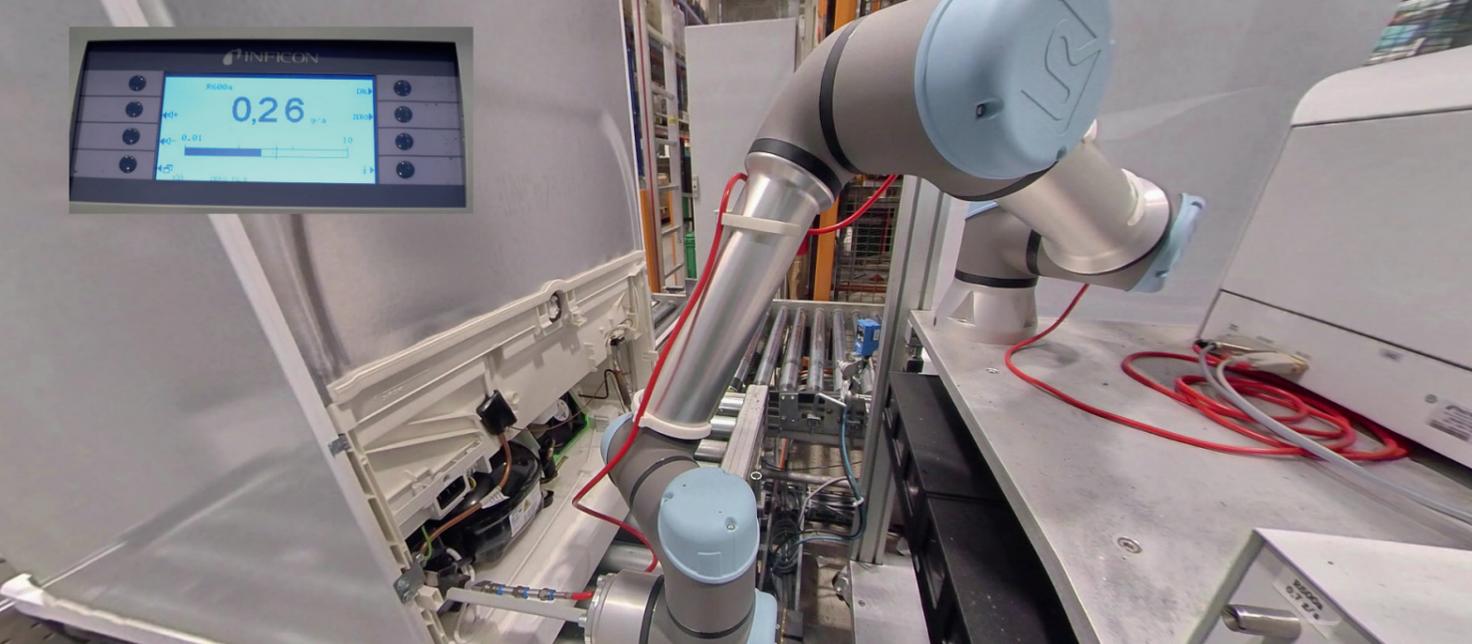




# Intelligent 3D Robotic Leak Testing System for the Refrigeration and Air Conditioning Industry

Faster and more reliable:  
the automated end-of-line test.

 **INFICON**  
Inspired by visions. Proven by success.



# Refrigerators, Heat Pumps or Components: Fully Automated Leak Test in Your Production Line

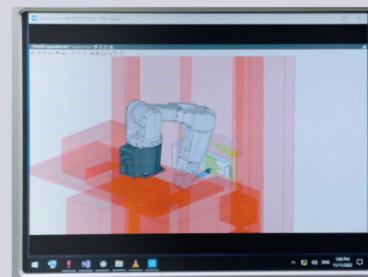
INFICON has developed the first fully automated 3D robotic leak testing system for your end-of-line inspection. The challenge so far: often there are manufacturing tolerances of +/- 1 cm for the position of solder joints on refrigerators or heat pumps. INFICON's solution: intelligent real-time 3D image recognition steers the robot arm precisely to all points to be inspected. The 3D system works at maximum speed and absolutely reliably. The robot arm moves to all relevant solder joints of a refrigerator individually for a static measurement.

## 4 Components for Your Intelligent Test Station

INFICON provides you with four components for an intelligent 3D robotic leak testing system that complement each other perfectly:

- **Ecotec® E3000** – the multi-gas leak tester from INFICON.
- **I-Guide3D 350** – the intelligent 3D Sensor from INFICON.
- **I-Tip** – innovative and patented sniffer tip from INFICON.
- **Calibration leak** – our test leak for fully automated calibration.

The plant engineer only needs to select a suitable robot for the fully automated inspection station. Based on the position data of the 3D image recognition, our industrial PC with 3D software guides the robot arm with the I-Tip sniffer tip to the next inspection point with millimetre precision, always along the shortest and fastest path. Your fully automated inspection station needs no more space than a human inspector. The difference: our 3D robot system works many times faster. Fatigue-free and error-free!



## Ecotec® E3000: the ideal multi-gas leak tester

INFICON has designed this multi-gas sniffer leak detector for the final inspection of refrigerators, heat pumps, heat exchangers, air conditioners, and the like. The device can detect four gases at the same time, down to the smallest leakage rates of 0.05 g/a R600a. With the Ecotec E3000 you increase your productivity and reliability.

