Solar Panel
- Watch



Pressure Cracking

The pressure cracking test is similar to the burst test, in that it detects an event such as a valve opening. The crack test is more sensitive to smaller opening pressures, or parts that weep open. A second pressure sensor is set on the downstream side of the part and monitors for the crack event. The downstream sensor can be a pressure or flow sensor.



Sample Applications

- Check Valves (Swing, Stop, Ball, Silent)
- Chromatography Pump
- Coffee Bag/Packaging Valve
- Medical One-Way Check Valve
- Metering Pump
- Needleless Injection Site
- Vacuum Bag
- Ventilator
- Water System



Cell Manufacturing

Cellular manufacturing is a lean manufacturing model. The goal of cell manufacturing is to save time and space on the assembly floor by grouping machines together by the specific task they accomplish. These grouped machines, or “cells” are then lined up in the form of an assembly line. The Zaxis PD has been specifically designed to fit in a manufacturing cell.

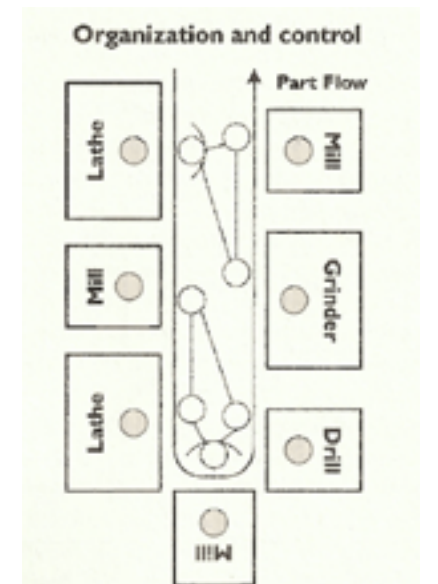


When integrating a leak tester into a cell-based manufacturing format, the most common issues are size and information displays. Large testers take up valuable space and often need to be moved away from the line and connected to products via long hoses. This adds excessive volume to the leak test effecting test accuracy. Some smaller testers can be placed right on the assembly line as close to the products as possible but many of these testers have had their displays removed to save space.

The Zaxis PD was designed to be perfectly integrated into manufacturing cells. With the size of a 6” cube, the Zaxis PD is compact enough to fit right on the assembly line close to the product. This consolidates the UUT (Unite Under Test) keeping test accuracy high. In spite of the small size a clear LCD color touchscreen is integrated directly into the Zaxis PD. The integrated touchscreen enables at-a-glance leak test monitoring on the production floor.

[Click Here](#) for more information on Cell Manufacturing

For more information on the Zaxis PD, see [page 14](#).



This figure from The Toyota Way shows the design of a U-shaped cell, graphing the paths of two employees through it. (https://commons.wikimedia.org/wiki/File:Figure_8-4_from_The_Toyota_Way.png)

Maintaining Validation Throughout the Stages of Product Development

New product development can be a large undertaking for any company in any situations. One acute pain point is maintaining validation throughout the entire process from concept to launch. When a leak rate is validated in the R&D or Concept Development stage it often needs to be revalidated at the prototyping stage or first article production, then again when the product meets the full production stage. The Zaxis solution to leak rate validation is to use the same firmware and internal components in the Zaxis 7i (designed for R&D), the Zaxis Isaac HD (ideal for prototyping), and the Zaxis iKit (purpose built for automation).



Zaxis 7i

The large feature capacity as well as the large, easy to use, color touchscreen make the Zaxis 7i ideal for R&D and concept development.

See [page 31](#) for more information on the Zaxis 7i.



Zaxis Isaac HD

The Zaxis Isaac HD maintains the interactivity of an integrated touchscreen while saving on space, making it the perfect machine for a pilot production run.

See [page 24](#) for more information on The Zaxis Isaac HD.



Zaxis iKit

A slim, compact design that saves on valuable manufacturing space. Easy to concatenate together for automation.

See [page 18](#) for more information the Zaxis iKit.

Concept Development (R&D)

Once the market research has been done and the product or solution has been decided on, the conceptual development can begin. This stage of product development often incurs the most iterations. The [Zaxis 7i](#) was designed to be the most interactive and dynamic of all Zaxis leak testers. The large integrated touch screen interface is easy to read and interact with, taking ease-of-use to a new level. The internal capacity is large enough to fit several valve configurations. Multiple configurations translate to multiple test types and pressure ranges. Variety is important at the concept development stage if a specific leak rate has not yet been determined.



