Robotic 3D inspection system
Warranty in metrology, revolution in production

- The turnkey Robotic 3D inspection system is the ultimate answer for industries looking for a fast ROI while reaching 100% quality control with a productivity ramp up, and operative costs reduction.
ABB’s robotic 3D inspection system
Be one click away from 100% quality control automation

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A new generation of measuring cells
ABB’s 3D Robotic Inspection System is a new generation of standardized measuring cells, which are designed to deliver cost-effective, state-of-the-art robotic 3D inspection operations. All cells deliver maximum performance whilst making optimum use of available space. Every stage in the product production (prototype / preproduction / ramp up / mass production) has its measurement needs. ABB has developed solutions for your needs.

The cells are equipped with centralized power distribution. All components such as robot, positioners, 3D scanning equipment, CAD comparison computer and other peripheral devices are supplied from one source; this means that one power supply cable is necessary for the whole cell.

Be one click away from automated quality control
• Plug & Play® system – easy automated inspection to simplify operation for production employees
• “Shop floor” inspection – to provide rapid feedback about production process variation, for improved process control and scrap reduction
• Cost reduction – reduction of the faulty parts replacement while value is added by the capacity of ensuring 100% quality
• Competitiveness increase – time saving on Inspection process execution and big savings based on the reduction of revision campaigns
• Compliance with the International Standards - VDI/VDE certification Part 2&3

ABB’s 3D Robotic Inspection System is the most effective solution in your industry
• General Industry
• Automotive Industry
  - Cross members, stamped parts, door module
  - Exhaust systems, brake components, car seats, wheels, axles, dashboards
• Aeronautical Industry
  - Geometrical inspection of 100% parts

Manufacturers increasingly have to improve quality and productivity while accommodating greater product variation and customization in smaller lots. The 3D sensor technology rapidly records and compares highly detailed geometric and surface data with digital CAD models, enabling the automation of inspection of manufactured parts and pieces, helping factories to reduce cycle times while raising quality and reducing the risk of quality control errors.
Off-line quality inspection solutions

FlexInspect

The FlexInspect is the ABB standard cell for off-line quality inspection. Designed to deliver cost-effective, state-of-the-art robotic 3D measuring operations. A more dynamic technology than a traditional CMM (Coordinated Measuring Machine) and an evolution of 3D Laser technologies. Simple, Fast, Accurate, Easy to Use and Connected.

Main components
- IRB 4600 or IRB 6700 robot and IRC5 controller
- Sidio Control Unit
- Sidio Planner (ABB RobotStudio)
- Auto calibration system
- PolyWorks Inspector software
- Cell control HMI
- ABB turning table
- Safety fence and cell safeties

Best fit for
- Shop-floor measurements
- Fast off-line measurements (10x faster than CMM)
- As an optional: Reverse engineering, welding seam inspections, Spatter detections, Rivet detections
- Small, medium, and big parts measurements

In-line quality inspection solutions

InspectPack

The InspcetPack is a new generation of In-Line quality control solutions from ABB. An evolution of 3D Laser technologies. Simple, Fast, Accurate, Easy to Use and Connected.

Main components
- ABB robot and IRC5 robot controller
- ABB IRB 2600iD robot
- Sidio-Lite (In-Line 3D Scanner)
- Sidio Control Unit
- Cell-HMI
- Calibration system
- VDI 2634/II certification
- PolyWorks Inspector software (Innovmetric)

Best fit for
- High Speed In-Line measurements
- Critical geometrical features
- As an option for: Welding seam quality Inspections, spatter detections, rivet detections

Technical specifications

| Field of view | 340 x 215 x 200 mm³ |
| Camera | 1.5 Mpxls 3D optical scanner (3000 ANSI lumens) |
| Speed | Up to 0.25 sec/shot |
| Repeatability | From 18 µm |
| Accuracy | From 18 µm |

Certification
- Compliant to VDI 2634/II and CE Declaration of Incorporation

By scanning with white light, the scanners can detect imperfections in product and also create a draft 3D mesh of the object for reiteration in CAD. This 3D mesh may also be used for reverse engineering.
Robotic 3D inspection

Key benefits

- Single camera technology
  One camera system reduces the number of views overlapping and potential hardware failures

- White/Blue light technology
  Great and adjustable light power to get the best digitizing results regardless of light conditions

- Shiny/Black parts digitization
  EDR technology implemented system parameters adjustment to easily digitize shiny and black parts without the need for spray

- Extremely fast
  The XR technology and seamless integration with the ABB robot allow the scanning process to be done within the fastest time while the measured data is processed in real time using multiprocessor technology

- Fast learning curve
  Quick customization and very easy to use solution. No specific skills are required. Two training days are enough to handle and control the full operation of the cell

- Touch screen control
  Designed to allow the operator to have a hand in the process thanks to the friendly user interface and intuitive process

- Remote control assistance
  Unit fully integrated with the ABB Patented Remote Service for retrieval of the system performance data. The root cause is immediately diagnosed and identified to determine how performance issues can be resolved

- Connected for a smart future
  In a Smart Factory, data from 3D scanners is stored in a collective Cloud – a wireless and internet based archive of information. Storing information in this way enhances connectivity across all areas of a business, and makes the information readily accessible when required.

Robotic 3D inspection system

Software

- **Sidio Airus Software:**
  The core and main processor of the ABB 3D scanner. White light patterns creation, signal treatment and point cloud processing algorithms.

- **PolyWorks Inspector:**
  The cloud of point is passed to PolyWorks to build the metrology report according to the customer requirements.

- **RobotStudio® Sidio planner:**
  A plug-in used to generate the path of the robot and program parts in an off-line computer. Sidio Planner is an off-line programming software based on ABB RobotStudio add-in, fitted for:
  - Design measuring trajectories of the robot
  - Offline simulation and online adjustments
  - Support for PolyWorks in virtual environment