

Quality Control

Range Brochure





Quality Control

Our company

Ishida is a privately owned family run business, with our worldwide headquarters in Kyoto, Japan. Our President, Takahide Ishida, is the 5th generation of the Ishida family, having succeeded his father Ryuichi Ishida in 2010.

As a world leader in the design, manufacture and installation of weighing, packaging and quality control solutions, Ishida has vast experience and knowledge of many diverse food industries, ranging from snacks and dry food to fresh and frozen food applications.

Ishida opened its first overseas subsidiary, Ishida Europe, in 1985. The Ishida Europe headquarters is in Birmingham, UK, and serves Europe, Middle East and Africa (EMEA). We have wholly-owned Ishida sales and service operations in 9 countries, and have committed, experienced agents and distributors in a further 30 countries.

Innovative weighing and packaging machines, ancillary equipment and complete line solutions for these territories are designed and manufactured in our manufacturing and R&D facilities in both the UK and Japan.

Our people

The wealth of knowledge and experience of Ishida personnel ensures that our customers receive best in class solutions to improve their weighing, packing and quality control operations. This means our customers can focus on their core business, while we focus on solving their challenges.

Our innovations

Research and development are central to the philosophy of Ishida's business. Ishida Europe uses experience, creativity and state-of-the art technology to develop solutions to enable our customers to push new competitive boundaries.

To support the requirements of evolving food markets and in addition to our product development centre in Kyoto, Japan, we have UK product development facilities in Birmingham and Poole. This enables us to deliver locally designed and tailored solutions to suit our customers needs.

Aiming for continuous technical improvement, our latest innovations include tray sealers, x-ray inspection systems and end of line packing solutions.

Our customers

In 1972, we developed the first ever multihead weigher for whole peppers. Since then we have provided weighing equipment for thousands of food and non-food applications with more than 50,000 machines installed.

Takahide Ishida
(President)



Offering a complete line solution

Ishida is capable of offering complete line solutions of our own or outsourced products.

1. Weighing & filling

Everything you need to interface with modern weighing/filling system to get your product into a tray and on its way to the tray sealer.

- ▲ Multihead weighers
- ▲ Distribution systems
- ▲ Tray denesters

2. Sealing

Advanced tray sealer technology from Ishida's world-leading QX range delivers the look, the seal type, the modified atmosphere your pack concept or your customer demands.

- ▲ Snack food bagmakers
- ▲ Ishida iTPS® (Integrated Total Packaging System)
High speed weighing and packing systems for snacks
- ▲ Tray sealers

3. Quality control

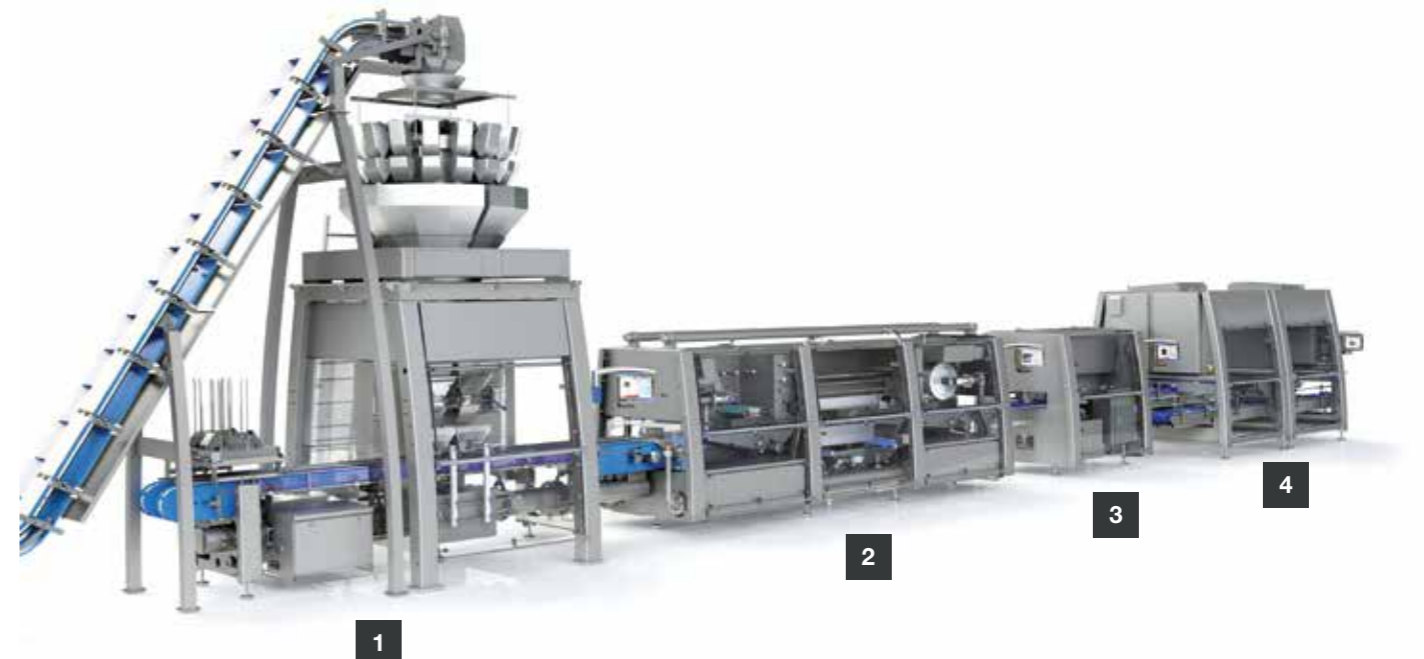
Ensuring everything about the pack is right, from contamination to label orientation and from data to weight.