Prototyping & Validation (First Article Production)

Once a leak rate has been determined in the concept development stage, maintaining validation becomes increasingly important. The same valve configuration used in the [Zaxis 7i](#) that did the initial leak rate validation can be built into a [Zaxis Isaac HD](#). The same valve configuration, with the same internal volume, and the same firmware mean both testers will produce the same test results, maintaining leak rate validation. The 4.3" integrated touch screen facilitates interactivity during the prototyping stage of product development. The smaller size and ability to operate up to four test ports makes the [Zaxis Isaac HD](#) excellent for First Article Production or a Pilot Run.



Development & Production (Full Automation)

By the time a product has hit the production stage of the product development pipeline, variability gives way to consistency. The Zaxis iKit contains the same firmware and internal components as its larger siblings, in a much more compact configuration. The Zaxis iKit has a large variety of communication options. The Touchscreen Interface (TSi) is detachable, reducing operator reconfiguration and error. The iKit can be hardwired into a PLC with an I/O cable or run with Rockwell Automation's EtherNet/IP. See [page 38](#) for more communication options. Zaxis valves are rated for billions of cycles though service repair kits are available, see [page 54](#).



Photo by Invotec

The Zaxis family of leak testers have been developed with the product development process in mind. Re-validating a leak rate at every stage of the process can be costly and time consuming. The Zaxis family of leak testers can add stability and ensure a consistent and validated leak rate from product concept through production.



What is a Multi-Tester?

Simply put, a multi-tester has the ability to perform multiple leak test types with a single machine. Many applications need to be challenged in multiple distinct ways to validate product quality. An example of a product that requires multiple distinct challenges is a catheter. The final assembly of a catheter can contain multiple parts, depending on its use. A Pressure Decay test will challenge the full assembly to hold pressure. An Occlusion test will challenge the path and identify if there are any blockages. If the catheter has any special features more tests are required to verify part quality. In the case of a catheter balloon, a burst test is required to challenge balloon's structure.



Rather than moving the part to different machines to run each distinct test, a Multi-Tester can run all required tests in one machine. This saves a substantial amount of time by not having to detach and re-attach the part between tests. Fill and vent times can be cut down as well when different tests are run in quick succession. Zaxis invented the first Multi-Tester over 20 years ago and continues to innovate off of the concept today. The Zaxis iKit was designed to be compact to fit onto production lines which limits its Multi-Tester capacity to Pressure Decay, Vacuum Decay, and Occlusion tests in the same machine. The Zaxis Isaac HD and Zaxis 7i can both perform up to six different test types in one machine; Pressure Decay, Vacuum Decay, Occlusion, Mass Flow, Burst, and Cracking Pressure.

Sample Multi-Test Applications



Bags

A Pressure Decay test followed by a Vacuum vent will prep the bag for packaging.



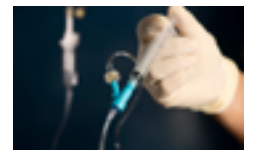
Catheters

Pressure Decay, Occlusion, Flow as well as distinct tests for specialty parts.



Filters

Flow test for the filter flow rate and Pressure Decay for the filter enclosure.



IV Set

Pressure Decay, Occlusion, Flow as well as distinct tests for specialty parts.



Multi-Direction Lip Seals

Use both Pressure and Vacuum to test bidirectionally.



Product Assemblies

Full assemblies with multiple varying parts.



Ventilator Set

Requires Mass Flow, Pressure Decay and Occlusion to verify quality



Many Other Applications Apply

Special Project Configuration

Sometimes the best solutions are not the standard ones. Speak to one of our Sales Engineers today about your special project.

