Anritsu
envision : ensure

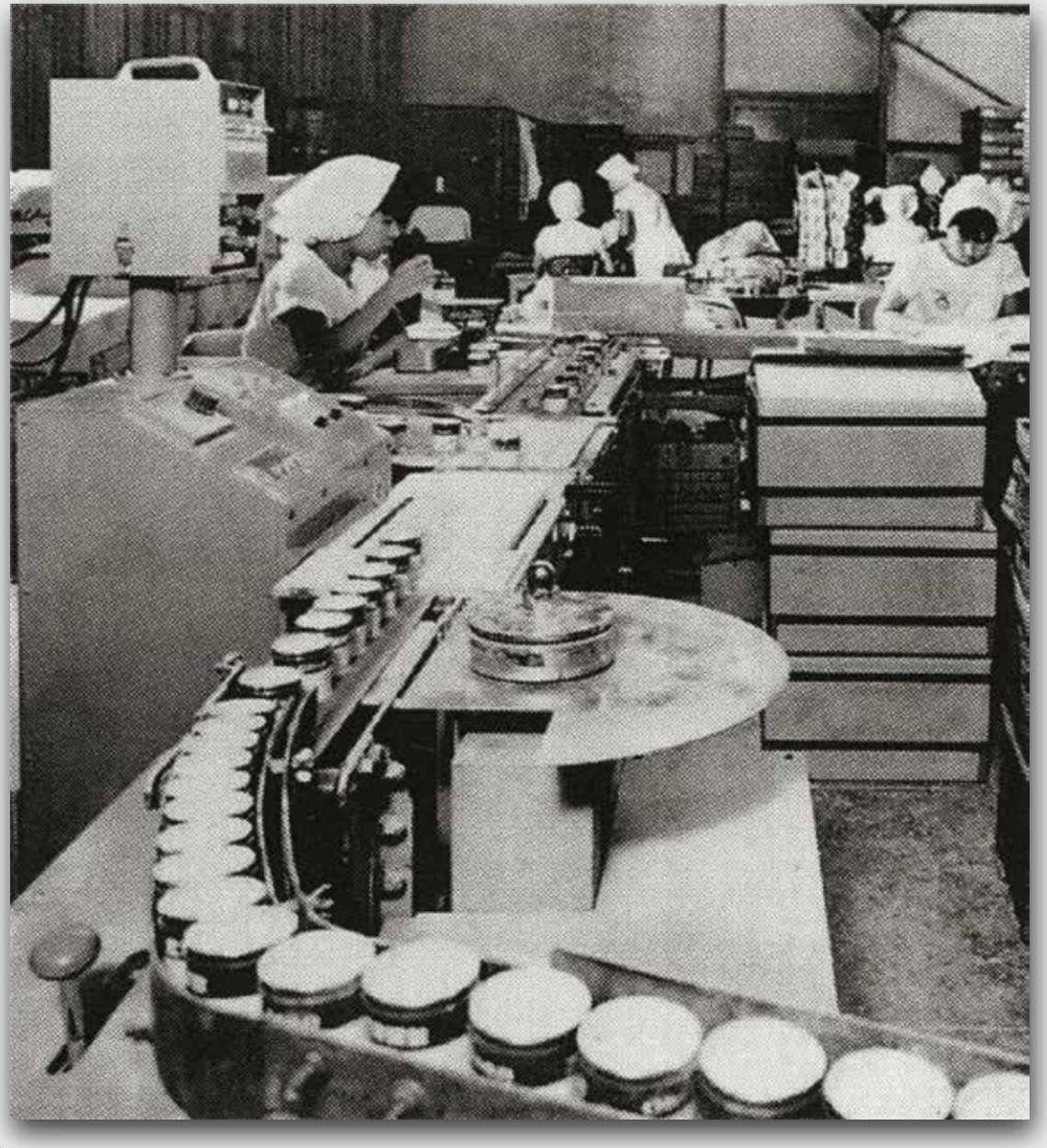
ANRITSU INFIVIS CO., LTD.