- ▲ Seal testers for pillow packs
- ▲ Seal testers with vision systems for trays
- ▲ X-ray inspection systems
- ▲ Metal detectors
- ▲ Checkweighers

4. End of line packaging

Choose the exact fill and layer geometry you want in your boxes and create and vary it at will. Options include single and twin robots.

- ▲ Pick-and-place systems



X-ray inspection - foreign body detection and much more

X-rays can evaluate the varying densities in a product or pack to reliably identify dangerous foreign bodies such as metal pieces, glass or ceramic fragments, stones, bones and high density rubber or plastic.

Detection of foreign bodies



Where X-ray inspection is used

X-ray inspection of finished packs or secondary packs is very common, but the technique is also widely used for checking incoming raw materials, or even within the production process itself.

What's unique about Ishida X-ray equipment?

Performance depends mainly on three factors: the X-ray generator and associated electronics that produce the rays, the sensor that picks up the rays that have passed through the product and the software that analyses the resulting image.

Ishida offers a range of high quality generators as well as line sensors with very small pixel sizes, resulting in unrivalled foreign body detection. Combined with Ishida's unique and patented GA (Genetic Algorithm) technology, these factors optimise detection sensitivity for commonly occurring foreign bodies while minimising costly false positives.

Bringing quality control to a new level

The quality control benefits of x-ray technology go far beyond product safety. With the right inspection system you can:

- ▲ identify missing items
- ▲ detect product inclusions in trays
- ▲ ensure correct pack fill
- ▲ monitor product shape and completeness
- ▲ calculate the weights of individual pieces

X-ray inspection throughout your production process



The X-ray range

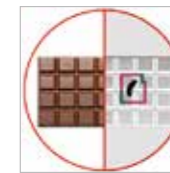
You can rely on our advanced technology for the sensitivity levels and pack formats you require.

From standard inspection to ground-breaking levels of monitoring and product insight, we offer systems to meet your exact current needs or to future-proof you against new challenges in your facility.

To cater for both primary and secondary packaging applications, detection widths range from 240mm to 650mm.



Ishida X-ray Inspection System



EN - Versatile solutions

Affordable and easy-to-integrate packages, designed to exceed common industry detection specifications across a wide range of applications.



GN - Enhanced detection

Enhanced technology, providing optimised detection across many product groups and their contaminants.



G2 - Dual energy

A dual energy detection system can pick up lower density contaminants such as poultry bone and can be very helpful with complex or overlapping products.



Large Format

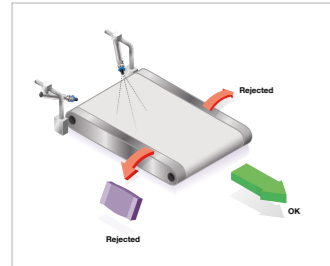
Achieves high detection sensitivities in secondary packaging, including Eurotrays and cartons, and ingredient bags.



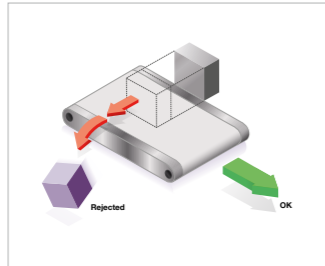
Side Beam

Reliable inspection of upright containers such as PET and HDPE bottles, tetra packs, stand up pouches and composite containers.