Email: sales@zaxisinc.com

Phone: 801.264.1000

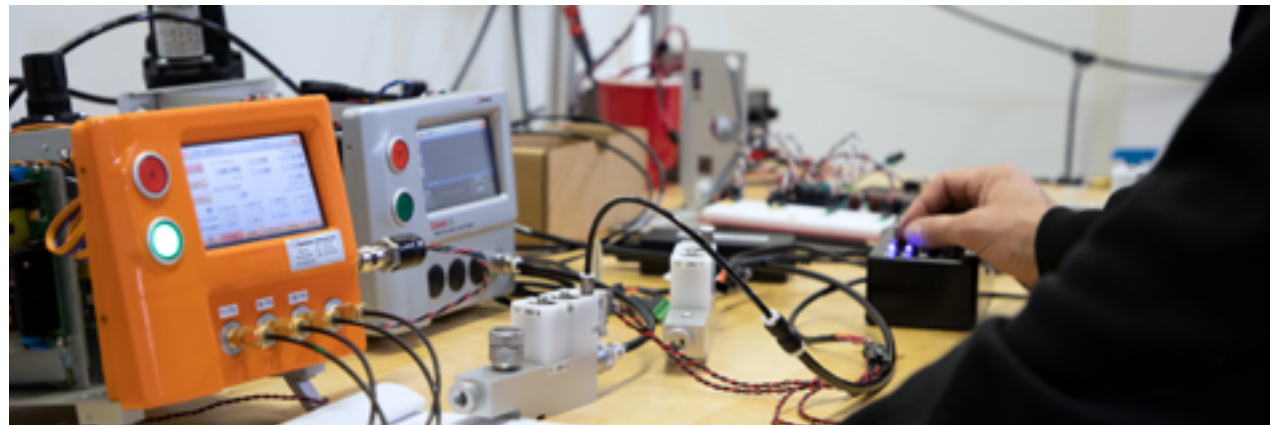
Service & Support

Over 35 years of leak testing experience.

Customer Driven Innovation

Here at Zaxis we have been designing and building precision leak testing equipment for over 20 years. As a result of all those years we understand that our high-quality customers are just as important as our high-quality products. We are problem solvers at heart and for that reason we have innovated some of the world's leading leak testing and dispensing equipment around.

We stand behind our products and they are built to last. This makes the relationships we build with our customers just as important as the products themselves. With over 35 years of leak testing experience, our service team is ready to troubleshoot and address all of your concerns.



Returns for Repair/Service

All Zaxis leak testers can be returned for repair/service or calibration with written return authorization (case#). Every returned product goes through an extensive evaluation to ensure the tester runs at peak efficiency. To speak to a service specialist or request a return authorization case number, email us at service@zaxisinc.com or call us at 801.264.1000.