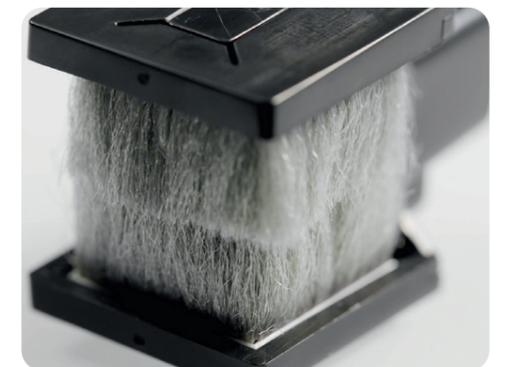


## I-Guide3D 350: the scanner eyes of the robot arm

INFICON's 3D image recognition system uses structured light by LED or laser to determine the position of inspection points with millimetre precision. The structured light makes the scanner independent of brightness fluctuations in the ambient light. Our software converts the 3D camera's point cloud into xyz coordinates so that it can control your robot arm optimally and without collisions.

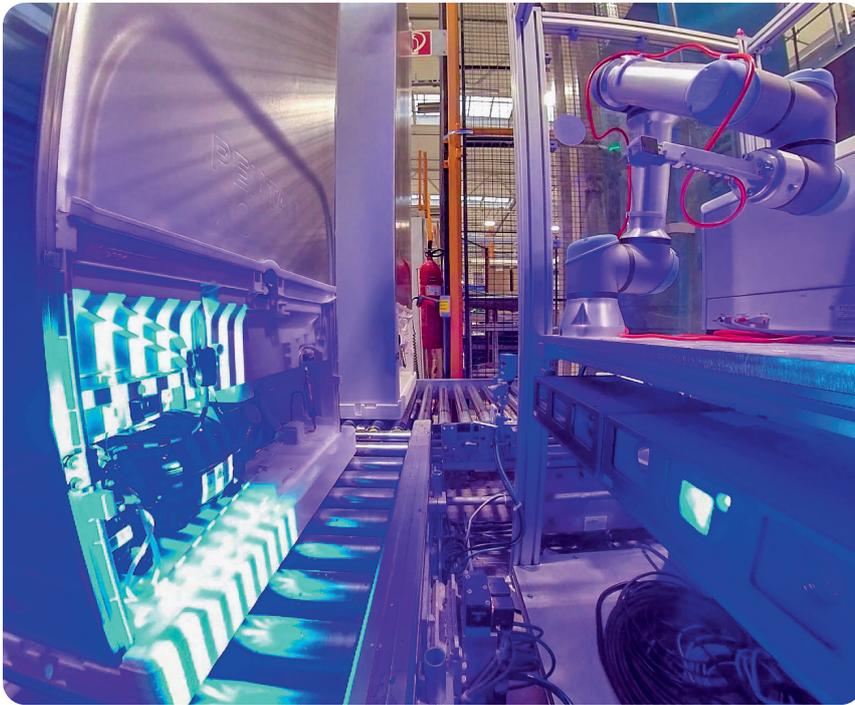
## I-Tip: the reliable sniffer tip

With the I-Tip sniffer tip from INFICON, no leak goes undetected during sniffer leak detection, even if it occurs on the side of a pipe facing away from the sniffer tip. This is because the innovative design surrounds the test point and reliably captures all gas. The I-Tip sniffer tips are available in the variants SENS (with tightly compacted brushes) and RUGGED (with robust rubber lips).



## INFICON calibration leak: for verified measurements

With our test leak, you automatically calibrate your 3D robotic leak testing system at regular intervals and verify your measurements. For calibration, our software simply positions the I-Tip sniffer tip on the robot arm over the test leak, which has a defined leak rate. This occasional calibration process takes only seconds.



## Contact us!

You are a manufacturer in the refrigeration and air conditioning sector or a plant manufacturer for production lines in the industry and would like to find out about the possibilities our 3D robotic leak testing system opens up for you? Just get in touch with us!

Experience our 3D robotic leak testing system in action:



#### Ordering information:

531-200: I-Guide3D 350 package  
700mm working space  
531-201: I-Guide 3D 350 package  
350mm working space

### Why 3D Robotic Leak Testing Is Much More Efficient:

- Intelligent 3D recognition of the position of all connection points to be inspected: accurate to the millimetre.
- The scanner software controls the robot arm automatically.
- The software defines the fastest possible route between all inspection points.
- Your 3D robotic leak testing station has the same space requirements as a human inspector.
- The leak testing system works quickly, reliably, and without tiring.
- The I-Tip sniffer tip completely surrounds the pipes and even detects leaks facing away from the sniffer tip.
- Storage of all determined leakage rates for quality assurance - against systematic errors in production.
- The plant engineer only has to program a few steps of the robot, such as home position, approach test leak, change of sniffer tip.



ISO 14001  
ISO 9001

Premium Quality  
made in Germany

### INNOVATION BASED ON PROVEN, PATENTED TECHNOLOGY

At INFICON, we know that leadership in technology can't happen without being a leader in innovation. This is why we develop and realize pioneering solutions that enable our customers to conquer even the future challenges facing their industry.

**INFICON** Inspired by visions. Proven by success.

[www.inficon.com](http://www.inficon.com) [reach.germany@inficon.com](mailto:reach.germany@inficon.com)

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