Jürgen Schaffhausen

VINCAM @ AOI

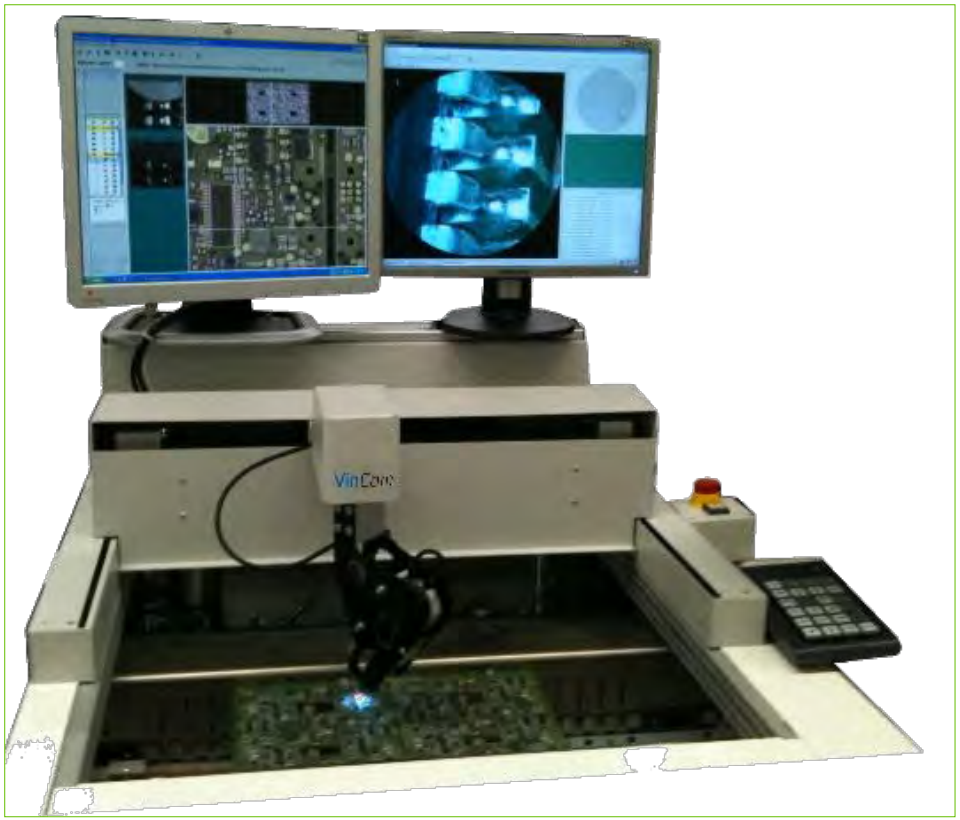
INFORMATION, VERSIONS, OPTIONS

VinCam overview

- VinCam Standard (different size variants)
  - 4 axis portal X,Y,Z,Phi
  - Z-axis for different PCB thickness and warpage
  - Safety housing with light curtain (safety light grid)
- VinCam Fast (option)
  - fast drive units, safety housing necessary
- VinCam Remote (option)
  - Remote control of a VinCam-Station

VinCam standard 3 axis (old)

X, Y, Phi axis portal



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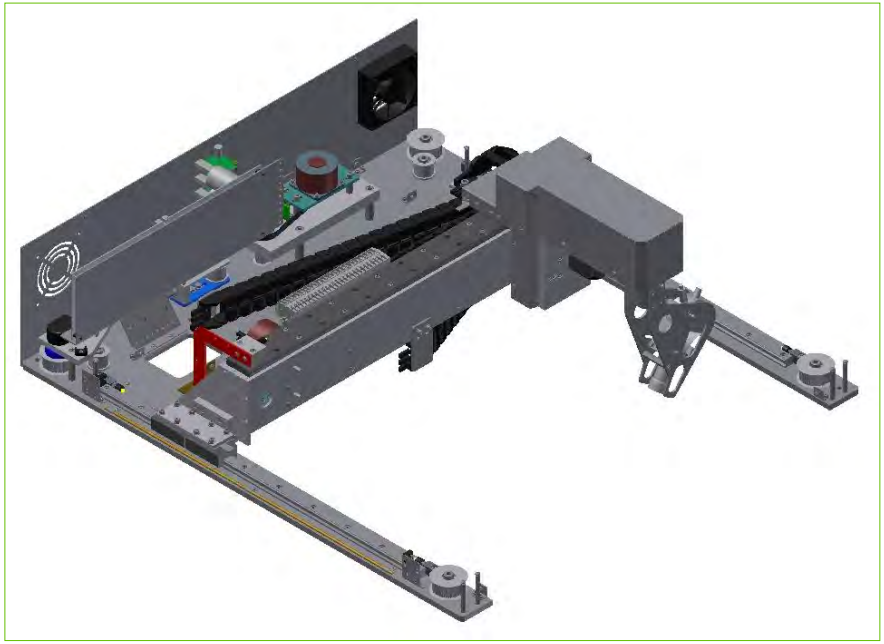
VinCam with Z-axis option (new: Standard 4 axis)

