Safe Vehicle Production Through Precise Leak Testing

Testing expertise throughout the entire production chain—from individual components to the finished vehicle.

INFICON

Efficient Leak Testing Using Tracer Gas Methods

Stricter global regulations on emissions, fuel consumption, and vehicle safety require testing components for increasingly lower leak rates—often using new testing technologies.

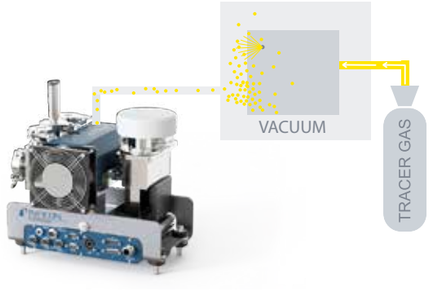
Tracer gas leak testing offers a particularly efficient solution for this: it reliably detects even the smallest leaks, regardless of temperature or humidity. New propulsion concepts such as electric vehicles and fuel cells also impose high demands that trace gas methods meet optimally.

Leak Rate Limits

Defined leakage rate limits are essential for evaluating components in accordance with standards, meeting legal and customer-specific requirements, and ensuring the necessary leak tightness throughout the entire product lifecycle.

Leak Testing Methods

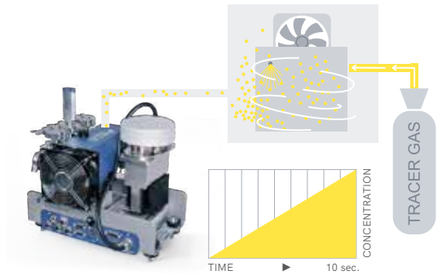
Various leak detection methods enable the reliable detection of these leak rates and are used depending on the application and requirements.



Vacuum Method

The component under test is placed in an evacuated vacuum chamber and filled with a tracer gas. In the event of a leak, the test gas escapes through the leak path and is detected by the leak tester connected to the vacuum chamber.

Leak testing systems that operate using the vacuum method are characterized by exceptionally low detection limits and very short measurement times.



Accumulation Method

The component under test is placed in an accumulation chamber filled with a tracer gas. In the event of a leak, the test gas escapes through the leak path and is evenly distributed throughout the chamber by fans. The leak tester measures the total leak rate regardless of the location and number of leaks.

Since this test is conducted at atmospheric pressure, simple and cost-effective chambers can be used. The method is also suitable for pre-assembled modules that can no longer be tested under vacuum.

Direct Electrolyte Method

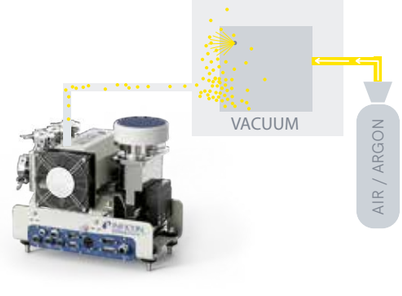
Traditional gas testing methods are unsuitable for batteries filled with liquid electrolyte. In direct electrolyte testing, the battery is tested in a vacuum chamber, where electrolyte escapes from the cell and is detected as electrolyte vapor using a quadrupole mass spectrometer.

The method is reliable for all common electrolytes, including those in semi-solid batteries and supercapacitors, and, thanks to its industrialization, is suitable for high cycle rates in mass production.

Sniffing Method

The component under test is filled with a tracer gas or the final operating medium. In the event of a leak, the test gas escapes through the leak path and is detected by the leak probe. The probe can be moved manually by an operator or automatically by a robot.

This method is ideal if you want to pinpoint the leak or if an assembly cannot be tested under vacuum.



Air and Argon Testing Method

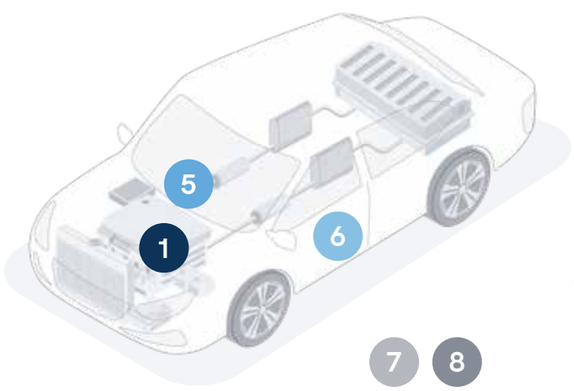
This method is ideal for applications where cost-efficiency is a priority: Using argon instead of helium can significantly reduce operating costs—without compromising test quality.

