



NEW

Differential pressure type: LS-R902EV
Flow type: AL-R302EV



EtherNet/IP

Realizing highly accurate leak measurement for large-volume products such as large EV batteries at micro-low pressure



Differential pressure type: LS-R902EV



Flow type: AL-R302EV

Feature Introduction

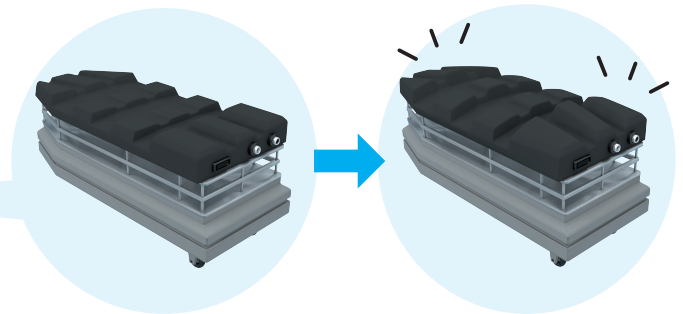
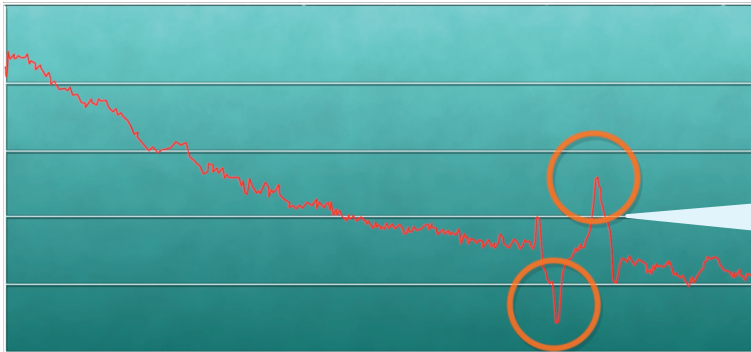
Two new features Realize even higher accuracy in leak measurement for large-volume products

CISVAS Filter

Common

NEW

It filters flow changes caused by sudden work deformation

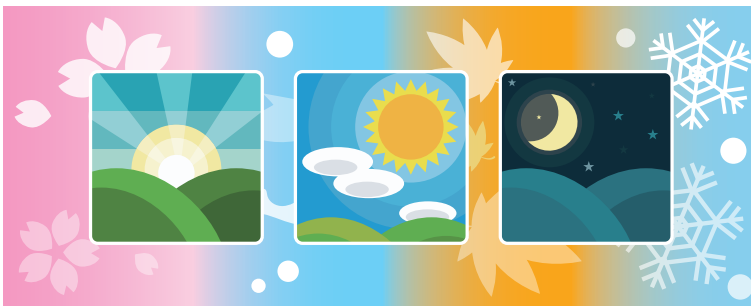


When test air is applied inside the product, especially large resin product, its housing suddenly deforms during measurement. This irregular deformation disturbs the pressure in the product being measured and can cause false judgment. The CISVAS filter (Cosmo's unique algorithm) monitors the sudden deformation noise during measurement and automatically identifies it, thereby removing it as a factor of false judgment. As a result, deterioration of yield and false "Pass" judgment on "Fail" products due to the deformation can be prevented.

Ambient Temperature Compensation

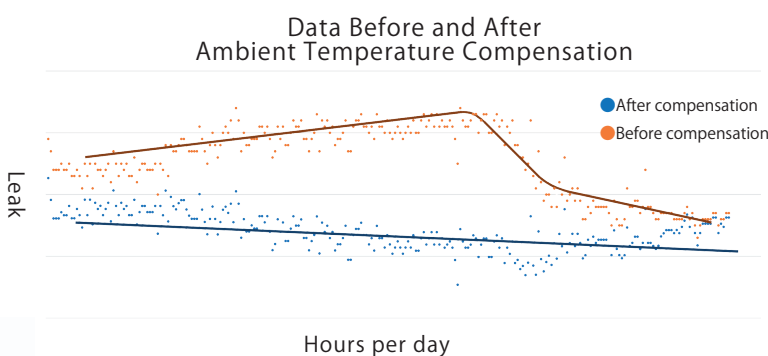
Common

NEW



Reduces false judgments due to ambient temperature change

Temperature change that occurs during air leak test, as well as deformation, can cause false judgment in Detection. Research has shown that especially for large-volume products, changes in ambient temperature have strong correlation to test results and significantly change the data. This change in ambient temperature is caused by a variety of factors, including seasons (spring, summer, fall, winter), transition from morning to afternoon to evening, and sudden winds.



