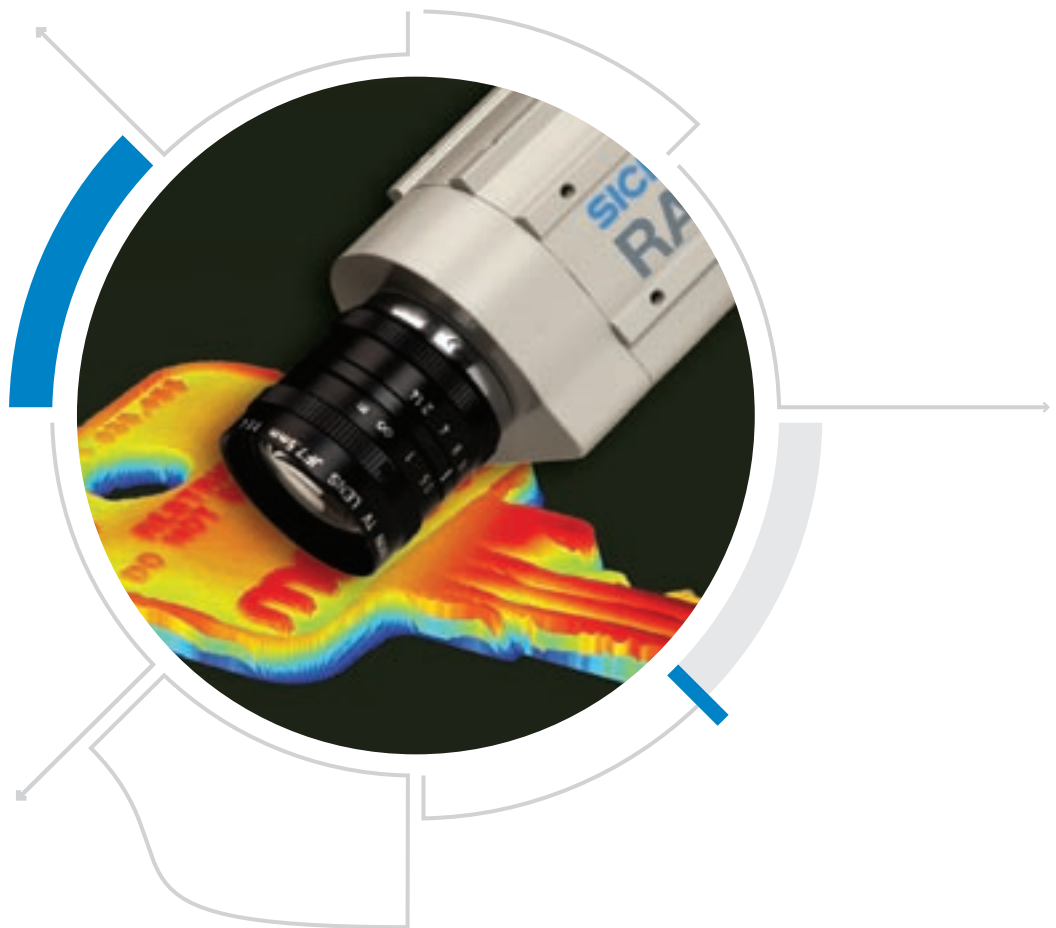


# High Speed 3D on Ranger C

- The fastest 3D available!