Contact Information

Phone: 1.801.264.1000

Email: support@zaxisinc.com

Address: 2442 South 2570 West
Salt Lake City, UT 84119

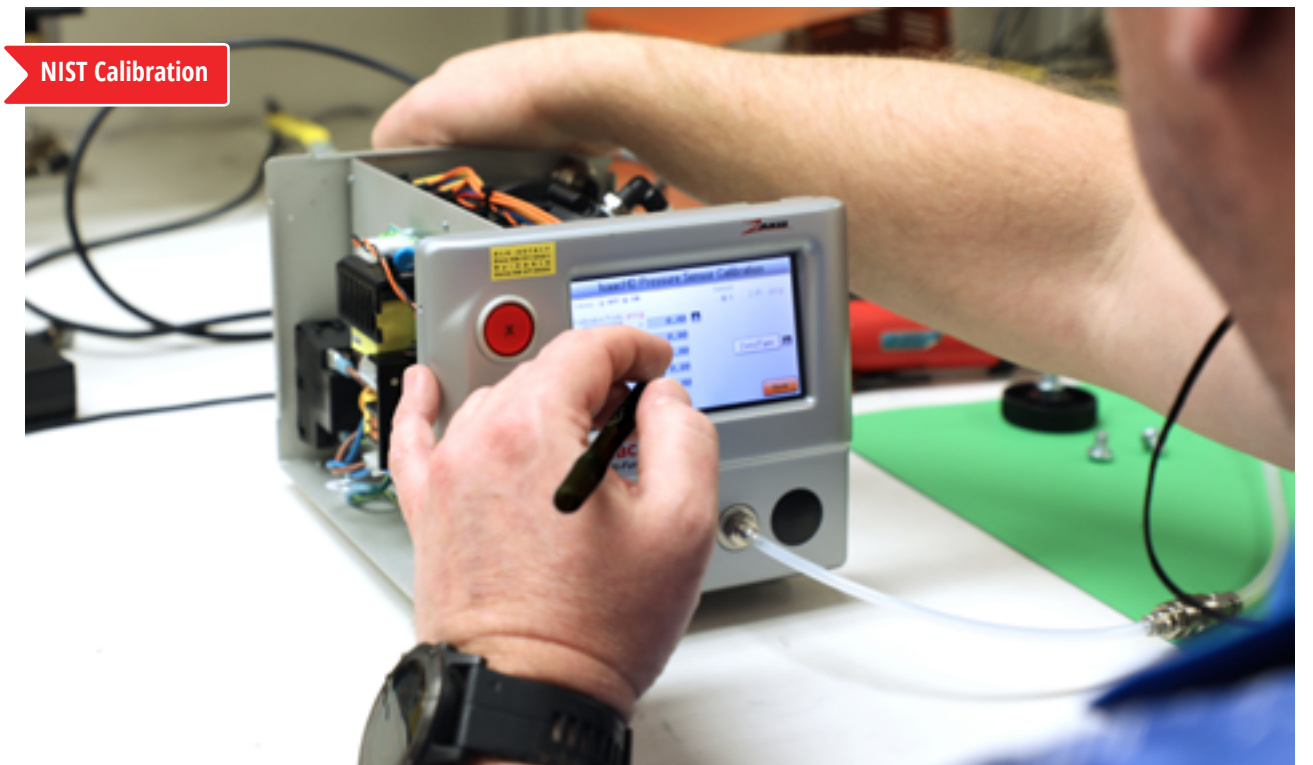
Website: zaxisinc.com

Calibration

Annual sensor calibration is crucial for proper sensor function and accuracy.

In order to precisely calibrate a sensor, you need a pre-calibrated instrument to test against. This instrument must be calibrated according to the National Institute for Standards and Technology (NIST) and achieve an accuracy at least four times higher than that of the sensor you are calibrating.

The sensors in your Zaxis tester should be calibrated annually. If you do not have a calibration instrument to test against you can send your Zaxis tester into our service department for proper calibration. If you are located outside the US, a local calibration house may be a more practical solution.



Speak to a Sales Representative

For questions about leak testers or test types please contact us at sales@zaxisinc.com or 801.264.1000.

Warranty

THREE YEAR LIMITED WARRANTY

ZAXIS INC. products are manufactured to a high level of mechanical precision from materials that are resistant to attack by many corrosive chemicals. These products, however, may be self-destructive when used with non-compatible fluids or when located in physically hostile environments or when operated under non-specification voltage or pressure conditions.

ZAXIS INC., therefore, warrants only as follows:

Each metering head has been tested with water to rated pressure prior to shipment from the factory. The qualifying performance of each metering head is recorded by serial number in a permanent record of the company. If at any time with-in the first year after any ZAXIS INC. product has been shipped to a customer (user), it fails to perform according to ZAXIS INC. literature, the product, with written explanation of the problem, may be returned, freight prepaid, to ZAXIS INC. for examination, repair or replacement at ZAXIS INC. expense (labor and material). All such returns must have prior ZAXIS INC. customer service authorization before returning. If, upon examination, ZAXIS INC. determines that abusive practices, non-compatible fluids or destructive environment of operation or a combination of these factors is responsible for improper performance of the product, all labor and materials costs involved shall be at the expense of the customer.

ZAXIS INC. is not liable for special, indirect or consequential damages that may result from use, failure or malfunction of the product, and any recovery against ZAXIS INC. may not be greater than the purchase price paid for the product.

No person is authorized to change the terms of this warranty.

Terms & Conditions

Zaxis Standards and Prices

Zaxis products are quoted, sold, and certified to only comply with Zaxis specifications. Only Zaxis is authorized to modify product claims or specifications and are subject to change without notice. Zaxis prices are subject to change without notice. Quotations are valid for thirty (30) days, unless otherwise noted.

Payment Terms

USA Sale: Zaxis standard payment terms are 50% down with PO, balance Net 30.

International Sales: Cash in Advance

Credit Cards Accepted: VISA/Master Card, DISCOVER, and American Express are accepted with a 3% processing fee.

All Bank charges related to wire transfers and ACH payments are the responsibility of the customer.

