PRODUCT INFOMATION AIR LEAK TESTER

Helps reduce measurement errors and false rejects due to part temperature effects.
Compensation graphs viewed on large LCD screen.
Easy setting for mapping of the graphs.

Air Leak Tester with Temperature Compensation

LS-R902(ATC)

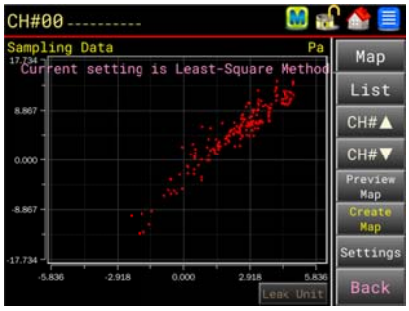
Any trouble with leak test after washing process?

To solve problems with temperature, consult Cosmo. We have abundant experience and excellent technology.

■ Automatic Mapping

1) Collecting data on the ambient-temperature parts and after-washing parts

Carries out leak test under the same condition as the production line to determine Temperature Compensation value.
- Uses non-leaking parts for sampling.
- Collects data on the ambient-temperature parts and after-washing parts.
- Collected data can be checked on the Sampling Data (Scatter plot) screen.



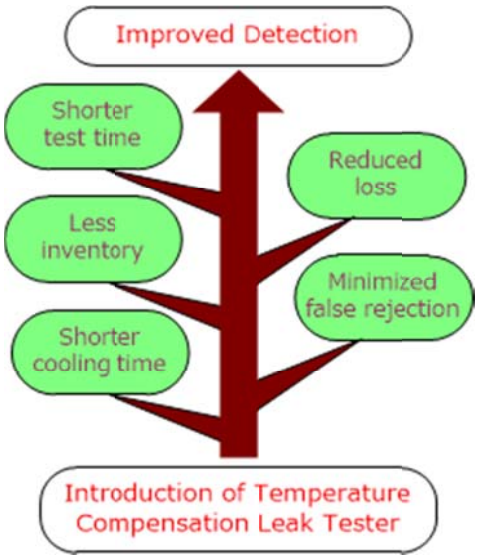
2) Checking the Sampling Data

Collected data can be checked on the Sampling Data (List) screen.
Unnecessary data (such as abnormal values) can be deleted on this screen.

3) Determining the Temperature Compensation value

Determines the Temperature Compensation value using the Sampling Data.
Selecting “Least-square Method” or “Averaging Method” automatically determines the Temperature Compensation value.
“Least-square Method” is selected in this screen.

■ Advantages



■ Mechanism of False rejects due to Temperature Effects

When the part temperature is higher than the ambient temperature in such a case as after washing process, the temperature change of the parts as a result of thermal exchange with the clamp fixture affects the leak measurement. To cope with it, the measured values can be compensated using the correlation between the differential pressure change and part temperature that causes measurement errors. The Temperature Compensation realizes highly precise leak tests and reduces false rejects.
Note: Water accumulated on the part interferes with the correlation. Remove water as much as possible to maximize Temperature Compensation.

Washing

Washing raises the part temperature.

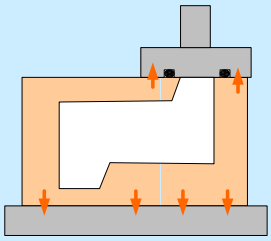
Leak Test

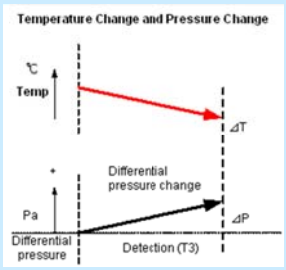
Thermal exchange with the environment lowers the part temperature.

Air temperature inside the part drops

Pressure inside the part changes.

Frequent Part (+) Fails occur





■ Configuration of LS-R902(ATC) System

Air Leak Tester with Temperature Compensation
LS-R902(ATC)