Furthermore, testing with air enables reliable leak testing without additional costs for components that are unsuitable for conventional pressure testing methods due to changes in volume or temperature fluctuations.

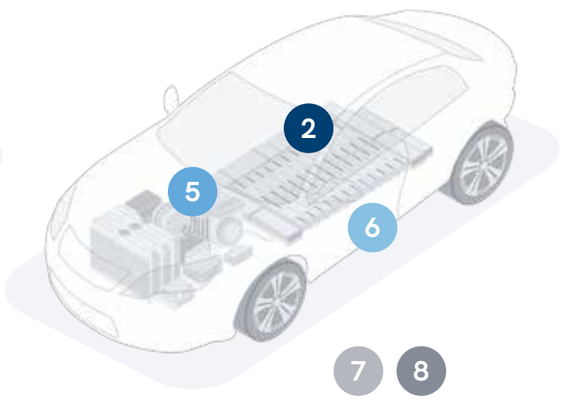
Comprehensive Leak Testing in Modern Automotive Manufacturing

Maximum safety and efficiency for all drive systems.

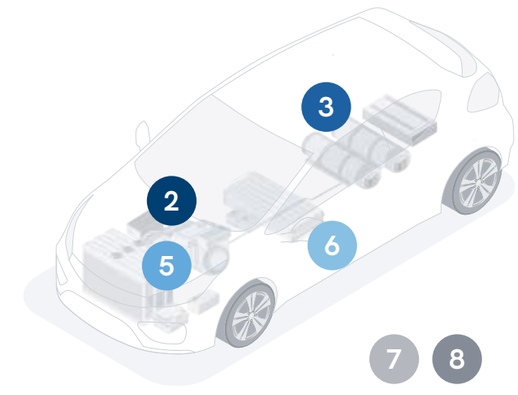
Vehicle with Combustion Engine



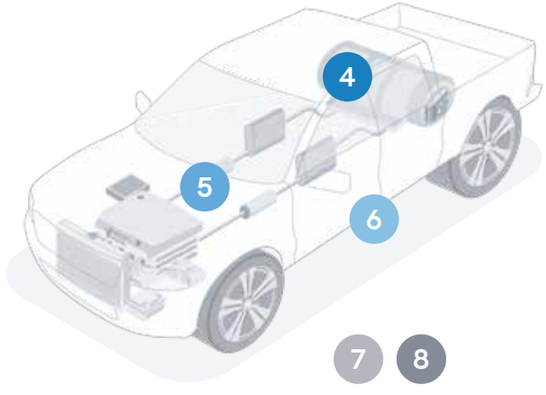
Electric Vehicle



Fuel Cell Vehicle



Natural Gas-Powered Vehicle



1 Internal Combustion Engine (ICE)

2 Battery Electrical System

3 Transmission / Electric Axle

4 Comfort & Safety

5 Fuel Cell Propulsion

6 CNG / LNG Engine

7 Final Assembly

8 Maintenance & Repair

1 - Internal Combustion Engine (ICE)

Fuel System

COMPONENT	FUEL PUMP	FUEL INJECTOR	HIGH-PRESSURE FUEL PUMP	HIGH-PRESSURE DISTRIBUTION PIPE (COMMON RAIL)
Testing method	Accumulation / Vacuum	Accumulation	Accumulation / Vacuum	Vacuum
Typical leak rate	~ 10^{-3} mbarl/s	~ 10^{-4} mbarl/s	10^{-4} … 10^{-5} mbarl/s	~10^{-5} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova	✓ LDS3000 AQ ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

COMPONENT	HIGH PRESSURE FUEL RAIL	FUEL FILTER	FUEL PRESSURE SENSOR
Prüfmethode	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typische Leckrate	10^{-4} … 10^{5} mbarl/s	~ 10^{-2} mbarl/s	10^{-4} … 10^{6} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova	✓ LDS3000