# Give your customers the benefit of a new dimension!

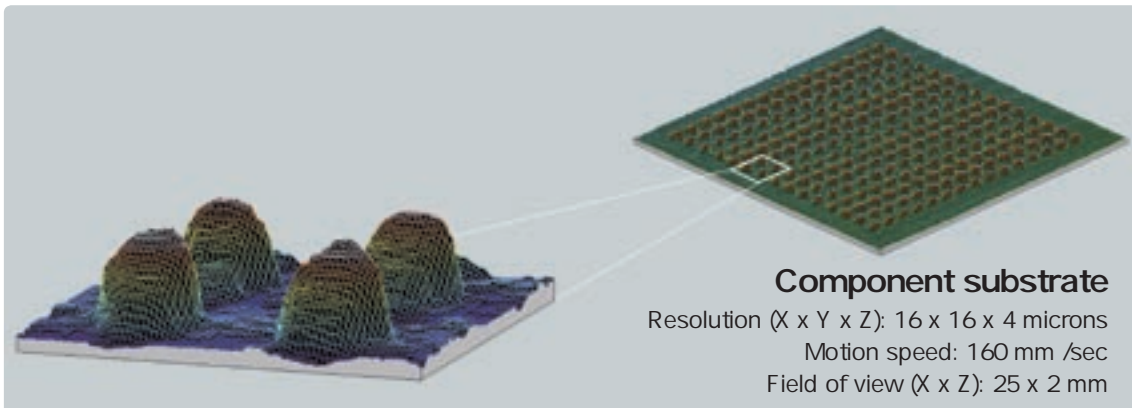
Some examples where 3D makes the difference



- Volume measurement of solder paste
- Quality of substrates and components
- True shape of logs in the sawmill
- Wood quality grading
- Size sorting of fruit
- Food portioning
- Glue string measurement
- Robot guidance
- Tire inspection
- Rail inspection
- Rubber and plastic extrusion
- Bulk volume measurement and more...

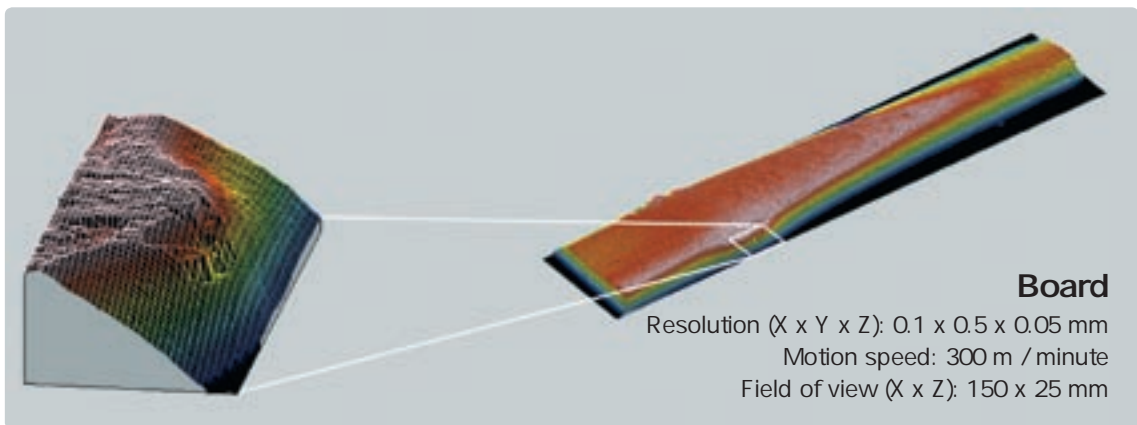
## Component inspection

Vendors offering final inspection solutions, use Ranger C to get a fool proof verification of the component before putting it into tape or trays for shipment. Integrated into a Pick&Place machine, the Ranger C helps making sure that the component is safe to place, and thereby avoid expensive repair actions on finalized products.



