Seam-X-T20-On-Line

Seam-X-T20

X-Ray Full Automatic Seam Scanner, non-destructive

Patent

Purpose:

Seam-X-T20-On-Line/Seam-X-T20 Automatic Seam Scanner adopts non-destructive measure method to measure the seam dimension,which made the quality control of seam enter into a new era.

It's applicable to measure cans of various materials. Combination of can body and the end can be following: (1) Aluminum & Aluminum; (2) Tin & Tin.

It is applicable to be installed both on-line or by pass the production line, taking the samples and measuring them automatically, which allowed the measurement data of each can correspond to the pressure head of the can seamer machine. It can also be installed in the laboratory.

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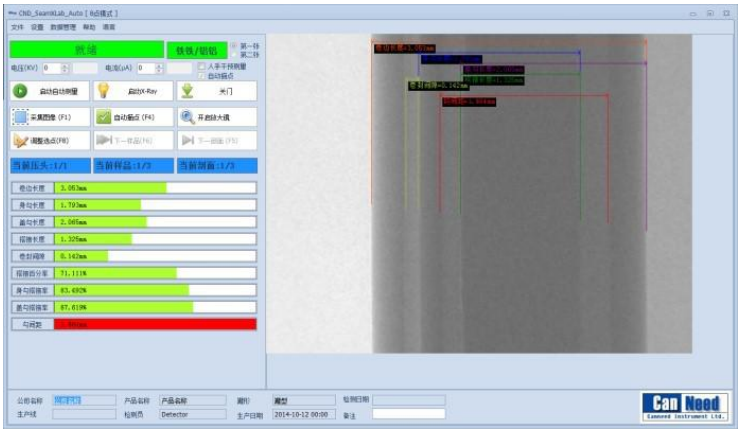
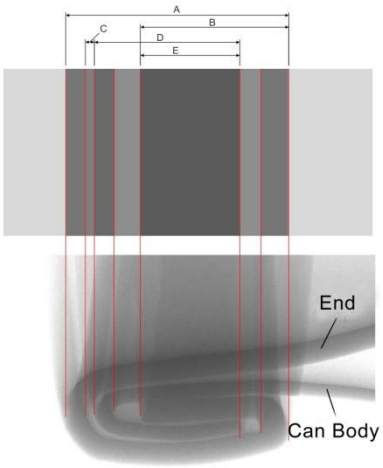
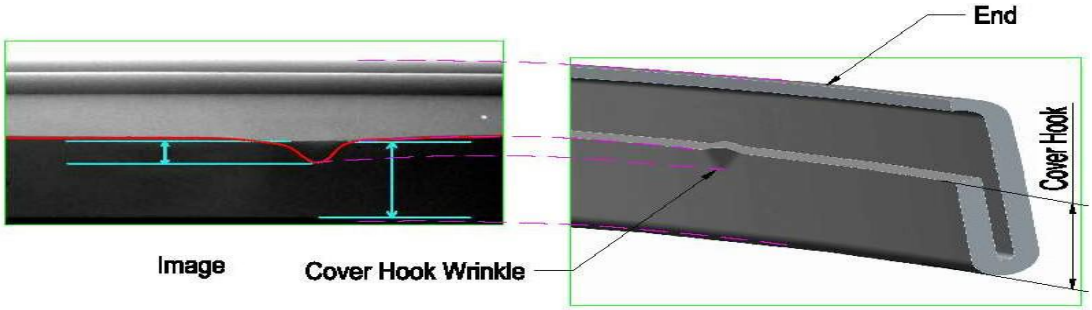
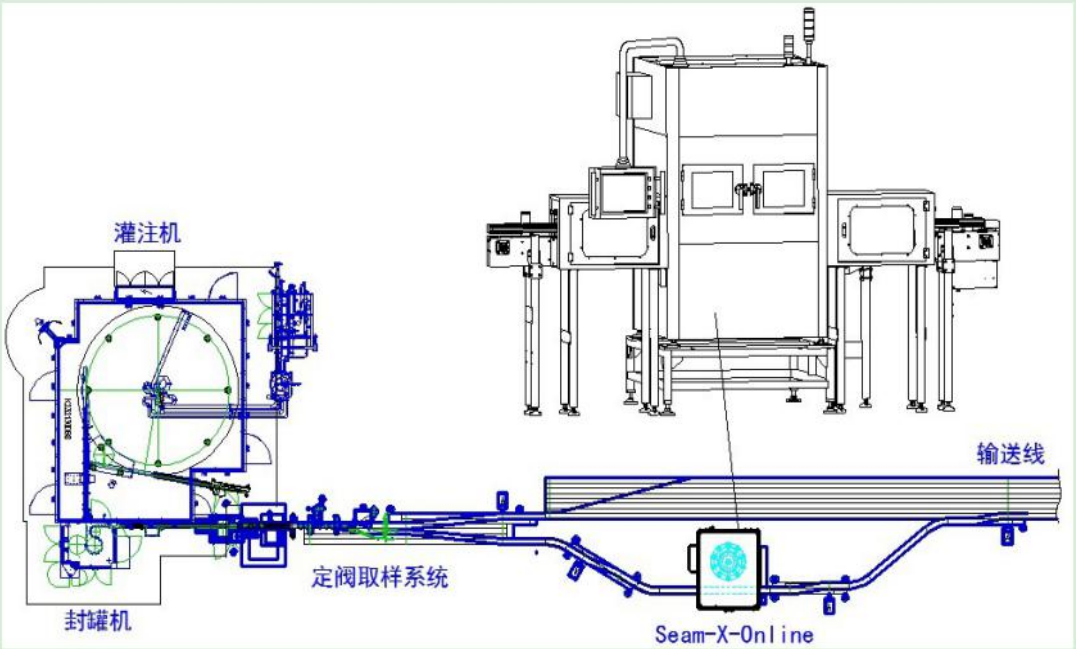
Measure items：