X, Y, Z, Phi (4- axis portal)



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VinCam camera head with Z-axis

Z axis drive unit

- Z axis for
  - different PCB thickness
  - compensation of warpage

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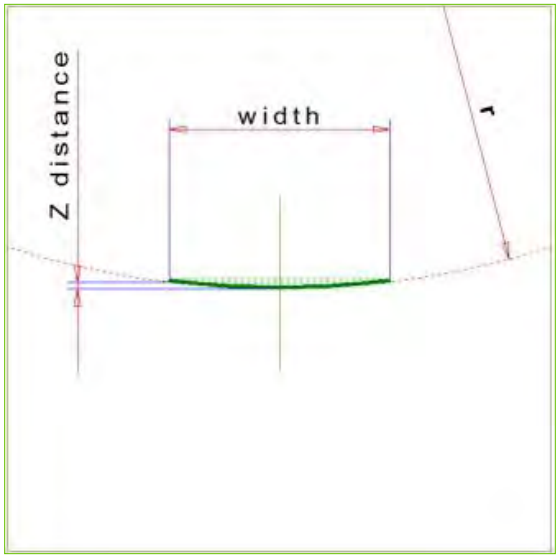
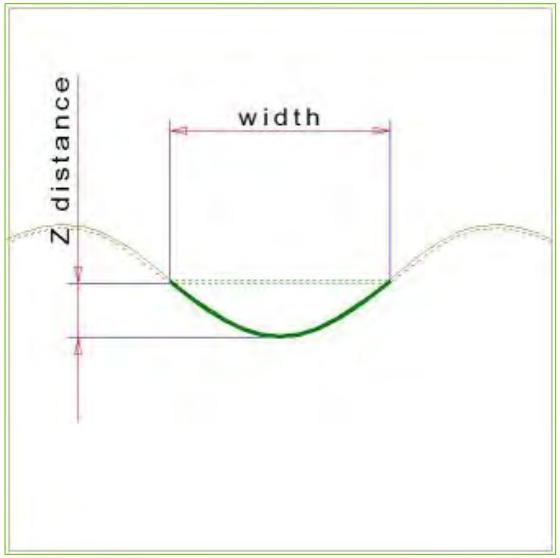
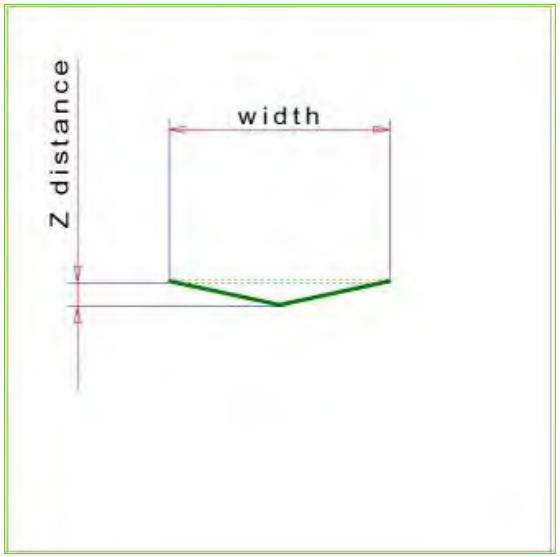
VinCam Z axis height models (compensation of warpage)