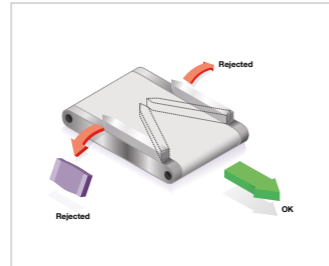
Ishida X-ray range options



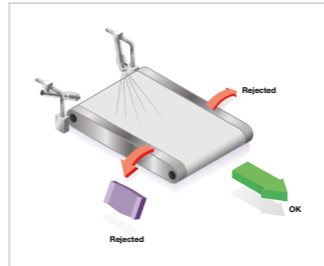
Standard/light duty air reject



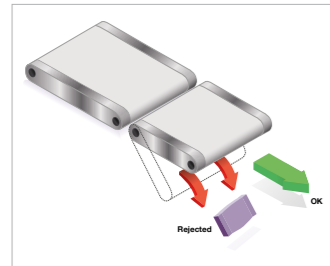
Pusher reject



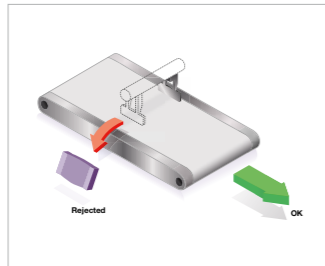
Slap arm reject



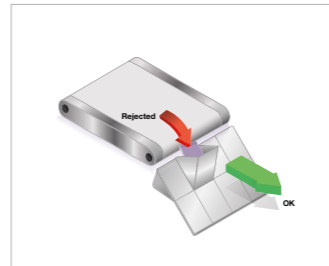
Heavy duty air reject



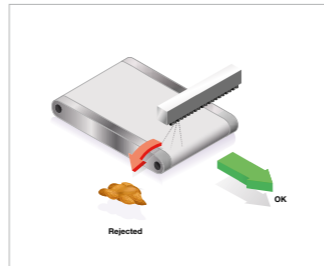
Drop belt reject



Pneumatic paddle pusher reject



2 OR 4 lane upflap



20 nozzle air reject

Getting product rejection just right

Ishida can provide a full range of reject mechanisms to suit your product type, size and weight, your package type and your production speed. These include:

- ▲ powerful air blasts for high speed production
- ▲ pusher rejects for higher weight items
- ▲ arms and drop belt rejects for medium weight and speed applications
- ▲ 2/4 lane up-flap rejects and multi lane filtered air nozzle rejects suitable for bulk products

Software to enhance your specific application

We offer a range of software options for particular applications. Examples include product-in-seal detection and the monitoring and masking of clips and other artefacts that form part of your product or its packaging.

Expert product handling

Rejected product can be directed into collection bins or delivered to other locations, such as a reworking station. Ishida's immense handling expertise, using roller tracks for example, will help you minimise damage and wastage, however fragile your product.

Easy maintenance improves effectiveness

The innovative Ishida guarding and reject bin design allows full access for cleaning and maintenance, while the protective curtains and the conveyor belts lift out with no need for tools. It all contributes to minimising downtime and maximising Overall Equipment Effectiveness (OEE).



Protective tungsten curtains can be rapidly lifted out.



Guarding and reject bin design allows easy access

Pack leak detection - bringing new certainty to shelf life

Research has indicated that pack leaks and their consequences are one of the main reasons for retailers returning stock. In line leak detection systems can use pressure or laser technology to detect the smallest leaks in packs at high speeds.

Leak testing, once a slow batch process can now take place in-line. It is non-destructive, so there is no damage to packed products and any rejected products can be recycled.

With several categories of packaging in use, leak detection has evolved so as to maximise effectiveness in each case.

Where does leak detection fit into your line?

Leak detection typically follows the completion of primary packaging and acts as a final quality check on each bag or tray.

What's unique about Ishida leak detection?

Ishida is unique in offering in line solutions tailored for both MAP and non-MAP applications. Its AirScan product brings unique speed and sensitivity to MAP packs, thanks to its innovative laser technology approach to CO₂ detection.

For MAP applications not involving CO₂ and for non-MAP products, Ishida's pressure sealtesters feature a vibration-free servo technology that offers an exceptional degree of pressure control. This ensures that packs are handled as gently as possible while confirming their integrity.



Many products need MAP (modified atmosphere packaging) incorporating CO₂

Modified atmosphere products (MAPs) using CO₂

These include meat, baked products, cheese and pasta, where the CO₂ in the pack atmosphere helps suppress the growth of microbes or mould. Depending on the application, the CO₂ may be mixed with oxygen, nitrogen or other gases. Such packs can be tested by sensitive evaluation techniques, to detect any leakage of CO₂.