1	Seam Length, Body Hook, End Hook, Overlap, %Overlap, Seam Gap, %Body Hook Butting, and %End Hook Butting.	Standard inspection item
2	seam tightness gauge	Optional item
3	countersink gauge, height, seam thickness gauge	Optional item









产品典型应用

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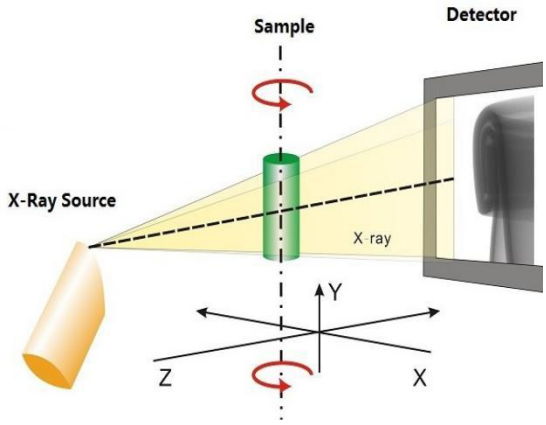
Principle:

Seam-X®-T20-On-Line Automatic Seam Scanner, adopts the principle that absorbility of X-Ray is different for material of different density and thickness, penetrating and imaging the seam structure of easy open can. Software processes the image and measure the seam structure.



Measure Process:

1.Samples are conveyed to the Seam-X®-T20-On-Line and inspected automatically.
2.Sample is rotated automatically and its seam is scanned by X-ray for a circle (360°) to obtain the image. Software analyzes the image and measure the seam dimension automatically.
3.Scanner automatically measures all samples and save the data to the database, each department can inquiry the data, report as well as graph which they concerned via the web.