The EV Series Leak Testers measure the ambient temperature in real time and calculate the amount of compensation based on the difference from the reference temperature and reflect it in each leak test. This feature can significantly reduce false judgments caused by sudden and persistent temperature changes.

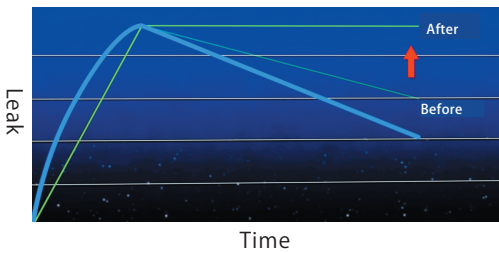
*There is a limit to the temperature change that can be tracked by the ambient temperature compensation.

Feature Introduction

COSMO, challenging the air leak testing for 50 years, is proud of extensive features for air leak testing

Test Pressure Change Compensation

AL-R302EV



Compensates for changes in leak rate due to test pressure change

For flow test, correct test pressure must be applied to ensure accurate measurement. If the work is leaking, the internal pressure drops due to the leak, which also decreases the flow. As a result, "Fail" products may be misjudged as "Pass" and would be on the market.

By constantly monitoring the pressure in the detection circuit, even if the test pressure deviates from the specified value during measurement, the flow can be corrected to the one at the specified pressure to realize highly accurate measurement.

Display of Actual Volumetric Flow

Common

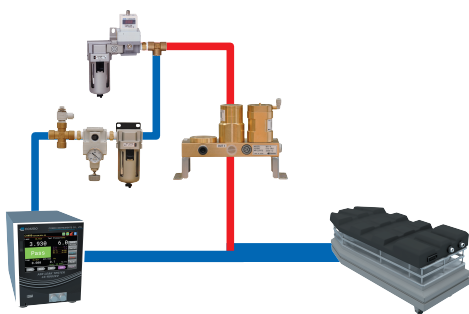


The same criteria can be used for judgment anywhere in the world

Measurement of the actual volumetric flow in the test environment enables accurate judgment using the same criteria anywhere in the world. LS-R902EV, besides the actual volumetric flow (mL/min), can display the differential pressure (Pa).

Bypass Circuit

Common



Reduces cycle time with increased pressure supply

When applying pressure to a work with a large internal volume, it takes a considerable amount of time for pressurization to reach the specified test pressure. Using the Bypass Circuit increases the pressure supply, reducing the overall test time. For LS-R902EV, as shown in the image, adding an E/P Regulator can further reduce pressurization time by applying a higher pressure than the specified test pressure in the early stage of pressurization.

* For AL-R302, be careful about the handling in test methods where E/P Regulator is used.

Mastering

LS-R902EV

Compensates for temperature effects due to adiabatic compression

In differential pressure decay leak test, a rise in air temperature (adiabatic change) during pressurization causes a pressure change, which can lead to false judgment. The increase of temperature disappears over time. (The time required for it depends on the characteristics of the work.) Using the amount of convergence over time as a compensation value achieves accurate measurement with a shorter test time.

Self-Check

Common

Removes risk of misjudgment due to tester factors

Leak testers may misjudge defective products as good products due to valve or sensor malfunction. The EV Series checks the operation of the pneumatic circuit including valve and sensor operations as well as that of the electronic circuit. This feature allows for reliable leak testing.

Functional design for use on the machine

Leak test of cooling circuits supported

LS-R902EV



Same model covers leak test of cooling channels and housing

For LS-R902EV, especially designed for leak testing of EV battery cooling channel system, option Medium Range is available. When used in conjunction with option Micro Low Range, which targets the housing, leak test required for large batteries can be completed.
* The AL-R302EV can also be used for leak testing of the housing.

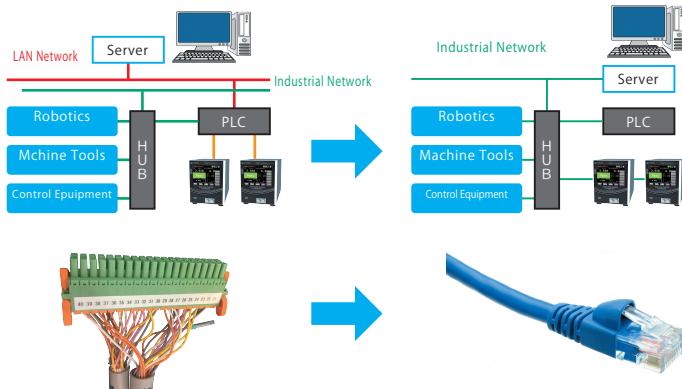
Fieldbus

Common

Full communication with the machine

EtherNetIP or PROFINET can be used in place of the standard Control I/O (Phoenix Contact). Easier setup of PLC and PC. Test results can be output to the network. Complicated wiring of communication cables can be greatly reduced.

