

Non-Destructive Seam Inspection Systems



SEAMscan XTS III



AUTO-XTS

BENEFITS OF XTS TECHNOLOGY



SAVES TIME

Eliminates time consuming work like emptying, rinsing, drying, cutting seams and tearing down seams for tightness inspection



SAVES MONEY

Saves significant amount of money by reducing test time and wasted packaging and product



INCREASED ACCURACY

The XTS technology eliminates the need for teardowns and seams are not destroyed. Truly operator independent, so all human error and subjectivity is removed



100% SEAM SAFETY

The unique non-destructive technology gives 100% seam safety. No cutting or tearing down of the seams is required



LESS SPOILAGE

The non-destructive measurement enables tested cans to be used for further testing or resale



CERTIFICATION

Every single unit is TÜV-certified



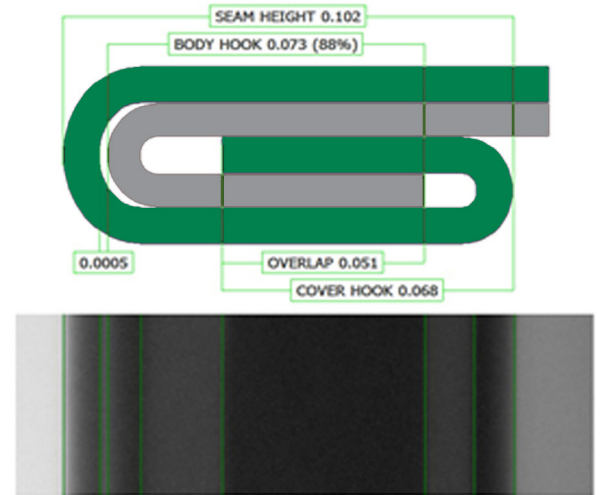
FULLY AUTOMATIC VERSION AVAILABLE

The AUTO-XTS saves even more time and labor. From full, on-line automation to benchtop workstations – we have a solution to match your needs and budget

WHAT DO WE MEASURE WITH XTS (X-RAY TIGHTNESS SCANNING) TECHNOLOGY?

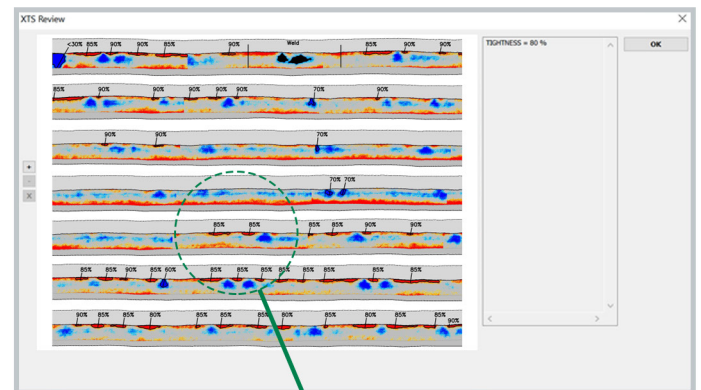
● SEAM CROSS-SECTION

Identifying and measuring the internal parameters of the seam and additionally presenting a virtual seam image that is familiar to the operator.



● SEAM TIGHTNESS

Detecting potential tightness issues (wrinkles) in the seam, and rating the percentage of tightness.



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HOW DOES X-RAY SEAM MEASUREMENT WORK?

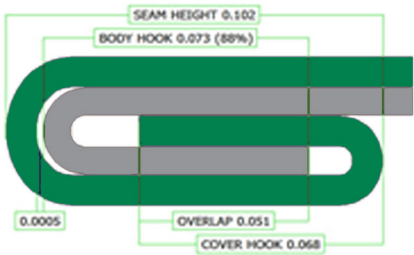
- X-rays are sent through the seam. A detector reads the remaining radiation. When X-rays are travelling through several layers of material, less radiation is going through the material, meaning that some percentage will be absorbed by the material depending on density. This results in a darker region within the image, which, in turn, allows a precise measurement of the individual layers of the seam.
- For a better understanding and visualization, the virtual seam image translates the X-ray image into a classic cross-section image.



