

最新の画像技術で、3D-CTなど使い易いX線画像を実現

高精細で低価格、世界最小クラスのマイクロフォーカスX線透視装置

歴史のあるX線撮影に新しいデジタル技術を活用して、現実感・リアリティのある解り易いX線画像を追求し、「小型・簡単・よく見える」をコンセプトに新しいX線透視装置を開発しています。従来機種にない高解像度(画素分解能2 μ m)を実現、しかも小型なのでラインのそばに設置可能で、容易に導入できます。

卓上型で、小型部品や基板のX線総合検査に最適

高感度で濃度分解能が高い、画素20 μ mの150万画素平面撮像CCDセンサを独自開発。小型マイクロ焦点X線源と独自シャッター機構で再現性の良いX線撮像システムを実現しました。

X線透視の新しい可能性を探索「スマートレントゲン」

特徴的な3種の撮影方法で見やすさに挑戦しています。

①従来型通常撮影の高機能化(2次元画像)

基準画像とのマッチングによるBGA形状検査アシストや、撮影画像の数値計測処理によるBGAボイド表示アシストなどに利用できます。

②ステレオ型透過撮影による高機能化(2.5次元画像)

2次元平面だけでなく高さを情報化。実装基板ポイント高さ検査やLSIボンディングワイヤ位置座標作成、大面積両面基板銅箔パターン自動解析システムに実用されています。

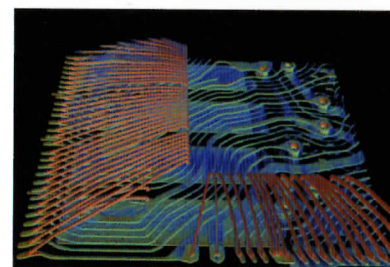
③3次元断層撮影による高機能化(3次元画像)

京都工芸繊維大学と共同開発したCTソフトにより、3次元位置情報と吸収係数の数値化に成功。携帯電話や小型部品(コンデンサ、電源)の非破壊検査、炭素繊維ファイラの樹脂内部分布検査、微小電子部品の金線・銅線WBの形状計測に利用されています。

またCT情報を3次元画像処理するソフトを岩手県立大学と開発。3次元CADデータに変換し、シミュレーションや3Dプリンタへの出力も可能となりました。



世界最小クラスの3DCT機
FLEX-M345



MicroSDカード本体と
WBの3D-CT撮影例

World's Smallest Class Micro-Focus X-Ray Radioscope with Low Price and High-Definition Imaging

Easy to Use; Employs the Latest Technology to Enable X-Ray Images Such As 3D-CT Scans

By incorporating new digital technologies into X-ray imaging and by pursuing realistic, easy-to-understand X-ray images, Beamsense has developed a new X-ray radioscope that is compact and simple and that offers excellent visibility. It can achieve high-resolution images (pixel resolution: 2 μ m) unattainable with conventional equipment, and further, because it's compact, it can be installed adjacent to production lines and introduced easily into production processes.

Desktop Model, Ideal for Comprehensive X-Ray Inspection of Small Parts and PC Boards

Beamsense developed a proprietary planar CCD image sensor with 1.5 million pixels with a pixel size of 20 μ m featuring high sensitivity and high density resolution. Beamsense achieved an X-ray imaging system with good reproducibility based on its proprietary shutter mechanism and compact micro-focus X-ray source.

SMART ROENTGEN®—Exploring the New Possibilities of X-Ray Radioscopy

Beamsense has taken up the challenge of making X-ray images more readily viewable based on three specific image-capture methods:

1) Better performance in conventional two-dimensional (2D) images

Can be used to assist in inspecting BGA shape by matching with reference images and to assist in displaying BGA voids based on numerical measurement processing of the captured image.

2) Greater performance based on stereo radiography (2.5D images)

This process captures image data not only in the two-dimensional plane but also for height. It has practical application in inspecting the height of points on populated PC boards and in creating IC bonding wire position coordinates, as well as automated copper foil pattern analysis systems for large-area, double-sided PC boards.