Network Overview



Compact housing

Common

Compact and easy to operate

The tester size is 40% smaller than our conventional testers with the size of the touch screen kept unchanged. Space-saving while maintaining operability.



More compact than before

(W) 23% smaller
(H) 10% smaller
(D) 23% smaller

Troubleshooting

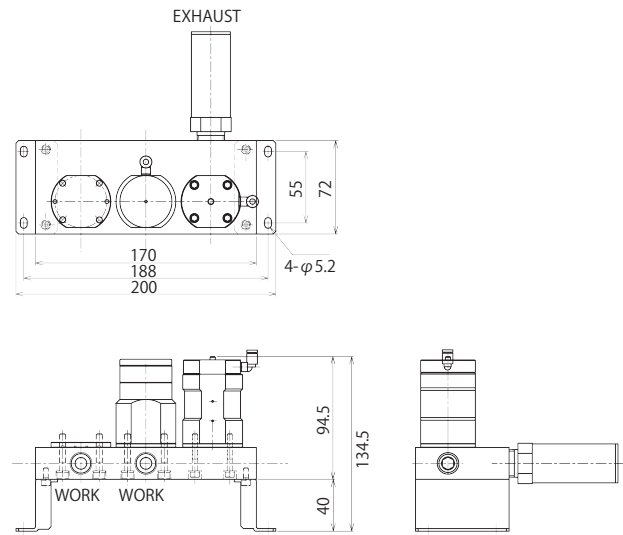
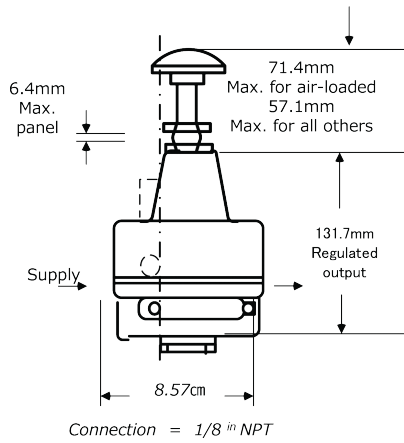
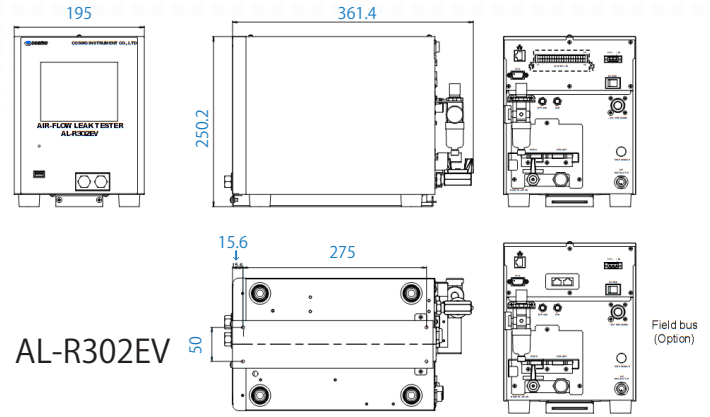
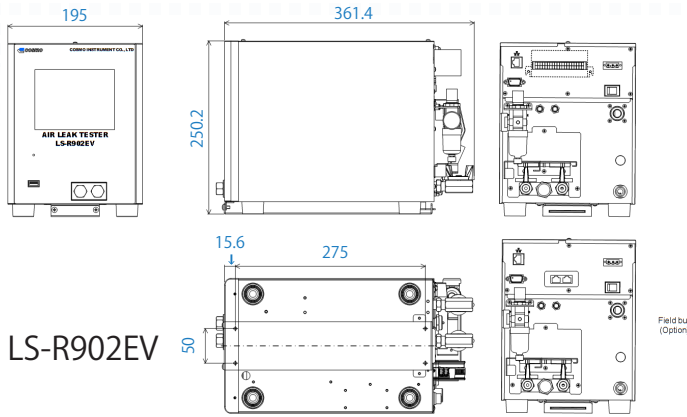
Common

Quick troubleshooting

When an error occurs, the tester displays the probable causes and treatments. No operation manuals are required. You can start solving problems immediately.