Tank System

COMPONENT	ACTIVATED CARBON FILTER	FUEL TANK	TANK FILLER NECK	TANK FILLER CAP
Testing method	Accumulation / Vacuum	Sniffing / Accumulation	Accumulation / Vacuum	Vacuum
Typical leak rate	~ 10^{-4} mbarl/s ~ 0.01 sccm	10^{-3} … 10^{-4} mbarl/s 5… 100 sccm	10^{-3} … 10^{-4} mbarl/s	10^{-4} … 10^{-5} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS3000	✓ LDS3000 AQ ✓ Protec P3000(XL)	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000

COMPONENT	FUEL TANK SENDING UNIT	SWIRL POT (DIESEL)	DEF („ADBLUE“)-TANK
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	~ 10^{-4} mbarl/s ~ 0,01 sccm	10^{-2} … 10^{-4} mbarl/s	10^{-4} mbarl/s
Recommended INFICON product	✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

Combustion Engine

COMPONENT	ENGINE BLOCK	OIL COOLER	OIL PUMP	WATER COOLER	CHARGE-AIR INTER-COOLER
Testing method	Vacuum	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	~10^{-3} mbarl/s	10^{-2} mbarl/s	10^{-2} - …1 mbarl/s 1 sccm	~10^{-1} mbarl/s	~10^{-3} mbarl/s
Recommended INFICON product	✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova	✓ LDS3000 AQ ✓ LDS Arnova	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

COMPONENT	(EGR) COOLER	TURBOCHARGER	PLASTIC OIL TANK	COOLANT EXPANSION TANK
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Air-Vacuum
Typical leak rate	~10^{-4} mbarl/s ~0.01 sccm	~10^{-3} mbarl/s	~ 10^{-1} mbarl/s	10^{-2} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova	✓ LDS3000 AQ ✓ LDS Arnova

2 - Battery Electrical System

Drive Battery

COMPONENT	LIQUID-ELECTROLYTE BATTERY CELLS	BATTERY MODULES	ALL-SOLID-STATE BATTERY CELLS	BATTERY PACK-TRAY + LID	ASSEMBLED BATTERY PACK
Testing method	Direct electrolyte testing	Direct electrolyte testing	Bombing	Accumulation / Vacuum	Sniffing / Accumulation
Typical leak rate	~ 10^{-6} mbarl/s	10^{-4} … 10^{-5} mbarl/s	10^{-5} …10^{-7} mbarl/s	~10^{-4} mbarl/s ~0.01 sccm	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ ELT Vmax	✓ ELT Vmax ✓ BES4000	✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ XL3000flex ✓ Protec P3000(XL) ✓ BES4000

Thermal Battery System

COMPONENT	INTERCOOLER	BATTERY MODULE HEAT SINK	SUB-COOLED LOOP RADIATOR
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	~10^{-4} mbarl/s ~0.01 sccm	10^{-3} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

COMPONENT	CHILLER	COOLING PIPES	COOLANT HOSES
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-3} … 10^{-4} mbarl/s	10^{-3} … 10^{-4} mbarl/s	10^{-3} … 10^{-4} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

3 - Fuel Cell Propulsion

Bipolar/End Plate

TEST	HYDROGEN DUCT TO AIR DUCT	HYDROGEN CHANNEL TO COOLING CHANNEL	HYDROGEN DUCT TO THE OUTSIDE
Testing method	Vacuum	Accumulation	Accumulation / Vacuum
Typical leak rate	10^{-3} …10^{-5} mbarl/s	10^{-3} …10^{-4} mbarl/s	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ LDS3000	✓ LDS3000 AQ	✓ LDS3000

TEST	AIR DUCT TO COOLING DUCT	AIR DUCT TO THE OUTSIDE	COOLING DUCT TO THE OUTSIDE
Testing method	Sniffing / Accumulation	Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-1} … 10^{-2} mbarl/s	10^{-4} … 10^{-5} mbarl/s 0.03 to 0.0006 sccm	10^{-2} …10^{4} mbarl/s
Recommended INFICON product	✓ LDS3000	✓ LDS3000	✓ LDS3000 AQ

Fuel Cell Stack

COMPONENT	HYDROGEN LOOP	AIR CIRCULATION	COOLING CIRCUIT	FUEL CELL HOUSING
Testing method	Sniffing / Accumulation	Sniffing / Accumulation	Sniffing / Accumulation	Accumulation / Vacuum / Sniffing
Typical leak rate	10^{-1} …10^{-3} mbarl/s	10^{-1} … 10^{-3} mbarl/s	10^{-1} … 10^{-3} mbarl/s	10^{-3} …10^{-5} mbarl/s
Recommended INFICON product	✓ Protec P3000XL ✓ XL3000flex ✓ LDS3000 AQ	✓ Protec P3000XL ✓ XL3000flex ✓ LDS3000 AQ	✓ Protec P3000XL ✓ XL3000flex ✓ LDS3000 AQ	✓ LDS3000 AQ ✓ LDS3000 ✓ Protec P3000XL ✓ XL3000flex