Orders and Freight

Zaxis orders are non-cancellable and will be shipped per Zaxis acknowledgement. Zaxis is not responsible for delays beyond our control; such as delays from vendors, labor disputes, or military/government action.

All orders are delivered Ex Works, Zaxis Inc. factory, West Valley City, UT, at which time ownership and responsibility, including risk of loss shall pass to the customer.

All specialty packaging and insurance is the responsibility of the customer. Any claims for damaged items should be made with customer's delivering carrier, and or insurance company.

For any prepaid and add shipments, Zaxis will use UPS Ground, and customer must provide detailed insurance information.

Returns for Credit

Standard Zaxis testers can be returned in most circumstances, and must be returned unopened, unused, and in original Zaxis packaging, within 30 days. All said returned items, must have Zaxis return authorization, (Case#). A restock fee of 10% of original invoice prices will be incurred.

Returns for Calibration/Repair/Service

All Zaxis testers can be returned for calibration, repair, or service with written return authorization (case#). Your case number is your RMA number. We cannot accept products without a case number. If you need any assistance in finding your serial number or have any questions on shipping, please call us at 801.264.1000. [Click Here](#) to fill out a request for service form.

For service, please contact service@zaxisinc.com.

Glossary

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 List of terms and definitions.

Atmosphere (1) – In this catalog, atmosphere means room air pressure. Atmospheric pressure is nearly synonymous with barometric pressure—an external force pushing on all sides of every object on earth’s surface. During a flow test, product being tested must flow into atmosphere, which causes a resistance to flow called back-pressure. Room atmosphere can change due to fluctuations in air conditioning or changing weather conditions. **(2)** The word atmosphere can refer to a unit of measure equal to pressure at average sea level. By convention, one atmosphere equals 1 bar. To say a test was taken at one atmosphere means the test was made at (or converted to) average sea level.

Barometric Pressure – Also called atmospheric pressure. The force caused by the mass of air pressing down on the earth. Barometric pressure changes with elevation and weather conditions. The tester’s regulator compensates for changes in barometric pressure to provide a constant relative output.

Burst Test – A burst test slowly fills a product through a flow control valve set by users. After the burst, pressure rapidly drops to near zero. The tester captures the pressure immediately before the product ruptures or in some way opens to atmosphere. Burst mode is useful for testing pop-off valves, package seals, or devices that open to atmosphere after reaching a predetermined pressure.

Calibration – Comparison of a leak testing device to a standard that is in turn calibrated to an even more accurate standard.

Calibration Data – Values entered into a leak test device through software calibration. Calibration data is stored as a look-up table in in the leak tester’s non-volatile RAM and is used to linearize pressure and flow transducer output at known pressures and flow rates.

Crack Test – When in burst mode, a crack test is setup to measure the pressure at which a product changes characteristic (a drop in pressure, then a continuous increase). It is important that the pressure drop enough to be detected. If not, an optional downstream sensor might be required to measure a device that opens very slowly. Crack testing differs from burst testing because the product does not suddenly drop to zero pressure as in a burst test.

Decay – The amount of pressure a product can lose during a test period before going out of an established tolerance. Also called pressure drop.

Vent – (Also called **Dump** or **Exhaust**) The final step in a test. The vent step is primarily used as a safety to vent any pressure away from the operator before removal of the test part. Disabling the Vent will not affect the test result. After the test is completed, the vent valve is activated to open the product into the tester’s internal chamber. If a vent step is not required (for instance if you want to unplug product to vent pressure), set the Vent timer to 0.0 and uncheck the Auto box.

Event – The pressure change that signals the change in the device under tests condition. This trigger is used to end the test and compare the pressure reading to the limit settings for pass/fail status.

Fail Light – The red indicator with an X-mark on the face of the Zaxis iKit, Isaac HD, and 7i or the red light illuminating around the start button on the face of the Zaxis PD. The fail light turns on whenever a test exceeds established parameters.

Firmware – The set of instructions stored in programmable read-only memory (Flash) that controls our leak tester’s operation. Firmware cannot be altered by the customer.