cycle	sinus	linear







VinCam safety housing

ACHAT5 PCB-handling AOI-buffer with reject conveyor

VinCam on Siemens/ASYS TRM conveyor

standard

safety housing

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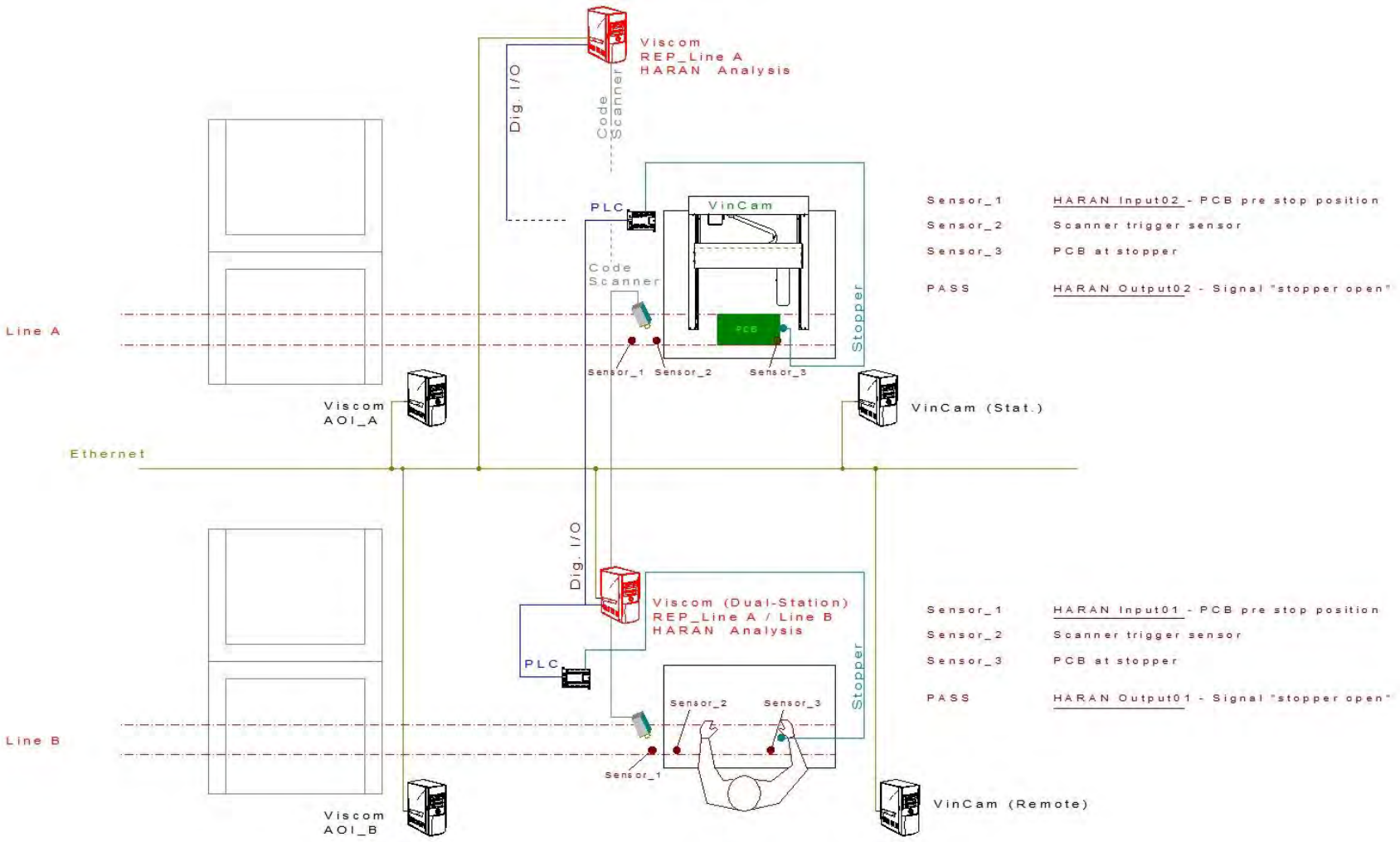
VinCam on ACHAT5 conveyor

standard

safety housing

VinCam remote option (Example: Remote station @ Viscom)



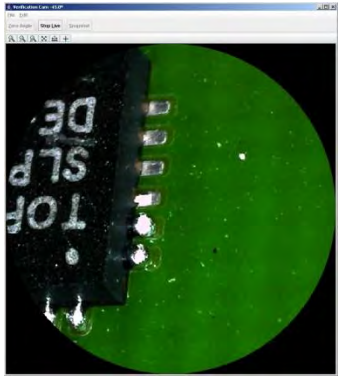
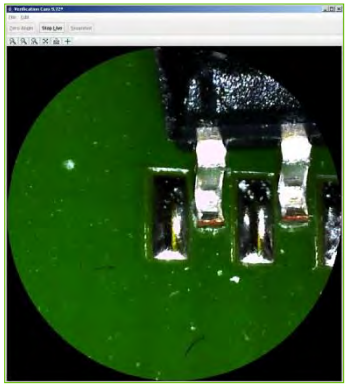
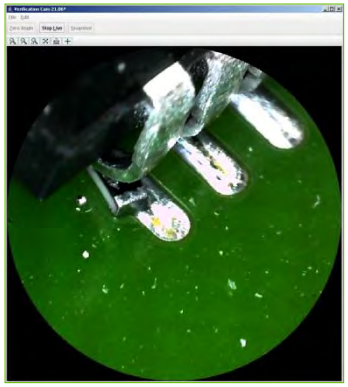
VinCam functions