Temperature Compensation Unit
TCU-900

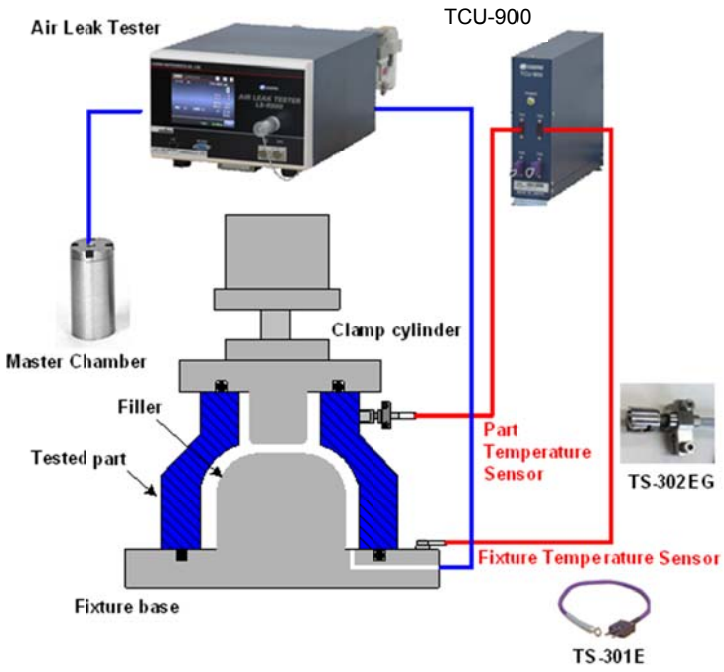
Part (Work) Temperature Sensor
TS-302EG

Fixture/Master Temperature Sensor
TS-301E

Connecting cable

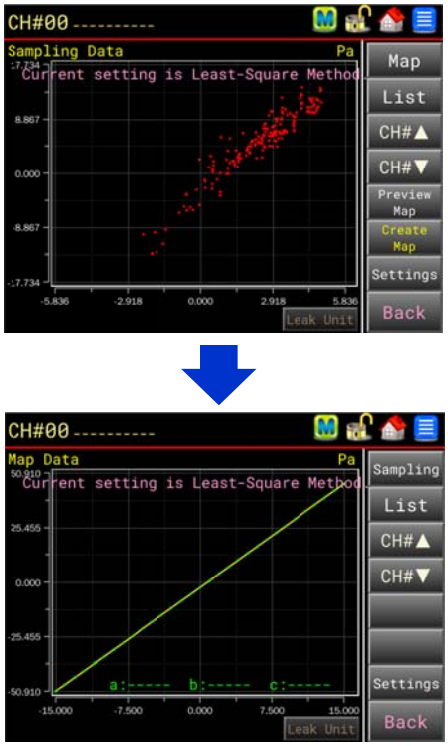
■ Overview of Temperature Compensation System

The temperature difference between the part and the environment (fixture, Master Chamber or atmosphere) is measured to carry out the Temperature Compensation according to the correlation between the temperature difference and measurement errors.



■ Basis of Compensation

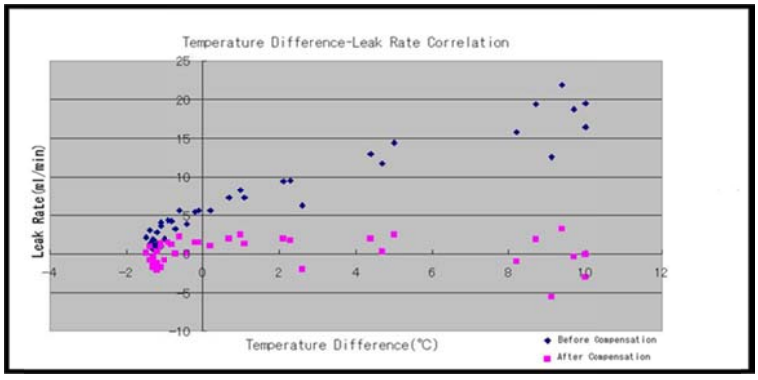
Raw data of temperature difference and differential pressure

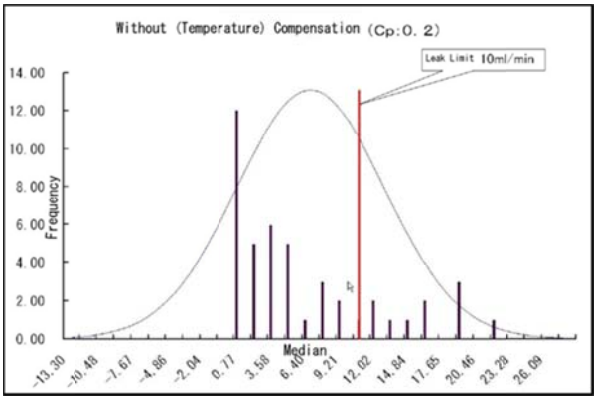


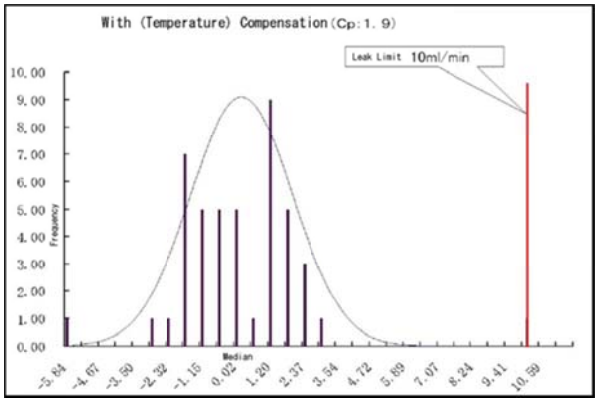
■ Example of Temperature Compensation Data