Solutions for Pharmaceutical Industries

weight | inside | inspection

Since **1964**

Anritsu's inspection systems started with innovation of signal processing.



Checkweigher K501A
1964

Anritsu's first Checkweigher was purchased by pharmaceutical company

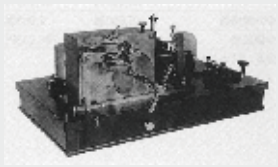
Anritsu's checkweighers have advanced together with the pharmaceutical industry. We delivered our first checkweigher to a pharmaceutical manufacturer. Learning from the pharmaceutical industry's rigorous attitude toward quality control, Anritsu Infivis has since continued to develop its technologies. Anritsu Infivis is committed to addressing advanced quality assurance issues through closer cooperation with customers and partners in the pharmaceutical industry.

1964

Electronic micrometers

Not so long after desktop electronic calculators were put out into the world, Anritsu gave birth to its checkweigher, which was based on electronic micrometers that electrically measure micron-level displacement using a differential transformer. And that was an innovation. By measuring the difference of weight based on displacement of a coil, we developed a weighcell by ourselves to be built into a machine which is able to reject products - our first checkweigher K501A.

Desktop electric calculator of the time



Morse printer

Japan's first public telephone box

1895

In 1895, Anritsu's predecessor Sekisan-sha was founded. The company improved its performance particularly with the production of Morse printers. With a merger in 1908, the company became Kyoritsu Electric Wire, and expanded its operations with the production of public telephones that had just been launched in Japan.

Around that time, technologies connected to the current business of the Anritsu Group were discovered; Guglielmo Marconi in Italy succeeded in wireless telegraphy based on radio waves, and Wilhelm Conrad Röntgen in Germany discovered X-rays and succeeded in taking radiograph. Anritsu has a history of advancing together with technologies for signal processing, particularly communications.

[Left] Marconi experimented transatlantic transmission
[Right] Wilhem Röntgen detected X-rays

Over **80,000** units installed

We disclose six facts in the history of Anritsu for more than half a century.

Cumulative shipments of checkweigher

Over 80,000 units

as of March 31, 2017

Ever since we shipped our first checkweigher K501A that was put on sale in 1965, we have sold more than 80,000 units of checkweighers in total. We have also sold more than 50,000 units of metal detectors and more than 10,000 units of X-ray inspection systems.

Countries of destination

as of March 31, 2017

Over 50 countries

Our products are used by customers not only in Japan but also in many countries, from major pharmaceutical manufacturers in the U.S.A., Germany, Italy, China and India, to emerging countries such as Vietnam, Indonesia and Argentina.

Capsule Checkweigher

Since 1970

Ever since its early years, Anritsu has developed weight inspection equipment for minute weight products. The K515, capsule checkweigher developed in 1970 featuring five small parallel spring microbalances and Anritsu's proprietary capsule feeding design, had the capacity to weigh 600 capsules per minute at an accuracy of 3 mg.

Electromagnetic force balance weighcell

Since 1989

Achieved the world's top-level speed of 400 products/minute and accuracy of ±0.02 g not by weighing based on gravity but by balancing against electromagnetic force generated by a coil.

World's first automatic sensitivity setting for metal detectors

Since 1991

Nowadays, most metal detectors are with the function of automatic sensitivity setting, but Anritsu's KD801Ax released in 1991 was the world's first one with the function. With its expertise acquired in the field and total engineering capability in terms of both hardware and software, Anritsu automated phase adjustment that used to be dependent on skilled engineers' intuition and experience.

In-house development of X-ray inspection system

Since 2000

The KD7203AW is a high-sensitive contaminant detector that generates stable X-rays with an inverter power source and proprietary X-ray tube and uses image processing algorithm developed in-house. Launch of this small-sized X-ray inspection system at an almost half price of conventional large-sized, high-price models facilitated the widespread use of X-ray inspection systems.