Hydrogen Supply

COMPONENT	RECIRCULATION FAN	HYDROGEN LINE	SHUT-OFF VALVE
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-4} …10^{-5} mbarl/s	10^{-4} …10^{-5} mbarl/s	10^{-4} …10^{-5} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

COMPONENT	PRESSURE CONTROLLER	FLUSH VALVE	DRAIN VALVE
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-4} …10^{-5} mbarl/s	10^{-4} …10^{-5} mbarl/s	10^{-4} …10^{-5} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

Air Supply

COMPONENT	STACK ISOLATION VALVE	AIR COOLER	COMPRESSOR
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-3} …10^{-4} mbarl/s	10^{-3} …10^{-4} mbarl/s	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

Hydrogen Storage

COMPONENT	HYDROGEN TANK	HYDROGEN TANK VALVE (OTV)	FILLER NECK
Testing method	Sniffing / Accumulation / Vakuum	Vacuum	Vacuum
Typical leak rate	10^{-4} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s	10^{-4} …10^{-5} mbarl/s
Recommended INFICON product	✓ LDS3000 AQ ✓ XL3000flex ✓ Protec P3000(XL) ✓ LDS Arnova	✓ LDS Arnova ✓ LDS3000	✓ LDS Arnova ✓ LDS3000

Thermal System Fuel Cell Stack

COMPONENT	COOLING TUBE	COOLANT HOSE	HEAT EXCHANGER	WATER COOLER	COOLANT PUMP
Testing method	Sniffing / Accumulation	Accumulation / Vacuum	Vacuum	Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-3} … 10^{-4} mbarl/s	10^{-3} … 10^{-4} mbarl/s	10^{-3} … 10^{-4} mbarl/s	10^{-3} … 10^{-4} mbarl/s	10^{-3} … 10^{-4} mbarl/s
Recommended INFICON product	✓ XL3000flex ✓ Protec P3000(XL) ✓ Sensistor Sentrac ✓ LDS Arnova	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000	✓ LDS Arnova ✓ LDS3000	✓ LDS Arnova ✓ LDS3000	✓ LDS3000 AQ ✓ LDS Arnova ✓ LDS3000

4 - CNG / LNG Drive

COMPONENT	GAS ENGINE	NATURAL GAS INJECTION VALVES	ENGINE HOUSING	NATURAL GAS TANK
Testing method	Schnüffeln	Accumulation / Vacuum	Vacuum	Sniffing
Typical leak rate	10^{-4} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s	~10^{-4} mbarl/s ~0.01 sccm
Recommended INFICON product	✓ **XL3000flex** ✓ **Protec P3000(XL)**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS Arnova** ✓ **LDS3000**	✓ **XL3000flex** ✓ **Protec P3000(XL)**

COMPONENT	GAS LINES	GAS VALVES	GAS FILTER
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-4} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s
Recommended INFICON product	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**

5.1 - Transmissions in Combustion Engines

COMPONENT	TRANSMISSION HOUSING	TORQUE CONVERTER	DUAL FLYWHEEL
Testing method	Sniffing / Vacuum	Accumulation / Vacuum	Vacuum
Typical leak rate	10^{-2} … 1 mbarl/s 1 sccm	10^{-4} … 10^{-5} mbarl/s	10^{-4} … 10^{-5} mbarl/s
Recommended INFICON product	✓ **XL3000flex** ✓ **Protec P3000(XL)** ✓ **LDS Arnova** ✓ **Sensistor Sentrac**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS Arnova** ✓ **LDS3000**

5.2 - E-Axis in Battery-Powered Vehicles

COMPONENT	COOLING CHANNEL ELECTRIC MOTOR	TRANSMISSION, INCLUDING DIFFERENTIAL	INVERTER COOLING	E-AXIS HOUSING
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-3} …10^{-4} mbarl/s	10^{-3} mbarl/s	10^{-3} …10^{-4} mbarl/s	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova**