Fixturing – A fixture is a device connected externally to a leak tester. Fixtures can be mechanical, electrical, pneumatic, or combinations of all. Typical fixtures are pneumatic clamps that seal products during a pressure decay or flow test. Zaxis leak testers can supply air from the coupling port to operate pneumatic fixtures. Customers must specify at the time of order whether they want coupling pressure to be line or test pressure. Many fixturing options are possible.

Flow Control – The Zaxis iKit, Isaac HD and 7i have built-in flow control to provide a slow pressure increase (ramp up) needed for burst and crack testing. Users can precisely set the flow control for the exact pressure build-up required for the product to be tested. After the flow control is set for a particular product, further adjustment of the needle valve is unnecessary.

Flow Standard 1) – A measuring instrument or certified restrictor that can be connected to a leak tester as part of a flow calibration. The flow standard must have adequate accuracy, stability, and repeatability needed to calibrate a leak tester. The flow standard must have current calibration documentation if the customer requires accuracy traceability. **2)** A calibrated device to challenge the tester on an as needed basis. This device is calibrated and traceable. For example, a daily verification can be done to ensure the tester will still find the required flow value.

Calibration Data – Values entered into a leak test device through software calibration. Calibration data is stored as a look-up table in in the leak tester’s non-volatile RAM and is used to linearize pressure and flow transducer output at known pressures and flow rates.

Flow – The amount of air passing through an object measured in cubic centimeters or liters per time period (second, minute or hour) at a given pressure.

Flow Test – A flow test involves pushing air through a product at a set pressure and measuring the resultant flow with a flow sensor. Flow testing can be used in two ways--

(1) Flow Leak Detection. Product is filled with air at a set pressure and then sealed from atmosphere as in a pressure decay test. Any flow above zero indicates a leak.

(2) Flow Measurement. Air is pushed through a product at a set pressure and allowed to flow to atmosphere. A flow sensor measures the volume of air moving through the unit under test. The digital readout shows flow rate in customer selectable units.

Foot Switch – An optional switch that connects to the back or bottom of a Zaxis leak tester, that the operator can use to start a test cycle. This switch has the same function as the START button on the leak tester face.

Gross Leak – A leak that causes a drop below the test pressure minus the pressure tolerance in the settle step.

Interface – Communication between the Zaxis leak tester and a peripheral device such as a computer or printer. Interfaces could include a serial protocol known as RS232 to communicate, an Ethernet port for Ethernet TCP/IP or EtherNet/IP™, discrete I/O points, and a footswitch connector.

I/O (Input/Output) – Connections used to communicate with computers or Programmable Logic Controllers (PLCs). Zaxis leak tester I/O includes inputs to change and start programs and output pass/fail status.

LCD – Abbreviation for liquid crystal display. The integrated and detachable touch screen interface (TSI) display is a LCD device that provides setup prompts, menu options, test results, and other system information.

Leak Rate – A pressure drop over time can be stated as a leak rate. For example—0.1 mbar per second is a leak rate. A leak rate can also be stated in flow units such as 4 cc/minute.

Leak Test – See Pressure Decay Test, Flow Test

Modes – Zaxis leak testers have multiple operating modes: (e.g., pressure decay, flow, and burst). The current mode is shown in the test type box on the TSi's Main screen.

Operator – The person who connects products to Isaac, presses the START button, and monitors the system while under test. For the purposes of this guide, the operator is separate from the user. Users typically handle leak tester setup and programming.

Pass Light – The green indicator with a checkmark on the face of the Zaxis iKit, Isaac HD, and 7i or the green light illuminating around the start button on the face of the Zaxis PD. The pass light turns on whenever a test exceeds established parameters.

Pilot Air – Certain applications require the use of pneumatics that is pilot actuated. A steady air supply is required to assist in the operation of these valves. Zaxis' proprietary air valve requires 85-100psi to function correctly.

Program Screen – This screen is used to enter all setpoints and limits concerning pressure decay, flow, and burst test. Different modes require varying setup information. The program screen changes depending on the type (or mode) of test being programmed. The program screen has a header that tells you the program number for which you are currently setting parameters.

Pressure Decay Test – Pressure decay testing is used to test products for leaks by trapping pressure inside and then measuring pressure loss. The abbreviation PD is often used in this guide to refer to pressure decay.