Snacks are also MAP-packed, but typically use N₂ within their gas flush process

Modified atmosphere products not containing CO₂

Some products, such as crisps and extruded snacks, are packed very rapidly while being flushed with a gas such as nitrogen. Testing is carried out by gently applying pressure to the sealed pack and recording any 'give' which would indicate a leak. Because of the nature of the snack food packing industry, this has to be done at very high speeds.



Large numbers of products do not need MAP

Products packed without a modified atmosphere

In many cases, the ambient atmosphere is incorporated into the pack without modification. Nevertheless, pack integrity is vital to ensure that moisture levels are retained and foreign bodies or microorganisms prevented from entering. Here again, pressure methods of leak detection are used.

Fast, decisive screening to suit your pack type

Our leak detection portfolio integrates into a wide range of production lines, covering both MAP and non-MAP products. Each system will pick up pinholes and tears right down to the lowest size limits currently detectable, at industry-leading line speeds for any given pack type.



Fresh pasta

Ishida AirScan

Unrivalled detection of escaping carbon dioxide

Many MAP products have a proportion of CO₂ in their pack atmosphere. Ishida's innovative AirScan system detects leaks from apertures as small as 0.5mm at speeds of 160 packs per minute.

Key to the market leading sensitivity of the AirScan is a laser detection unit tuned to pick up the unique vibrations of the CO₂ molecule. These vibrations absorb energy from the laser beam, triggering an alarm and rejection of the pack.

To ensure that any escaping CO₂ reaches the detector, rollers apply slight pressure to each pack, speeding up the flow of gas through any openings.

AirScan gives reliable results even when the CO₂ content of the pack atmosphere is as low as 10% w/v.



Chicken in trays

QC220

Pressure Seal Tester for non MAP/ MAP products

These pressure seal testers are typically used with rectangular packs in non-MAP or MAP products that do not contain CO₂. Pressure is rapidly but gently applied to each pack, after a preliminary smoothing and conditioning of the pack.

Any rapid drop in pressure, as picked up by sensors in the tester, indicates a pack integrity problem, and is followed by rejection.

Applications range from wet wipes to fresh produce, with detection of small-aperture leaks at speeds of up to 140ppm.



Snack packs

TSC Seal Tester

High-speed leak detection for bags containing snacks

Mainly used for bags containing a modified atmosphere without CO₂, typically nitrogen-flushed snack packs, this system also employs carefully but rapidly applied pressure.

It handles bag lengths from 100mm to 650mm, with thicknesses ranging from 15mm to 123mm.

The TSC seal tester detects leaks as small as 3mm at typical snack industry speeds of up to 200bpm.



Ishida AirScan

Leak detection range options



An underside conveyor is provided with the AirScan platform for sensing around the complete pack.



To fully monitor pack labels, a vision system can be mounted on the QC220 platform.



A variety of intake conveyors can be supplied to take packs from the bagmaker into the TSC seal tester.

All Ishida leak detection systems are offered with a range of options and ancillaries, providing great flexibility in handling different applications. They can also be adapted and even customised to ensure maximum efficiency in picking up leaks from a specific pack type, while respecting product fragility. Reject confirmation is available in all cases.

AirScan options

Where packs or contents are particularly fragile, or vary significantly in height, standard rollers can be replaced with softer ones, which flex gently as the pack passes the detector head.

QC220 options

The QC220 Seal Tester offers a range of options to match different applications, including:

- ▲ Arm or HD air reject
- ▲ Up to for 4 bins for rejected products
- ▲ Roller tracks for fragile rejected products
- ▲ Guides for different product types
- ▲ Conveyor and bead type heads
- ▲ Top and bottom vision camera for label inspection

TSC options

The TSC Seal Tester features many options to cater for the unique requirements of the snack food packing process.

A variety of methods, including J conveyors and inclined conveyors, are available for transporting packs away from the bagmaker and product downstream.

Other choices include:

- ▲ Stabilisers
- ▲ Conditioning brushes
- ▲ Air rejects
- ▲ Drop flap rejects
- ▲ Ishida Total Packaging System (ITPS) interface

Checkweighers: your key to weight compliance and production optimisation

Checkweighers contribute to product quality by ensuring each pack falls within a pre-defined weight range. Their use in this role is overseen by organisations like OIML and WELMEC and enforced through directives like MID (Measuring Instruments Directive), and their data can be kept as evidence of compliance.

However they can also contribute to product integrity (as in the number of pieces per pack) and when combined with a metal detector to eliminating potential harmful foreign bodies.

Where are checkweighers used?

Checkweighers are used in a wide variety of applications and locations within a product line from accurate weight on naked and packaged products to missing items in cartons/boxes of products.