Maximum accuracy: +/-**0.5 mg**

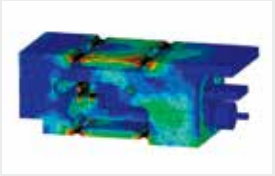
Anritsu develops all its products, including weighcells, in-house.The results can be seen in the performance of electromagnetic force balance weighcells.

Built-in Multi-Lane
Weighing System : Weighing unit

Bringing technologies and wisdoms together

Weighcells, the symbol of Anritsu's originality, become possible only when everything that is required, including hardware, software, production technology, and frontline expertise, is in place. To achieve high speed measurement at the milligram-level accuracy, Anritsu has evolved by making continued efforts for design elaboration and repeating careful simulations, experiments and demonstrations. Anritsu's weighing technologies over half a century is packed into its weighcells.

The weighcell that resistant to vibration noise



Rigid simulation of Weighcell

Dynamic weighing technologies deliver exceptional speed and accuracy

The key to high-speed, high-accuracy weighing is reducing vibration noise and improving response. Weighing accuracy declines with vibration noise generated by non-vertical load applied to the weighcell, which may be caused by dispersion of feeding position of product to be weighed. Anritsu's weighcells have the optimal mechanism for dynamic weighing with improved rigidity due to elaborate analysis of loads in a vertical, horizontal, or torsional direction. Anritsu has also improved response of its weighcells by analyzing weighing vibration to eliminate unnecessary vibration noise because that mixed in weighing signals destabilizes the weight value, which declines processing capacity.

High stability Obtained Class XII, the world's highest standard of EU's Measuring Instrument Directive (MID)

Causes of a decline in weighing stability include a change in room temperature and thermal expansion caused by mechanism elements inside a weighcell. To comply with OIML R51 requirements, Anritsu conducted 3D CAD simulation analysis to halve weight value fluctuations caused by a change in room temperature, compared with its previous model. Anritsu also renewed signal processing to not only to quadruple output resolution compared with its previous model but also to improve rejection accuracy to achieve. Measuring Instruments Directive defines several different classes according to the accuracy of measurement instruments. Anritsu KWS60 series checkweigher is the world's first checkweigher to obtain Class XII*, the highest standard ever achieved, with its superior weighing properties. Anritsu's new electromagnetic force balance scale has achieved the verification scale interval of e=0.05 g (3 to 100 g capacity).

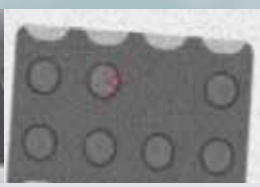
*as of May 2013, according to our own reseach

So many **Originals**

We disclose six facts that tell Anritsu's technologies.







Capsule Checkweigher

Stably feed semi-locked capsules

The shuttered magazine, unique shaped retention unit, and ejector allow stable feeding, even for lightweight semi-locked capsules that are difficult to handle, and achieve high-speed, high-accuracy weighing.

Tablets or Capsules Checkweigher based on sampling

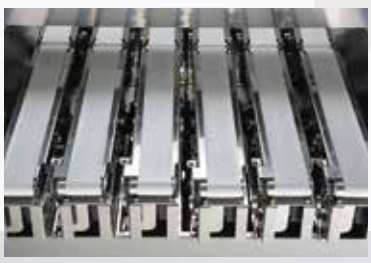
Unique handling technology

Anritsu's tablets or capsules checkweigher suctions tablets or capsules one by one and put them on the weighcell at a certain interval to achieve highly accurate inspection. It is also designed to handle various shapes and sizes of products, such as tablets, capsules, or spherical Chinese medicine, without replacement of parts.