Com.	USB Data Acquisition	Test data and parameters can be backed up and saved to USB.	Com.	Control Valves Made by Cosmo	The pneumatic circuit has failure-resistant valves made by Cosmo.
Com.	Serial Communication	RS-232C Test data can be communicated.	LS-R	Cleaning (Air-Blow in Exhaust)	Automatically cleans the pneumatic circuit in each test.
Com.	Control I/O Port	Phoenix Contact (NPN-PNP common) The tester can be remotely controlled.	LS-R	External Exhaust Valve	Prevents inflow of contaminants from the work during Exhaust. * External Exhaust Valve (G3 Series) is sold separately.
Com.	I/O Monitor	Operation of the tester I/O can be displayed to check the communication with external devices.	Com.	Two sets of Leak Limits	DET(UL)/DET(UL2) and DET(LL)/DET(LL2) can be set.
Com.	Noise Reduction (DET repetition)	Detection is repeated when the measured data falls between DET(UL/LL) and DET(UL2/LL2). Reduces yield deterioration due to pressure change factors other than leak.	AL-R	Digital Filter	The readings are averaged to obtain a stable reading with little variation.
LS-R	Automatic Setup	The tester assists in setting the timers for initial setup.	AL-R	User Span	The user span value can be set automatically or arbitrarily.
LS-R	CAL Driving Valve for Leak Master	The sensitivity of the leak tester can be automatically checked. * Leak Master is separately required.	LS-R	E/P Regulator	E/P regulator that automatically regulates the pressure to the valve set to the tester can be connected. * E/P Regulators are sold separately.
			Com.	Stop Valve Monitoring	Prevents misjudging "Fail" products as "Pass", caused by testing with the valves closed
			Com.	Exhaust Interference Prevention	Exhaust timing after measurement can be externally controlled.

External Appearance



Model / Option

AL-R302EV (A . B)

	Item	Name	Model	Details
Option	A	Fieldbus	N5	EtherNet/IP
			N6	PROFINET
	B	Display Units and Others	UX1	SI Units (Japan)
			UX2	All Units

LS-R902EV (Grade . A . B)

	Item	Name	Model	Details
Option	Grade	Test Pressure Range	T1	(Medium) Range: 50 to 800 kPa
			T2	(Micro Low) Range: 1 to 14 kPa
			T3	(Vacuum) Range: -14 to -2 kPa
	A	Fieldbus	N5	EtherNet/IP
			N6	PROFINET
	B	Display Units and Others	UX1	SI Units (Japan)
UX2			All Units (Overseas only)	

Specification Details

	LS-R902EV	AL-R302EV	
Performance	Pressure Media	Air	Air
	Measurement Method	Differential Pressure measurement	Flow measurement
	AD Resolution	24 bits (Output resolution 0.001 Pa)*3	24 bits (Output resolution 0.001 mL/min)*3
	Accuracy	1% or more of rdg ± 1 Pa(50 Pa or less: ± 2 Pa)*1	1 % of F.S. ± 1 digit
	Judgment Range	0.1mL /min to 30L/min *2	1 mL/min to 100 mL/min
	Range	0 kPa to 1 kPa, 0 kPa to 10 kPa *1	0 mL/min to 100 mL/min
	Sensor Proof Pressure	1 MPa to 5 MPa *1	40 kPa
	Test Pressure	-14 kPa to -2 kPa, 1 kPa to 14 kPa, 50 kPa to 800 kPa	1 to 14 kPa
	Leak Display	3 to 5 digits (Floating point) Sampling rate 10 times/sec.	
	Number of Channels	32 channels	
Timer Setting	Up to 999.9 s (Resolution: 0.1 s)		
Power	24 VDC		
Temperature	Operating temperature: 5 to 45 C Storage temperature: -20 to 60 C		
Humidity	80% RH or less (No dew condensation)		
Weight	11.0 kg (Main unit only)	8.3 kg (Main unit only)	
Pressure Source	Clean air The source pressure must be sufficiently higher than the test pressure and pilot pressure.	Clean air The source pressure must be sufficiently higher than the test pressure and pilot pressure.	
Pilot Pressure	400 kPa to 700kPa	400 kPa to 700 kPa	
Port Size	Test pressure, Pilot pressure, WORK and MASTER ports: Rc 1/4	Test pressure, Pilot pressure, WORK and MASTER ports: Rc 1/4	
Communication	RS-232C,EtherNet (FTP),EtherNet/IP, PROFITNET		
USB	Test Data (Test result, Waveform, Mastering) Settings Backup System Backup Firmware Upgrade		
Accessories *3	Oil mist separator and regulator for test pressure, Filter regulator for pilot pressure, Quick mounting brackets, Control I/O connector, Power Cable, Inspection record, Traceability documents		

*1 : Depends on the sensor. *2 : Depends on the test conditions. *3 : Depends on the product specifications.

The contents in this Product Information are as of October 2024.
The specifications and external appearances are subject to change without notice.

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