X-RAY PROJECTION (RADIAL)



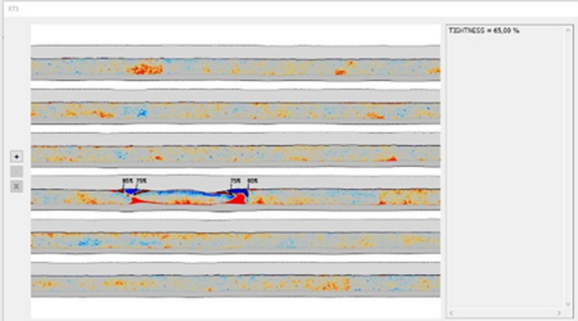
CLASSIC CROSS SECTION
VIEW (TANGENTIAL)



CONVERSION OF X-RAY IMAGE
TO VIRTUAL SEAM

TIGHTNESS RATING WITH X-RAY

- Non-destructive wrinkle measurement
- 360° scan of the can seam
- Automatic detection and calculation of tightness percentage
- Number of anomalies in the cover hook are clearly visible
- Leakers will be found thanks to the 360° scan



XTS TYPES BY CAN AND END MATERIAL OPTIONS

END TYPE BODY TYPE	ALUMINUM	STEEL
	<ul style="list-style-type: none">● Seam Dimensions: YES● Tightness Rating: YES● Source Type: "Alu"	<ul style="list-style-type: none">● Seam Dimensions: Please Call● Tightness Rating: Please Call
ALUMINUM	<ul style="list-style-type: none">● Seam Dimensions: YES● Tightness Rating: Please Call● Source Type: "Steel"	<ul style="list-style-type: none">● Seam Dimensions: YES● Tightness Rating: YES● Source Type: "Steel"
STEEL		

SEAMscan XTS III



FEATURES & BENEFITS

- Automatic wrinkle identification
- Automatic dimple detection
- Automatic weld-seam detection
- Excellent X-Ray-shielding (each unit is tested by TÜV Rheinland and certified to < 0.1 mSv per year)
- Easy to use calibration / verification mode (with calibration piece)
- Improved handling & increased versatility, speed and precision, enabled by new generation image processing
- Fast and high accuracy dosage X-ray exposing system
- Easy to set up thanks to intuitive user interface
- Large touchscreen for controlling the gauge and the data
- Compact design with integrated PC - no external connections, only power cable required
- Intuitive wrinkle visualization
- Multi-diameter quick can clamp reliably handles a wide range of can sizes and types
- 270° access for easy access for maintenance and cleaning
- Drainage for easy cleaning
- Includes Visionary QC™ SPC Software – for details turn to page 6

The new 3rd Generation XTS is a stand-alone measurement system that provides non-destructive, double seam inspection for aluminum or steel cans. The gauge performs both non-destructive cross-sectional measurements and a 360° tightness scan. The system provides faster inspection results, and reduced labor costs. The SEAMscan XTS III meets the requirements of a full-protection device.

Cans are manually loaded into the device, then all measurements are performed automatically. Cans may be held for additional testing or be sent back into production. XTS virtual seam teardown technology provides highly accurate double seam inspection data, while dramatically reducing product spoilage.

MEASURES:

Double Seam Inspection (Seam Height, Body Hook, Cover Hook, Overlap, Seam Gap, % Body Hook Butting) and Wrinkle Rating (% Tightness)

TECHNICAL DETAILS

DIAMETER RANGE	50-153 mm (200 to 603) or 40-127 mm (109 to 502)
CHARACTERISTICS MEASURED	Seam Height, Body Hook, Cover Hook, Overlap, Seam Gap, % Body Hook Butting, % Wrinkle Rating (% Tightness). 360° Scan for tightness
MAX HEIGHT	246mm / 9.69" (911)
MEASUREMENT UNITS	In, mm, %
ELECTRICAL POWER REQUIRED	100-240VAC, 50/60 Hz
MAX MEASUREMENT POSITIONS	Virtual Seam™: Up to 99 positions around the can, Virtual Teardown™ (Wrinkle): 360
OPERATING DIMENSIONS	Width: 1240mm (48,6") and with open door: 1650mm (65")
DEPTH	780mm (30,7")
HEIGHT	850mm (33,5")
RESOLUTION	Virtual Seam™: ±0.003mm, Virtual Teardown™ (Wrinkle): 1%, Graphical: 5%
LANGUAGES	English, German, Chinese, French, Italian, Polish, Russian, Japanese, Hungarian, Latvian, Portuguese, Thai, Dutch, Spanish. Other languages available upon request

The AUTO-XTS is a fully-automated, on-line or stand-alone measurement system that provides non-destructive, complete double seam inspection for beverage fillers. The fully-automated AUTO-XTS combines the internal X-ray seam measurements of the SEAMscan XTS with the Triple Seam Gauge (TSG) for external measurements into one robust unit, providing faster inspection results, and reduced labor costs.