Typically they are used as a final check on packaged products and applications guidance and support around product infeed and rejection is often critical to achieving a suitable level of performance at site.

What's unique about Ishida Checkweighers?

We maintain a strong R&D capability in the development of load cells, electronics and software. These are developed and brought to market entirely in-house. They offer unique SNR (Signal to Noise Ratio) characteristics which provide both high accuracy and speed.

Our weigh cells also offer a variety of novel features like force dislocation mechanisms that protect load cells from excessive loads, along with market leading AFV (Anti-Floor Vibration) capability. Only Ishida designed, developed and manufactured systems carry the Ishida brand name.

Working together on your application needs

You won't find a partner with more checkweigher experience and expertise than Ishida. We now offer our largest ever range whilst maintaining a strong technical edge, supporting entry level requirements through to high speed production environments.

We use that edge and our applications expertise (based on an extensive installed base worldwide), to fully understand your needs. Whether you seek a set of brand new production lines or simply want to integrate a single machine into an existing line we will spend the time to fully understand your brief and come up with the optimum solution.



Weighing pre-packed product: this enables re-processing without wasting pack materials. Results can be fed back to filling systems upstream.



Checking packaged products: checkweighing and metal detection systems are often needed to comply with retailer or regional requirements.



Checking secondary packaging: checkweighing can ensure that cartons or crates contain the right number of packs.

The Ishida Checkweigher range

An unrivalled choice, backed by industry-leading knowledge and advice.

Ishida's range of checkweighers are recognised internationally and across industry for their accuracy and robustness.

Strain gauge or force balance loadcells, simple keypad interface or top-of-the-range colour touchscreen, we offer not only the widest choice but the knowledge and advice to go with it. Our worldwide applications experience covers not just checkweighing but whole production lines, packing operations, factories and multi-site enterprises, so that we are uniquely placed to link your checkweighing operations into surrounding systems and environments.



Ishida Checkweigher with ancillaries



Performance-Line

Performance with value

Our entry level platform offers simplified operation and outstanding reliability. It comes in two range options: up to 1.2kg and up to 5.0kg. These models can operate in MID and non-MID mode and are offered with a range of options to meet many different applications.



Excellence-Line

Versatility and precision

This highly versatile platform comes in two weight categories: up to 1.5kg and up to 6kg, both offering MID and non-MID performance. Depending on your requirements for speed and accuracy, either weight range can operate in precision or standard mode. These checkweighers offer our most extensive range of options to facilitate even the most challenging applications.



Advance-Line

Accuracy with speed

These models feature force balance technology and offer two different weight bands: up to 1.5kg and up to 3kg. They can operate in precision or standard mode and can handle very low weights at high speed, in MID or non-MID mode. Again, options are available to meet a wide range of applications, reflecting extensive Ishida experience.



Carton-Line

Handling heavy weight and volume

Carton-Line checkweighers are an excellent way of ensuring that cartons/ boxes contain exactly the right number of primary packs. In line with this task, standard weight ranges are up to 15kg, up to 30kg and up to 60kg.

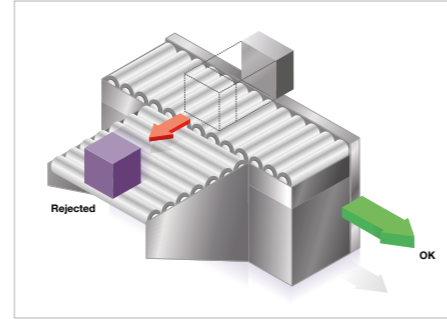
Checkweigher range options



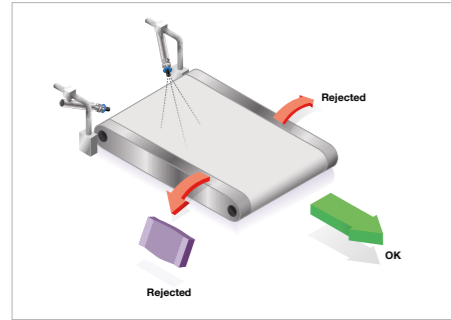
Metal detection: multi-frequency and multi-spectrum units can be integrated.



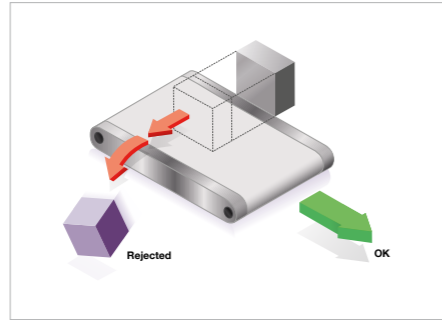
X-ray inspection: foreign body detection can be extended beyond metals by incorporating this increasingly in-demand technology.