6 - Comfort & Safety

Brake Circuit

COMPONENT	BRAKE FLUID RESERVOIR	VACUUM BRAKE PUMP	BRAKE HOSES
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation
Typical leak rate	10^{-3} …10^{-4} mbarl/s	~ 10^{-1} mbarl/s 5…20 sccm	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ **LDS3000 AQ** ✓ **LDS Arnova**	✓ **LDS3000 AQ** ✓ **LDS Arnova**	✓ **LDS3000 AQ**

COMPONENT	BRAKE CALIPERS	COMPRESSED AIR TANK	POWER BRAKE BOOSTER
Testing method	Vacuum / Accumulation	Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-3} …10^{-4} mbarl/s	10^{-4} … 10^{-5} mbarl/s 0.03 to 0.0006 sccm	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ **LDS3000** ✓ **LDS Arnova** ✓ **LDS3000 AQ**	✓ **LDS3000** ✓ **LDS Arnova**	✓ **LDS3000 AQ** ✓ **LDS Arnova**

Suspension

COMPONENT	AIR SUSPENSION VALVE	AIR SUSPENSION CYLINDER	SHOCK ABSORBER	WHEEL RIMS
Testing method	Vacuum	Vacuum	Vacuum	Vacuum
Typical leak rate	~10^{-5} mbarl/s	~10^{-5} mbarl/s	~10^{-4} mbarl/s	~10^{-4} mbarl/s
Recommended INFICON product	✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS Arnova** ✓ **LDS3000**

AC-System

COMPONENT	EVAPORATOR	CONDENSER	FILLING VALVE
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	~10^{-5} mbarl/s	~10^{-5} mbarl/s	~10^{-5} mbarl/s
Recommended INFICON product	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**

COMPONENT	EXPANSION VALVE	AC HOSES	COMPRESSOR
Testing method	Accumulation / Vacuum	Accumulation	Accumulation / Vacuum
Typical leak rate	~10^{-5} mbarl/s	~10^{-5} mbarl/s	~10^{-5} mbarl/s
Recommended INFICON product	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**	✓ **LDS3000 AQ**	✓ **LDS3000 AQ** ✓ **LDS Arnova** ✓ **LDS3000**

Airbag System

COMPONENT	SEAT BELT PRETENSIONER	AIRBAG INGNITOR CAPS	AIRBAG-GASGENERATOR
Testing method	Bombing	Bombing	Vacuum
Typical leak rate	~10^{-4} mbarl/s	~10^{-4} mbarl/s	Cold gas: 10^{-6} …10^{-8} mbarl/s Hot gas: 10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ **LDS3000**	✓ **LDS3000**	✓ **LDS3000**

Power Steering

COMPONENT	SERVO FLUID RESERVOIR	STEERING GEAR HOUSING	POWER STEERING UNIT
Testing method	Accumulation / Vacuum	Accumulation / Vacuum	Accumulation / Vacuum
Typical leak rate	10^{-3} …10^{-4} mbarl/s	10^{-3} …10^{-4} mbarl/s	10^{-3} …10^{-4} mbarl/s
Recommended INFICON product	✓ **LDS3000 AQ** ✓ **LDS Arnova**	✓ **LDS3000 AQ** ✓ **LDS Arnova**	✓ **LDS3000 AQ** ✓ **LDS Arnova**

7 - Final Assembly

COMPONENT	AIR CONDITIONING SYSTEMS	ENGINE FUEL CIRCUIT	FUEL RAIL CONNECTIONS	ENGINE LUBRICATION SYSTEM	COOLING CIRCUIT FOR DRIVE BATTERY
Typica leak rate	5 g/a of refrigerant per joint	10^{-3} …10^{-5} mbarl/s	10^{-4} …10^{-5} mbarl/s	~10^{-3} mbarl/s	5 g/a of refrigerant per joint
Recommended INFICON product	✓ **Ecotec 4000**	✓ **Sensistor Sentrac** ✓ **XL3000flex** ✓ **Protec P3000(XL)** ✓ **Ecotec 4000**	✓ **Ecotec 4000**	✓ **Protec P3000XL**	✓ **HLD6000** ✓ **Ecotec 4000**