When connected directly to the production line, cans are automatically delivered to the AUTO-XTS in-feed conveyor. Cans may be held for additional testing or sent back into production. Alternatively, cans may be manually placed onto the same conveyor in order by head number. XTS virtual seam teardown technology provides highly accurate double seam inspection data, while dramatically reducing can seam inspection costs.

MEASURES:

Double Seam Measurement (Seam Thickness, Countersink Depth, Seam Height, Body Hook, Cover Hook, Overlap, Seam Gap, % Body Hook Butting) and Wrinkle Rating (% Tightness)

AUTO-XTS



FEATURES & BENEFITS

- A robotic handling system moves a complete range of filled beverage cans through the measurement stations.
 - Station #1:** The can is automatically carried to Station #1 for measurement of Countersink Depth, Seam Thickness and Can Height using CMC-KUHNKE's TSG Gauge series. Measurements are made in up to 36 locations around the can.
 - Station #2:** Patented XTS technology uses safe, low-power X-ray imaging to measure internal parameters of the seam, including tightness. The content is not affected by the X-ray.
 - Out-Feed:** Once the double seam inspection has been completed, the cans are placed in order by head number onto a conveyor for further processing. Defective cans can be automatically ejected into a reject basket for further inspection.
- Automatic wrinkle identification and percentage calculation
- Automatic dimple detection
- Automatic weld detection
- Excellent X-Ray-shielding (TÜV Rheinland tested to < 0.1 mSv per year)
- Easy to use calibration/verification mode (with calibration piece)
- Includes Visionary QC™ SPC Software – for details turn to page 6

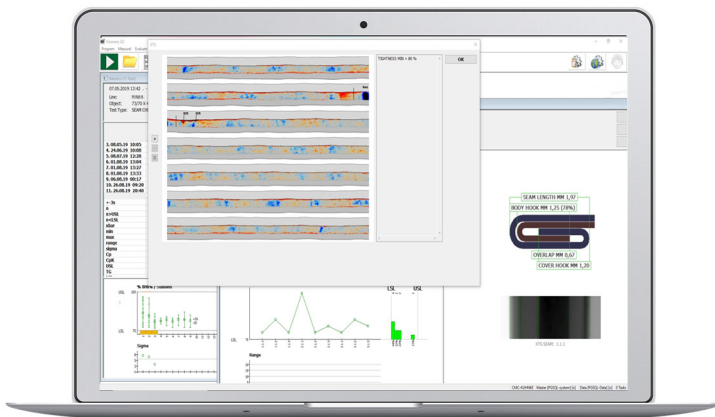
TECHNICAL DETAILS

CHARACTERISTICS MEASURED	Seam Thickness, Countersink Depth, Seam Height, Body Hook, Cover Hook, Overlap, Seam Gap, % Tightness, % Primary Sealing Area, Wrinkle Amplitude, Can Height, 360° scan for tightness
AIR PRESSURE REQUIRED	6-8 bar (90-116 psi), filtered dry air, max flow 35 SCFM
ELECTRICAL REQUIRED	100-240VAC 50-60Hz, average power consumption 600W
RESOLUTION	0.01 mm (0.0004 in)
DIMENSIONS	260 x 200 x 120 cm (102 x 79 x 48 in)
WEIGHT	480 kg (1058 lbs)
CRATED DIMENSIONS	300 x 180 x 150 cm (118 x 71 x 60 in)
CRATED WEIGHT	600 kg (1323 lbs)
MEASUREMENT UNITS	mm, in
OUTPUT INTERFACE	RS232
LANGUAGES	English, German, Chinese, French, Italian, Polish, Russian, Japanese, Hungarian, Latvian, Portuguese, Thai, Dutch, Spanish. Other languages available upon request
CONNECTIVITY REQUIRED	Connection to LAN (RJ45), 1 fixed IP Address (for external database access)

Visionary QC™

Data Collection & Evaluation Software

- A complete quality control data acquisition solution
- Easy-to-use Statistical Process Control for quick analysis of can inspection data
- Flexible, secure database
- Intuitive inspection reports may be shared and exported
- Track trends and statistics with SPC Graphs
- In use at thousands of canmakers and canners around the world