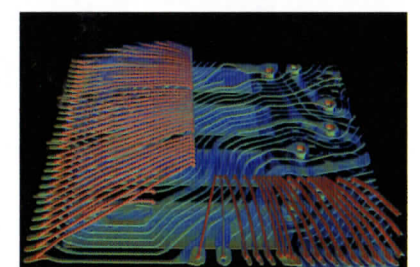
3) Greater performance based on 3D tomography (three-dimensional images)

Thanks to CT (computed tomography) software developed in collaboration with Kyoto Institute of Technology, Beamsense has succeeded in being able to express numerically 3D position information and absorption coefficients. This finds practical use in non-destructive testing of mobile phones and small components (capacitors, power supplies), inspection of the internal distribution of resin in carbon fiber fillers, and in measuring the shape of gold and copper wire wiring boards in micro-electronic components.

In addition, Beamsense is working with Iwate Prefectural University to develop software to do three-dimensional image processing of CT data. This will be converted into 3D CAD data and will make possible simulations and output to 3D printers.



FLEX-M345—one of the world's smallest
3D-CT machines



Example of MicroSD card body and
3D-CT image of wiring boards

ココに注目

背景

30年以上にわたって蓄積されたX線計測技術を、品質向上に必要なX線透視の分野に結実させ、世界的レベルのマイクロフォーカスX線透視装置を開発、販売しています。

X線計測画像技術を人類の宝物と考え、見えない世界を手軽に見える化し、環境負荷の軽減で地球に貢献します。

新規性・独自性

大型で高価格であった他社製品に比べ、圧倒的に小さく、低価格、しかも省電力。操作も簡単で、鮮明な画像を手軽なパソコンで見ることができます。

また、外装のデザインなどにも工夫を施し、「怖い」から「親しみやすい」と使用者のX線に対する意識変革にも取り組んでいます。

今後の事業展開

電子部品の小型化・多層化・高密度化によってX線透視装置の重要性が増すなか、インライン化を実現するなど、顧客ニーズに素早く対応します。

近年は、電子部品やデバイスの実装のみならず、高分子材料分野、食品・バイオ分野など幅広い分野において、信頼性向上や研究開発のために利用が拡大しております。

会社概要・基本情報

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従業員数 5名
資本金 1,000万円
設立 2004年
代表者名 代表取締役
馬場 末喜

業務概要

X線透視装置およびX線画像センサーの研究、開発、製造、販売 等

Take Note!

Background

Beamsense brought to fruition X-ray measurement technology accumulated over more than 30 years in the field of X-ray radioscopy employed for improving production quality. The company develops and markets world-class micro-focus X-ray radioscopic equipment.

Beamsense regards X-ray image measurement technologies as a treasure of humanity, and by making the invisible world more easily visible, it will contribute to reducing environmental impacts.

Innovative or Unique Qualities

Compared to products from other companies, which are large and expensive, Beamsense products are overwhelmingly compact, lower in price, and more energy efficient. Operation is also simple, and clear images can be easily viewed using a personal computer.

In addition, Beamsense is working to change the mindset of users toward X-rays from "scary" to "friendly" through such innovations as the design of the unit's exterior.

Future Business Development

As the importance of X-ray radioscopes increases as a result of electronic components becoming ever smaller with more layers and greater density, Beamsense will respond quickly to customer needs, for example, to facilitate inline installation.

In recent years, their use has been expanding, not only for mounting electronic components and devices but also for R&D and to improve reliability in a wide range of fields, including polymer materials, food processing, and biotechnology.

Company Profile and Basic Information

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No. of employees: 5
Capitalization: 10 million yen
Year founded: 2004
Name of representative:
Sueki Baba, President

Business Overview

Research, development, manufacture, and sales of X-ray radioscopes, X-ray image sensors, and related products and services.