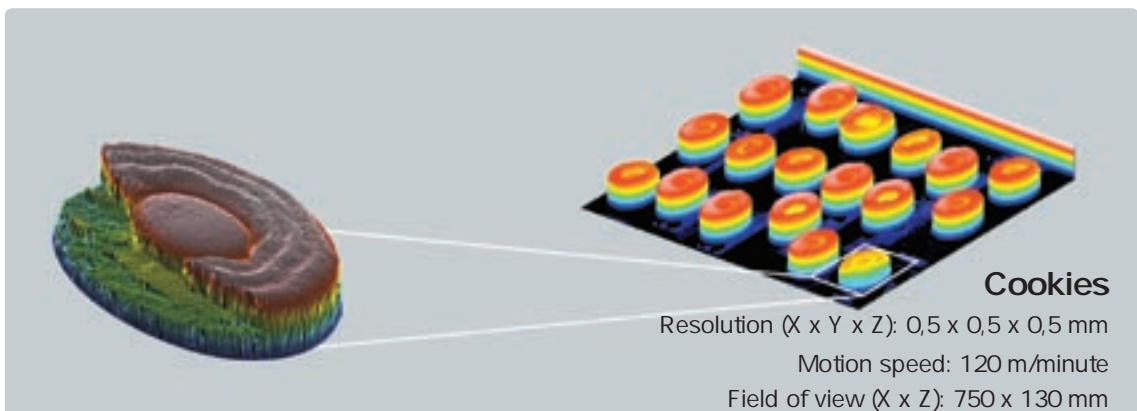
## Board inspection

Wood inspection machine manufacturers use Ranger C cameras to differentiate their machines from competitor models by means of more accurate 3D measurements, better defect detectability and higher speed. This increases their sawmill customers' throughput, optimizes the quality and minimizes waste of valuable raw material.



## Food inspection

In today's society looks and appearance really matters, this also includes what we eat. Sorting and quality grading of fruits, vegetables, chocolates and most other things we eat, differentiates one food producer from another. Sorting machines based on Ranger C gives more options to measure how appetizing the products look!



# New possibilities with high speed 3D vision

In quality control applications size actually does matter. With size comes the question – Does really a 2D projection of the reality give all answers needed, to solve the problem?

Whenever height also has to be considered you are entering the 3rd dimension of problem solving. Let 3D vision by IVP be the answer to your way of dealing with adding another dimension to your measurement and inspection solution!

## Traditional 2D



Which object is on top?



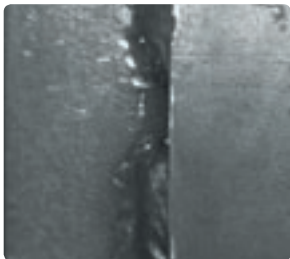
Robot Guidance & Bin Picking



Do you see the short pin?



Inspection of Connector Pins



Can you see the nonwelded area?



Inspection and tracking of Weld Seams

## 3D by IVP



The images above are 3D images with height represented as intensity.

## It is easy to add 3D in your application!

### Run your 2D algorithms on 3D data

This representation enables your filters, blob tools, edge finders and other vision tools to work correctly on 3D data.

### Third party imaging software

Third party software such as Matrox MIL, Common VisionBlox, Labview, eVision, Halcon and others easily interface with Ranger C via Camera Link.

# Improve inspection results with the highest available performance!

## Easy system integration with CameraLink

The 3D data is represented as standard line scan intensity images and is transferred to the PC via Camera Link for easy access from the Frame Grabber's API. This enables you to base your application on your own imaging library or commercially available software such as Coreco Sapera, Matrox MIL, Common Vision Blox, LabView, eVision, Halcon or others.



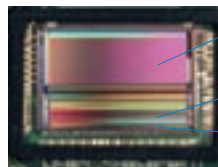
### Technical data

Performance .....	Up to 20,000 3D profiles per second
Interface .....	CameraLink
Development platform .....	Dependant on Frame Grabber, contact SICK IVP for information
Evaluation Software, Ranger Studio .....	PC, Windows 2000 or XP for supported Frame Grabbers
Synchronization of data .....	Free running, light switch enable, rotary encoder trig
Camera Size .....	50x50x110 mm
Power .....	12-24V DC
Options .....	IR filter to make light source alignment easier

	Ranger C50	Ranger C40
Gray scale resolution	1536	512
3D profile resolution	1536	512
Maximum 3D height resolution	13 bits, 1/16 pixel	13 bits, 1/16 pixel
C-mount optics	1 inch	1/2 inch

### Core technology

The unsurpassed speed and performance is a result of IVP's patented CMOS sensor technology. The powerful on-chip processors are capable of processing more than 20,000 frames per second.



- Sensor, 1536x512 pixels
- 1536 Parallel A/D-Converters
- 1536 Parallel Processors



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