Visionary QC™ Pro

- Expanded statistical reporting
- Expanded key functionality (product code, can code etc.)
- Automatic reporting (E-mail)
- Views
- Assessment
- Networking
- Scheduled tasks
- Event-triggering
- Dashboard
- Background data export and import
- Additional read-only license

SERVICE & SUPPORT

- ✓ Almost 50 years of experience in developing and delivering high quality test and inspection equipment
- ✓ Factory-trained technicians available in key locations around the world
- ✓ Remote and on-site training and maintenance



Providing ROI Justification: SEAMscan XTS Case Studies

The following are actual justifications made by facilities for introducing SEAMscan XTS to replace traditional destructive systems.



\$ CASE STUDY 1: COST SAVINGS

- Based on reduction of package spoilage at a beverage facility after change to non-destructive testing.
- Cans tested: 288 per day (four 12-head seamers, with cross-section test made every 4 hours, running 24 hours a day)
- Production days: 350 days per year
- Customer valuation of filled can: \$1.00 per can

TOTAL SAVINGS: \$100,000 per year

NOTE: Cost savings do not include additional cans destroyed for rechecks or line setup and adjustment

🕒 CASE STUDY 2: TIME SAVINGS

- Based on reduction of inspection time at a beverage facility after change to non-destructive testing.
- Cans tested: 12 cans
- Inspection time to measure 12 cans (3 locations) with traditional destructive testing = 35-50 minutes (depending on operator)
- Inspection time to measure 12 cans using SEAMscan XTS = 15-20 minutes (operator independent)

TOTAL REDUCTION IN INSPECTION TIME: 65%

NOTE: : Additional savings are generated from superior process control and labor reallocation when utilizing fully automatic version (AUTO-XTS)



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FREQUENTLY ASKED QUESTIONS

- ▶ **How do results compare to traditional cross-section measurements?**
 - XTS matches destructive seam view system +/- 0.01 mm
 - It is much more repeatable, therefore more accurate, as the seam is not affected by cutting and there is no operator influence
- ▶ **Which cans can be measured?**
 - Round cans with the combination aluminum can and aluminum end, i.e. mostly beverage cans
 - Round steel cans with steel ends, i.e. mostly food cans
 - Aluminum - steel combination for cross-section only (not for wrinkle rating)
 - See table on page 3 for details
- ▶ **What characteristics does the SEAMscan XTS III measure?**
 - Double Seam Inspection (Seam Height, Body Hook, Cover Hook, Overlap, Seam Gap, % Body Hook Butting) and Wrinkle Rating (% Tightness)
 - For Seam Thickness and Countersink Depth a separate gauge is required, such as CMC-KUHNKE's Combination Seam Gauge (CSG) or Beverage Can Controller (BCC)
- ▶ **How long does it take to measure one can with the SEAMscan XTS III?**
 - It depends on the diameter of the can, as well as the number of measurement points
 - Cross-section only for cans with a 202 end on 3 positions: ~15 seconds per can
 - Cross-section on 3 positions and 360° wrinkle inspection for cans with a 202 end: ~90 seconds per can
- ▶ **What kind of seam defects does the SEAMscan XTS III visualize?**
 - Any sorts of anomalies can be seen with the SEAMscan XTS III:
Wrinkles, loose seams, false seams, ghost / reverse wrinkles
- ▶ **How do you calibrate?**
 - Initial calibration takes place while set-up by a CMC-KUHNKE technician
 - Annual calibration by a CMC-KUHNKE technician is suggested
 - A certified calibration piece is provided for routine verification
- ▶ **How easy is it to set up a new can?**
 - The supervisor, who has been trained by a CMC-KUHNKE technician, can set up a new can.
CMC-KUHNKE can provide support remotely if required
- ▶ **How easy is it to switch between cans?**
 - Simply select from the drop-down menu in the software and the gauge adjusts automatically
- ▶ **Is the SEAMscan XTS safe?**
 - The SEAMscan XTS III meets the requirements of a full-protection device
 - Low voltage radiation: readings average 0.1 mSv per hour, same as typical ambient room levels
 - Each individual unit is TÜV-certified
- ▶ **How long does the X-ray source last?**
 - The first SEAMscan XTS units sold in 2011 are still using their original sources