Minimum conveyor pitch (Multi-Lane Checkweigher)

50 mm

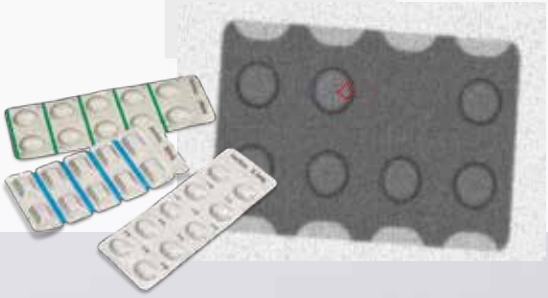
Anritsu's small-sized electromagnetic force balance achieves not only the minimum conveyor pitch of 50 mm with proprietary expertise, structural analysis, and stress analysis simulation, but also the maximum accuracy of ±0.002 g with improved vibration resistance and a highly rigid structure.



X-ray control technology

Orally disintegrating tablet

Having a structure that allows effective use of low-intensity X-rays, Anritsu's X-ray inspection systems for pharmaceutical products can take high-contrast x-ray images of even pharmaceutical products through which X-ray penetrates easily, making highly sensitive inspection possible.



Conforming to CFR 21 Part 11

Only Anritsu in Japan

as of June 30, 2018

Anritsu's checkweighers supports authentication, audit trail, and data encryption and decryption, which CFR 21 Part 11 requires. Anritsu allows flexibility in software design because of in-house substrate production.

Metal sensing technology

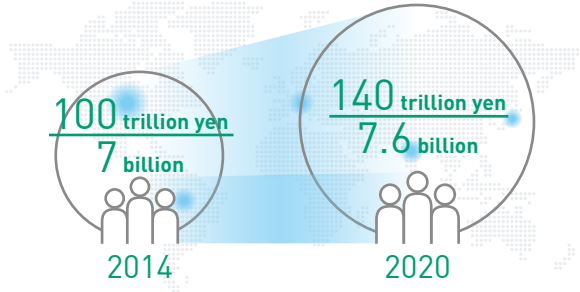
Magnetoreflection method

Magnetic reflection is a unique detection method based on the principle of metals being magnetized, and invented to inspect metal contaminants inside aluminum packaging materials. Anritsu applied the method to inspect shortage or the number of package inserts printed with magnetic inks.

Solutions for **QC** & **Productivity**

Improves quality and productivity in pharmaceutical manufacturing and R&D.

With increasing population, aging of population, needs for new healthcare, and increasing demand for pharmaceuticals in developing countries, world's demand for pharmaceutical products is increasing at a pace far faster than that of population increase, and expected to increase by about 40% from 2014 to 140 trillion yen (sales value base) in 2020. Pharmaceutical manufacturers are required to further balance production efficiency and quality maintenance. Anritsu provides a wide variety of high quality solutions to support customers.