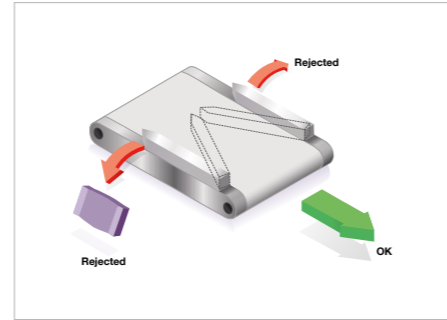
Roller Track: For delicate and/or heavy products then roller tracks can be used to take rejected products.



Air reject: best for high speed, relatively low-weight packs.



Pusher reject: for heavier pieces at relatively low speeds.



Arm reject: for medium speed and weight applications.

We offer all our checkweighers with a range of options to meet different application requirements.

Control interface: minimising the staff training burden

Our simple-to-use but information-rich interfaces can take the form you and your team find most convenient, whether keypad, jog dial or touchscreen.

Optimising removal of non-compliant product.

Product weight, size, shape, and fragility, together with production line speed, will determine which reject system we recommend. For example, a high-powered air blast may be best on fast lines. Mechanical arms often work well for irregular or heavy packs, while a pusher reject is suitable for heavy products moving at relatively low speeds.

Reject receptacles for safe storage

Receptacles into which product can be diverted include fully enclosed bins of various sizes. Roller tracks can be provided, to move more fragile products to reject and inspection or for re-work.

Software options that extend functionality

Ishida checkweighers feature an impressive level of functionality as standard. Additional software options include feedback control, to enable filling machines to respond to variations in the actual weights being packed, and reference weight renewal which can alter the nominal weight target in line with environmental changes.

Metal detection at a level appropriate to your product

Inspection for metal fragments in many products can be reliably carried out by installing a multi-frequency metal detector. These machines offer a choice of inspection frequencies. However only the single most appropriate frequency is used to inspect a given product.

Products with high water and salt content can give false positives with these systems and are more reliably inspected using multi-spectrum metal detectors, which simultaneously pass many frequencies through the product. Ishida can slot either type of metal detector neatly into your checkweigher, and has the expertise to help you choose which best suits your requirements.

Software that supercharges your data

The quality control data you generate can go far beyond your immediate inspection objectives to materially improve the quality of your products and processes and increase profitability.

Ishida offers you software that unlocks the potential of thousands of recorded measurements that would otherwise remain as passive statistics.



IDCS

Captures data to improve performance and ensure full compliance

A critical requirement for most food producers is the ability to demonstrate pack weight compliance within production batches. The Ishida Data Capture System (IDCS) consists of both machine hardware and server software that captures and records checkweigher settings and data for every pack. Operators can review the information at any time, facilitating compliance with regulations such as the Measuring Instruments Directive (MID).

The IDCS enables the accumulated data to be interrogated and analysed, providing reports that can be applied to significantly improving the Overall Equipment Effectiveness (OEE) across lines, plants and companies.



Ishida Sentinel™

Get the power of remote access and control behind your inspection data

Ishida Sentinel is a unique remote customer care software solution that combines machine performance monitoring with comprehensive data capture and in-depth analysis. It ensures that food manufacturers and packers can operate their lines to maximum performance and efficiency. Sentinel triggers early awareness of likely upcoming problems, thus helping avoid downtime.

Supporting your journey towards Industry 4.0

Most Ishida machines and complete line solutions can be configured to interface to the Ishida Sentinel™ software to deliver remote performance monitoring, remote machine control and remote performance intervention.

Regulatory compliance

Working closely with food producers and packers round the world has made us familiar with the challenges and issues they face on a daily basis. Close to the top of the list is compliance.

Retailer codes of practice

These are rules put in place by groups of retailers, intended to set clear standards for their suppliers. They vary with each retailer. An example would be a code specifying how food products should be monitored for foreign bodies.

Commonly such codes insist that inspection systems should have RRC (Retail Reject Confirmation), a feature that ensures that any rejected pack has been physically removed from the line.

The Ishida approach, taking the above example further, would be to tailor the inspection solution to our customer's need, recommending RRC where the relevant code demanded it, and SRC (Simple Reject Confirmation), an equally effective guarantee of quality where it did not.

Supermarket Reject Confirmation System



Diagram indicates RRC for Checkweighers, however a solution can be offered on all quality control equipment.