- Tested part: Oil pan (Whole)

Test condition
(1) Test pressure: 100 kPa
(2) Equivalent internal volume: 2500 mL
(3) Leak specification: 10 mL/min
(4) Test timers:
Pressurization 22 secs.
Equalization 3 secs.
Stabilization 5 secs.
Detection 3 secs.







■ Model Classification　　LS-R902 – (1)(2)(3)

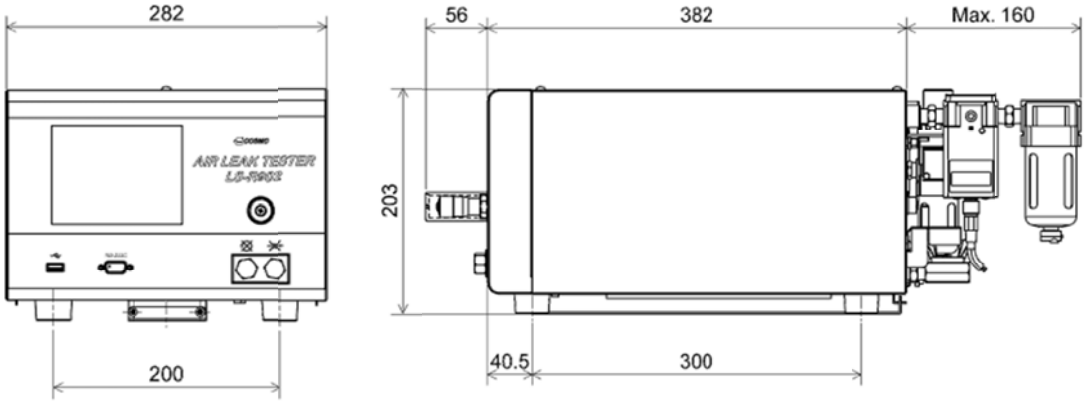
(1)	Pneumatic Circuit	A1, A2, AS01, AS1, C
(2)	Regulator	Precision Regulator (L02, L, M) E/P Regulator (LR, MR)
(3)	Option	Calibrator (J, K05, K1, K4, K10), Bypass Circuit Ready (B), Differential Pressure Sensor Range: 10 kPa (D4), Pressure/Vacuum Pressure Sensor (PV1), etc. TCU ports (IN, OUT) provided on the rear panel without TCU (RX09) TCU ports (IN, OUT) + TCU (Temperature Compensation Unit), sensors and cables sold as a set (RX10)　For details, refer to the catalog of LS-R902.

■ Specifications (TCU-900)

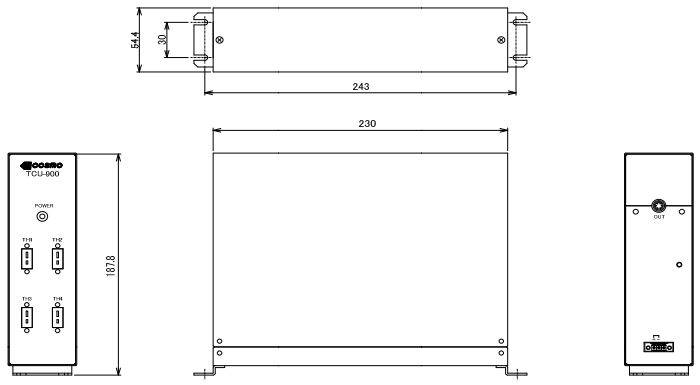
Max. Part Temperature	80 ºC	Weight	Approx. 1.8 kg
Max. Temperature Difference	50 ºC	Place to Use	Indoor
Power Source	24 VDC ±10 %	Accessories	24 VDC adapter, Power cord (Withstand voltage 125 V, Length 3 m), Operation Manual
Ambient Temperature	Operating temperature: 5 to 40 ºC, Storage temperature: -20 to 70 ºC	Option	High pressure power cord (CE compliant, 240 VAC or lower, Length 2 m)
Humidity	80 %RH or less / no dew condensation		

■ External Appearance

LS-R902(ATC)



TCU-900



* The contents of this PRODUCT INFORMATION are as of August 2018. The specifications are subject to change without notice.

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