8 - Maintenance & Repair

BAUTEIL	AIR CONDITIONING	BATTERY COOLING CIRCUIT	FUEL LINE	HYDROGEN SUPPLY
Testing method	Sniffing	Sniffing	Sniffing	Sniffing
Typica leak rate	3 - 5 g/a of refrigerant per joint	3 - 5 g/a of refrigerant per joint	10^{-3} …10^{-4} mbarl/s	~10^{-4} mbarl/s
Recommended INFICON product	✓ **AST200IR** ✓ **AST300PPM**	✓ **AST200IR** ✓ **AST300PPM**	✓ **AST100FG**	✓ **AST100FG** ✓ **Sensistor XRS9012**

Leak Testing Devices for the Preliminary Testing of Components

Comprehensive, Automated Testing

LDS3000

- ✓ Modular leak detector for integrated vacuum chamber systems
- ✓ Compact design, ideal for automated test systems
- ✓ Wide range of interfaces and protocols for easy integration
- ✓ Optional touchscreen display for convenient operation

LDS Arnova

- ✓ Modular leak tester for vacuum testing with air or argon (no helium required)
- ✓ Proven LDS3000 technology for high reliability and reproducible results
- ✓ Seamless integration into existing production lines thanks to familiar interfaces

LDS3000 AQ

- ✓ Modular leak detector for integrated vacuum chamber systems
- ✓ Compact design, ideal for automated test systems
- ✓ Wide range of interfaces and protocols for easy integration
- ✓ Optional touchscreen display for convenient operation

ELT Vmax

- ✓ Electrolyte leak tester for integration into fully automated battery production and in-line testing
- ✓ For lithium-ion and sodium-ion batteries as well as semi-solid-state cells
- ✓ Suitable for all cell formats and also for battery modules

Manual or robot-assisted leak detection

Protec® P3000(XL)

- ✓ Designed for continuous sniffing applications
- ✓ Reaches even hard-to-access test areas
- ✓ Minimizes operator errors thanks to an optimized design
- ✓ For use in demanding production environments

Sensistor® Sentrac®

- ✓ Sniffer leak detector using hydrogen as the tracer gas (5% H_2 in 95% N_2)
- ✓ High selectivity and wide dynamic measurement range
- ✓ Very short recovery times for fast test cycles
- ✓ Adaptable for a wide range of leak localization tasks

XL3000flex

- ✓ Highest measurement sensitivity even at greater distances
- ✓ Reliable even with imprecise handling
- ✓ Reaches hard-to-access test points with ease
- ✓ Ideal for robotic applications

BES4000

- ✓ Battery Electrolyte Leak Detector
- ✓ For locating leaking cells in battery modules and packs
- ✓ Suitable for detecting electrolyte leaks in assembled battery packs

End-of-Line Testing

HLD6000

- ✓ Specifically designed for testing automotive air conditioning systems
- ✓ Available for hydrocarbons (R134a, R1234yf) and CO_2
- ✓ Dual-channel inlet technology for reliable results
- ✓ High repeatability even at elevated ambient concentrations

Ecotec® 4000

- ✓ Detects leaking fluids (e.g., fuel, coolant)
- ✓ Can selectively detect up to four gases simultaneously
- ✓ Ensures high reliability during testing
- ✓ Minimizes operator errors through intelligent design

Leak Detection in Auto Repair Shops

Maintenance and Repair

- ✓ Battery-powered leak detectors for automotive air conditioning service
- ✓ Portable and flexible for use in the workshop
- ✓ Ideal for maintenance and repair of air conditioning systems

Suitability for test gases: He Helium · H_2 Hydrogen (forming gas) · Refrigerant · Air · Ar Argon · Fuel · Electrolyte

Stop Leaking Profits

INFICON products support both complete part testing and leak location methods so you can stop leaking profits. Select from a wide range of test gases and leak testing products to assure you are using the best leak testing technology for your particular application. Our leak detectors provide the highest quality and increased process safety.

Your Reliable Partner from Applications Support to Service

A specially assigned contact person who knows the requirements of your industry will work with you to define the desired specifications. After installation of your new leak detector, we support you with world-class service and troubleshooting expertise, if needed, to get the most out of your leak detector. An INFICON leak detector is optimized for its specific leak testing application. Products and services are continuously improved in close cooperation with our experts in development. This also includes the evaluation of new leak testing products at the customer's site.

INFICON leak detectors not only are at the forefront of technology and offer the highest performance, but are also very easy to operate. With an INFICON leak detector, long training periods or errors in handling are simply a thing of the past.

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