Pressure Tolerance – The plus or minus allowable change in the test pressure. If the pressure fails to achieve this amount during the Fill step a "LO Pressure" error will report. If the pressure exceeds this mark during the Fill step a 66 "HI Pressure" error will report. If the test pressure falls below the mark during the Settle step, a "Gross Leak" error will report.

Pressure Regulator – Zaxis leak testers use a manual or an electronic precision pressure regulator that controls line pressure. Pressure regulators are adjusted during setup to set test pressure.

Pressure – The relative force of a compressed air or gas. Zaxis leak testers are generally configured to use psig, which is the force of compressed gas relative to barometric pressure. Alternatively, mbar (millibar of 1/1000 bar), mmHg (millimeters of mercury), inH₂O (inches of water) or kPa (Kilo Pascal) may be selected.

Pressure Transducer – An electro-mechanical device (also called a sensor) that converts pneumatic pressure into electrical signals. Zaxis' pressure transducers are rugged, accurate, repeatable, and have a very low internal volume.

Programs – Data (such as test pressure, test time, and reject levels) entered by the user and stored in the leak tester's battery-backed RAM. A program is setup in the leak tester's Program screen. The Zaxis PD will save 4 test programs while the Zaxis ikit, Isaac HD and 7i can save 100 test programs.

Ramp – To slowly increase pressure by routing test pressure through a flow control valve. Various ramp rates can be established by adjusting built-in flow control.

Reject Level – The amount of pressure drop allowed in a pressure decay test. This value is set in the program setup screen. The reject level, together with test time, determines the amount of acceptable leak rate.

RS232 – A standard serial communications protocol used by most computers and computer peripherals. Zaxis leak testers can use RS232 protocol to send test result data to printers and computers.

SCCM – Abbreviation for Standard Cubic Centimeters per Minute. This is a flow measurement standardized to 68 degrees Fahrenheit and 14.7 psi (average sea level).

Set point – A programmable threshold value (usually a minimum and maximum value) used to establish a testing tolerance.

Settle – A time interval following fill phase that allows product to stabilize before the leak tester starts the measurement phase. Longer settle times are often required in products constructed of flexible materials.

Start Switch – On the Zaxis PD, the round silver pushbutton located to the bottom-left of the tester face. On the Zaxis iKit, Isaac HD and 7i it is the round green pushbutton with a checkmark. This button serves as a start and abort button for the test.

Stored Programs – A set of instructions (parameters) that can be set by the customer to run a variety of tests. Users can alter stored programs to meet specific product testing needs. Programs are configured in the leak tester's Program screen and are kept in Flash memory.

Supply Air – Compressed air or gas connected to the rear fitting labeled Supply on the Zaxis iKit, Isaac HD, and 7i. The supply port fitting is located on the bottom of the Zaxis PD. The standard fitting is a 1/8" NPT (Similar to R1/8 BSPT British Standard Pipe Taper) female thread bulkhead. Air must be clean, dry, and free of oil.

Test Circuit – The pneumatic tubing, fittings, valves, and sensors that make up Isaac's internal air passages. The volume of gas trapped inside the pressure decay test circuit is about 1.0 cubic centimeter.

Test Cycle – A test cycle is all leak tester-controlled testing activities that occur from the time the START switch is pressed to the time the operator removes the tested product. One test cycle can have multiple tests by linking programs in the leak tester's Program screen. Multiple tests in one test cycle are sometimes called a test series

Test Phases – The three testing modes (decay, flow, and burst) each have individual phases or intervals of testing. Pressure decay has four possible time intervals that can be set: coupling, fill, settle, and test. A flow test has three phases: coupling, fill, and test. A burst test has just two possible phases: coupling and test.

Test Port – The bulkhead fitting (or fittings) on Zaxis iKit, Isaac HD and 7i's front panel or on the Zaxis PD's bottom panel. Standard bulkheads on the front have a 1/8" NPT (similar to R1/8 BSPT British Standard Pipe Taper) female thread. Zaxis offers a variety of bulkhead options. The product to be tested is connected to the test port. From the test port, leak testers can supply positive pressure or vacuum for a variety of leak and flow test. Customized leak testers could have multiple test ports.

Test Pressure – Test pressure is the level of air pressure used to inflate product under test. Test pressure can only be set if the leak tester has supply air connected, and the output port is blocked with a leak-tight cap.



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