Formulation package unit

Filling/dispensing inspection

Tablets

Capsules

Sachets

Sheet

Sticks

Tube

Pouch

Bottles

Cans

Tablets or Capsules Checkweigher

Capsule Checkweigher

Built-In Multi-Lane Weighing System

Multi-Lane Checkweigher

Dual-Lane Checkweigher

Checkweigher for bottles with small diameter

Checkweigher for aerosol can

Marketing package unit

Original package unit

Inside Inspection

Binding/packing inspection

Check for missing magnetic package inserts

Carton inspection

Inspection of packages in cardboard boxes

X-ray Inspection System

SSV-h Series Checkweigher conforming to CFR 21 Part 11

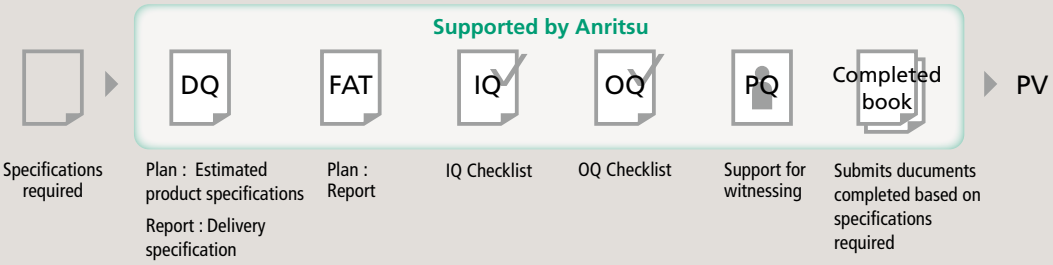
Package Insert Inspection System

SSV-h Series Checkweigher

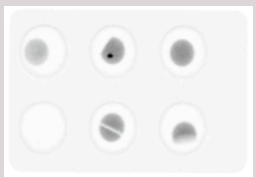
Case Checkweigher

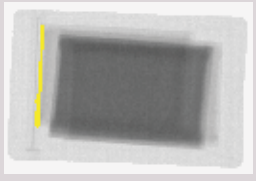
Topics Supporting CSV Guidelines: **Validation support**

Anritsu with full validation functions satisfy GMP requirements while supporting accurate and efficient operations. Anritsu also provides IQ/OQ checklists and supports witnessing of PQ to support customers.



Topics New trends in pharmaceutical inspection: **Non-destructive inside inspection**





X-ray inspection for 100% inspection of pharmaceuticals: X-ray inspection systems can conduct shape inspection as to void or broken products, flaw of a tablet, package check, and so on, while inspecting contaminants. The systems can also inspect products in packages that uses aluminum on both sides, and therefore are effective for quality inspection of pharmaceuticals.

Influence of X-ray radiation on pharmaceuticals: Jointly with Nagoya City University, Anritsu conducted a survey with regard to influence of X-ray radiation on pharmaceutical quality and confirmed that normal X-ray inspection has no influence on quality.

Excellent maintenance services

Global support structure

Optimize performance at production lines based on the advantage that comes from development and manfacture by ourselves

Anritsu conducts development and manufacture by ourselves, knowledgeable about the characteristics of our products. To make use of those know-how, Anritsu is strengthening our support structure globally.

Our service network covers 50 countries now. Our experienced service engineers provide high-level services.

During service training, we provide know-how on machine settings and trouble shooting in depth so that Anritsu products can perform at the high level that they should be.

Service of sample test being conducted before your purchase of our inspection systems. By using your own product samples, it enables you to confirm exactly how the detection sensitivity can be.

We conduct technical seminars tailored to your requirements. The lecture includes the principle of operation, how to operate and on quality management.

ANRITSU INFIVIS


Head office

Head office

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TEL: +81 46 296 6699 FAX: +81 46 296 6786

Paid-up capital: 1,350 million yen

Sales volume: 17,283 million yen (Year ended March 31, 2017: Non-consolidated)
19,588 million yen (Year ended March 31, 2017: Consolidated)

Employees: 404 (as of March 31, 2017: Non-consolidated)
533 (as of March 31, 2017: Consolidated)

Europe, Africa and Middle East

ANRITSU INFIVIS LTD.
Luton, United Kingdom

Austria
Bahrain
Belgium
Croatia
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Jordan
Kuwait
Latvia
Lebanon
Lithuania
Luxembourg
Netherlands
Norway
Oman
Poland
Portugal
Qatar
Russia
Saudi Arabia
South Africa
Spain
Sweden
Switzerland
Turkey
U.A.E.
United Kingdom
Yemen

Asia and Oceania

Anritsu Industrial Solutions (Shanghai) Co., Ltd.
Shanghai, P.R.China

ANRITSU INFIVIS (THAILAND) CO., LTD.
Chonburi, Thailand

Australia
China
Hong Kong
India
Indonesia
Malaysia
Philippines
Singapore
South Korea
Taiwan
Thailand
Vietnam

Americas

ANRITSU INFIVIS INC.
Illinois, U.S.A.

Argentina
Brazil
Canada
Chile
Costa Rica
Ecuador
El Salvador
Guatemala
Honduras
Mexico
Panama
Peru
United States
Venezuela

(as of January 31, 2018)


ANRITSU INFIVIS INC.


ANRITSU INFIVIS LTD.


Anritsu Industrial Solutions (Shanghai) Co., Ltd.


ANRITSU INFIVIS (THAILAND) CO., LTD.

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