HACCP

Hazard analysis critical control point (HACCP) is a methodology for ensuring food safety accepted by many governments, including the European Union.

To put together a HACCP plan, a food manufacturer will analyse their production process and identify critical control points (CCPs) where problems could arise. Some of these will be the points where automated inspection is needed, and it will be important to specify the level of any contaminants which the inspection system must pick up.

Ishida can assist food producers in deciding on the effective measure to use at any particular CCP within their process.



MID

Within the EU, dynamic checkweighers operate under the Measuring Instruments Directive (MID), while in the UK they operate under "Weights & Measures". Both of these can place particular requirements on the performance characteristics of machines within particular applications.

All Ishida checkweighers comply with MID and as a recognised developer of inspection technology worldwide, and an organisation with experts in many markets, Ishida is very well-placed to be your partner in determining your approach to compliance with local regulations.

Our commitment to manufacturing and service excellence

We design and build most of the quality control equipment that we supply to Europe, the Middle East and Africa (EMEA) in a modern manufacturing facility at our headquarters in Birmingham, UK. The output includes checkweighers, X-ray inspection systems and leak detectors.

Quality manufacturing - the Ishida heritage

In keeping with our Japanese engineering ethos, we use lean manufacturing tools such as Kanban stock control, Poke Yoke (failsafe) and Kaizen (continuous improvement) to achieve high quality levels and on-time delivery.

Right First Time

Manufacturing is organised into product cells, each with responsibility for building and testing particular machines in both standard and bespoke configurations. Team members are selected for their experience and receive continuous structured training. Engineering and operational teams work closely together to deliver a "right-first-time" result, signing off on the final build.

This combination of skills and care works to ensure that every product is delivered both to our high standards and to the customer's satisfaction.

Unrivalled support throughout your new equipment's life-cycle

When you purchase quality control equipment or software from Ishida you can be confident of real and lasting support. We have skilled and knowledgeable applications experts to support you through your decision-making process and installation, providing guidance on machine selection and configuration, and assisting with factory-based and on-site trials.

Widest Service Network across EMEA

During the ongoing life cycle you will benefit from our unrivalled service network. We have offices across the EMEA area to provide a strong and well-qualified engineering presence close to you, with tiered central support available as required, as well as central and regional help desks.

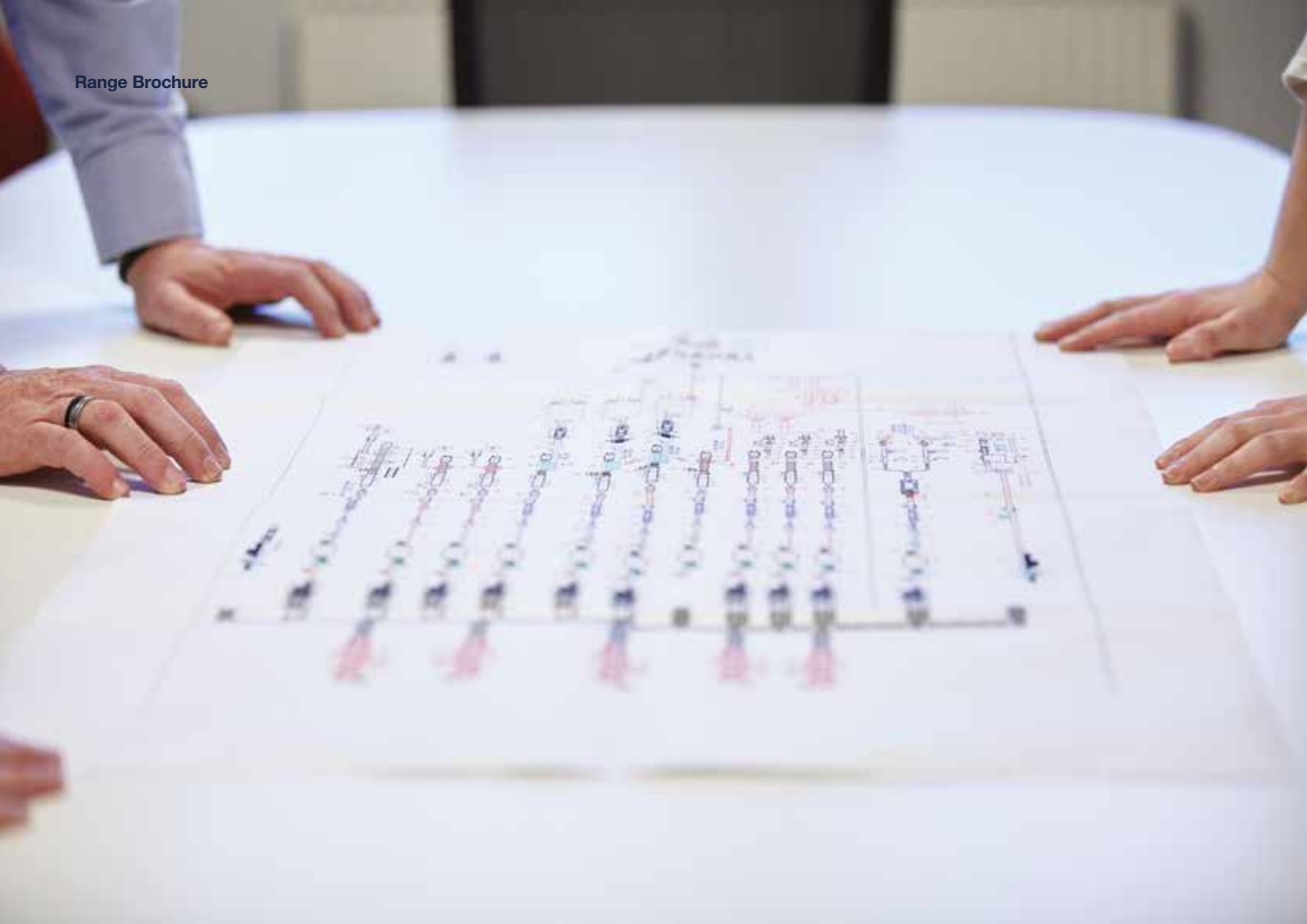
Our expert teams in the different QC technologies can deliver training directly to you, centrally or on-site. To further help you meet your OEE targets, we also ensure that crucial spare parts are never far away. Our central spares hub is supported by regional stock hubs and a brand new European Distribution Centre.