Features& Functions:

1) Auto & on-line measurement, quick and efficient
2) High speed and high sampling frequency, reduce the isolation inferior
3) Unattended operation, save labor cost
4) Waste no sample, save cost and environmental friendly
5) More accurate, avoid manual measurement error
6) Outstanding repeatability and reproducibility (R&R)
7) Able to track the seamer head corresponding to the inferior
8) Auto judge passed or failed
9) Safe operation to avoid injury result from cutting method
10) Easy calibration with provided calibration piece
11) Suitable for cans of various sizes and specification
12) Measure data can be stored in SPC automatically
13) Comply with world standard safety criteria of X-ray radiation protection

Software function for Seam-X

1) Able to set various series of inspecting standard, can judge and warn automatically whether the results are qualified in every measure
2) Report format can be customized, flexible for different report styles of different companies
3) Software adopted data base management system, measurement results and images are saved in the data base, users can facilitate inquires
4) Various graphs for data statistics and analysis

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5) Users can review or re-measure the saved projects at any time
6) Data can be exported as an Excel file
7) Seam image can be printed and stored, facilitate communication with the production department or canning factories, no need to retain the sample cans
8) Users can calibrate at any time and set the calibration password
9) Welding identifying function for 3-piece cans (Optional)

Technical Parameter:

Inspection Time	Seam Length and Overlap inspect every Can measure 3 points ,seam tightness inspect one circle, every Can required within 1.5minutes; Combination of Inspection all measure items, every Can takes less than 2 minutes; Inspection Seam Length, inspect some samples, every Can takes less than 15 seconds
Accuracy	Seam: +/- 0.01 mm, tightness: +/- 3%, countersink：+/- 0.01 mm, thickness: +/- 0.01 mm
Resolution	Seam Dimension: 0.001 mm, tightness: 3%, countersink： 0.001 mm, thickness: 0.001 mm
Sample spec.	Combination of can body and the end can be following: (1)Aluminum & Aluminum; (2)Tin & Tin
Sample Size	Can Diameter: 200 (50mm)-211 (67 mm)； Can Height: <168mm
Sample Temp	5-35℃
Unit	Seam Dimension: Inch, mm;
Language	English & Chinese
Power	100-240VAC, 50/60 Hz
Dimension	L1400×W1500×H2000 mm
Air Supply	0.4 – 0.6 MPa
Weight	Approx. 2000kg
Environment Temp	-10~50℃
Output	Ethernet, ASCII, TXT, SQL, DBI

Selection reference table:

Mode	Location	Speed/can	Seam Length, Body Hook, End Hook, Overlap, %Overlap, Seam Gap, %Body Hook Butting, and %End Hook Butting	Seam tightness gauge mode	Seam countersink gauge, seam thickness gauge, height mode	Sampling control function mode and statistics software	Connect controlling mode and convey line adjustment
Seam-X-T20-On-Line	on-line /pass the production line	85S	√	√	√	√	√
Seam-X-T20	pass the production line	85S	√	√	√		

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Configuration:

Seam-X-T20-On-Line/ Seam-X-T20 X-Ray Full Automatic Seam Scanner,non-destructive.
consist of:

1)SXOL-M,X-ray Automatic Seam Scanner Main Unit
2)SXOL-Sampler, Auto Sampling System
3)SXOL-Seam-X -Online 2.0 Software
4)Computer
5)Seam tightness gauge test mode
6)seam countersink gauge, seam thickness gauge, height test mode

Clamp Configuration:

1)SXL-cal**, Calibration piece
2)SXL-D**, Fixture
3)SXL-H**, Space Block

Optional:
SXOL-ID-sampler-1000, Identification Sampling System
SSXOL-Ejector picking system
SXOL-SCB sampling conveying system
QCtools 1.0, Statistics Software

Appraisal Report :

Below is the scientific and technical result inspection report of the project for China Resource Snow Bear“ High Speed Beer Can filling line high-effect running Security system research and application ” (From Beer Scientific and China Resource Snow Bear Reports)

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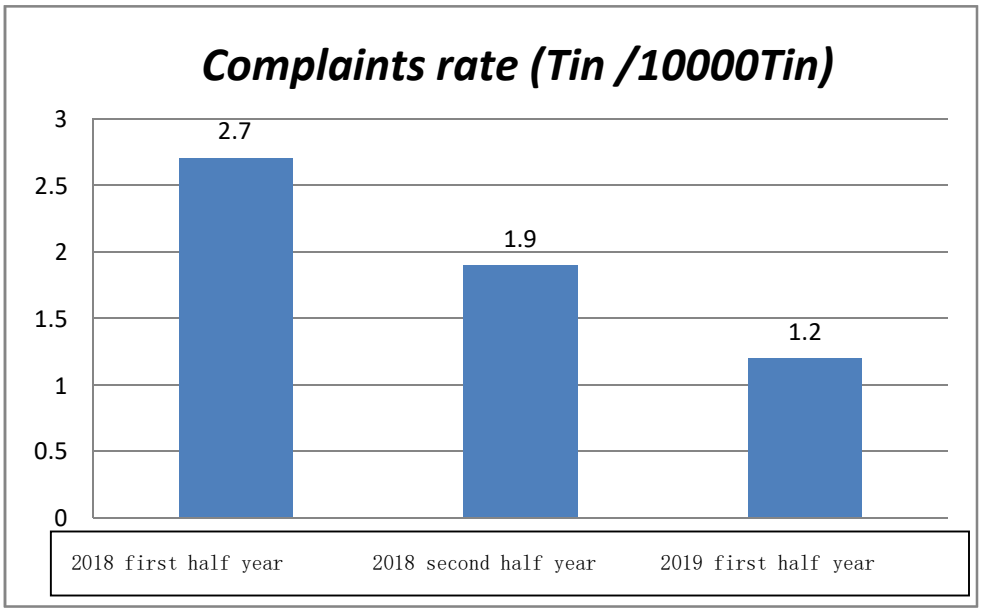
1.China Resource Snow Bear (Wuhan) Seam-X-On-Line Key indicators



Complain rate continue decreasing, 2019 first half year Vs 2018 first half year, decreasing 37%, YOY -56%

Average rate: ≥2000kL/person, target achieved.

1.2Project target achieving status

By means of carrying out the inspection and application of Seam-X®-On-Line quality inspection equipment, we achieved the target set in the very beginning, details listing as below:

Seam quality inspection equipment online, inspection speed ≤5s, target achieved

1.2.1 Complain: ≤0.8 case/10000k1, target achieved

1.2.2 Beer loss: ≤0.85%，target achieved

1.2.3 Can end loss: ≤0.04%，target achieved

1.2.4 Can loss: ≤0.07%，target achieved

1.3 Summary

Taking China Resource Snow Bear (Wuhan) as example, this 120000 Can filling line, after installed Seam-X®-On-Line quality inspection equipment, random inspection increased from 1752 times to 7008 times per year, seam quality inspection coverage has achieved a break through.

Can and Can end loss decreased from 35040 set to 0 set per year, considering of the samples it took, we could save 140160 set samples per year.

Meanwhile, beer loss has decreased from 11.563KL to 0KL/ per year, considering of the samples it took, we could save 46.252KL beer per year.

Man-hour has decreased from 1752 hours to 0 hour per year, periodical inspection man-hour has decreased from 137 hours to 23 hour per year. Considering of average salary around 5599 RMB/person in 2018, wages cost has decreased from 62337 RMB/year to 759RMB/year.

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Other Successful Cases：

1.Seam-X-On-line + ASDG in COCA COL Chengdu plant

2. CRB Guizhou Seam-X-line

3.wuhan Seam-X-line

4. CRB Lanzhou Seam-X-On-line

4.Seam-X-Line in ABInBev ZhangZhou

5. Seam-X-lab in ORG Hebei

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6.Seam-X-lab in COFCO Tianjin

7.Seam-X-lab in ORG Hubei

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