Advanced Services - Remote Diagnostics

We can also provide software packages to enable not just remote diagnostics but actual remote intervention, to solve and correct line issues where appropriate.

In summary, quality control equipment from Ishida ensures you have a partner in your production process who will materially help maintain your desired performance levels far into the future.





Service and operator training packages



Flexible training approach, meeting your exact needs:

- ▲ Training can be covered at a variety of levels to suit your precise requirements through our dedicated training team
- ▲ Training can be on or off-site
- ▲ Training documentation and presentation materials can be purpose-designed
- ▲ A comprehensive interactive learning suite is also available (for self-paced learning)



Spare parts support and response rates (with option of i-Care program)

- ▲ Ishida holds large equipment stocks both centrally in the UK and within regional offices
- ▲ We offer the option of dealing directly with our local subsidiary, local Agent or provide the option of i-Care (Ishida Online Spares and Parts Management Service).



i-Care - Ishida online spares and parts management service

- ▲ Avoid unnecessary down-time
- ▲ Accessibility of parts manuals
- ▲ Access to your secure account 24/7

Operator and customer engineering training

One and two day courses covering:

- ▲ Operator level set up and fault finding
- ▲ Advanced set up, electronic and mechanical fault finding

Complete project management

Expert project management can reduce both cost and risk associated with the design and implementation of new packing lines, halls and plants.

Ishida project management offers you:

- ▲ A wide choice of models of working together, from fixed-price turnkey projects to managing agent agreements
- ▲ Single source of best-in-class solutions
- ▲ Excellent project analysis and planning
- ▲ An unrivalled concentration of food industry, packing technology and project management expertise
- ▲ An excellent knowledge of the legislative and regulatory pitfalls involved
- ▲ The committed support of a major international company in seeing your project through to sustained, productive operation
- ▲ Resources throughout Europe, Middle East and Africa
- ▲ A 20-year track record of successful projects

Ishida offers you the only internationally resourced and capable project management service specialising in the area of food packing technology.

Successful project customers include most of the world's top 10 food manufacturers as well as many small and medium-sized enterprises.



Working with you every step of the way

Our extensive R&D investment is directed at meeting the challenges of the fast-changing food industry around the globe.

We aim to support our partners fully, from the very start of the buying process, and you will find many equipment brochures, visual animations and case studies available on our website. When you are ready to make contact, a well-resourced network of Ishida companies, distributors and agents, extending across Europe, the Middle East and Africa, can provide advice and organise demonstrations and trials.

Installation is rapid and efficient. For integrated packing lines, we use proven project management techniques and methodologies, tuned to your key objectives and specifications.

A dedicated pan-European service engineering team helps to maximise the performance, functionality and reliability of our installed base. In addition, spares facilities are strategically placed throughout the territory, offering 24-hour delivery in most cases.



helpline • spares • service • training

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