- Automated classification tool (at AOI-repair-station)
- MOI-funktion for semi automated „Manual Optical Inspection“
- View of images despite rotated camera position always from the front
- Z-axis for compensation of PCB thickness and warpage
- Snapshots of camera window with pushing on key (bitmap-formats)
- Product-specific parameters can complement AOI information
- Automatic calibration of system parameters (mechanical geometries)

VinCam calbration

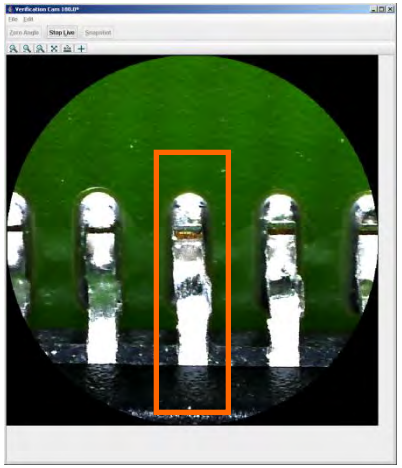
- Calibration tool (with AOI glass calibration plate)
  - X/Y Offsets in a grid of 90°
    (Camera-focus point to fiducial mark cross)
  - Position of stopper (PCB stopper edge)
  - Angular offset between the axes
  - Angular offset between VinCam and fixed PCB transport rail
    (Parallelism of the X axis to the fixed PCB transport rail)
  - Dimensions of the linear axes (encoder resolution)

VinCam – sample pictures

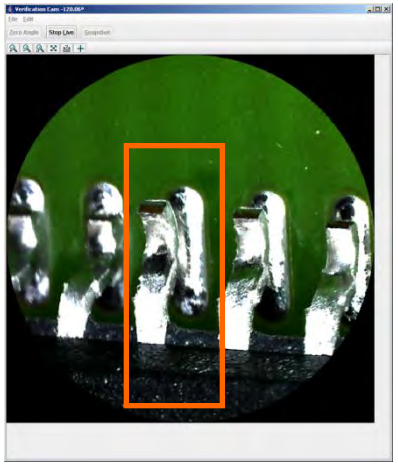
lifted	lifted	solder ball / short
		
		

VinCam - Advantage of the camera rotation angle position

- Camera position 180°
  - IC lead OK**?**



- Camera position 120°
  - Lifted lead!



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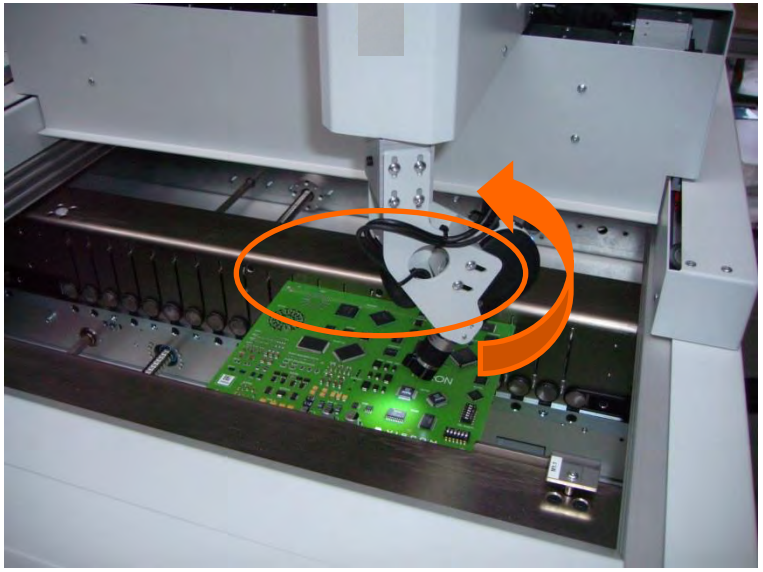
VinCam orientation and view of monitor display

- Rotation of the camera image on the LCD monitor so that the view on the monitor shows the real orientation of the PCB (always from the front)



VinCam - interface to AOI repair station

- Interface to AOI / Verification- and classification station
  - Operator is using AOI rep.-station in the same way like in front of an installation of VinCam-systems
  - Automatically positioning of VinCam (synchron to AOI-Rep.-station)
  - Ethernet to connect to the repair station required
- Keypad option
  - in addition, a manual positioning of the camera is possible
    - X / Y / Phi / Z
    - Fast Phi positioning in 45 ° increments or
    - fine positioning in small degree increments
  - Saving (bitmap files) of current view with one key
  - Key „back to origin position“ after manual movment
  - Key to drive camera to „park position“

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VinCam – MOI-funktion (Manual Opt. Insp.)

- Storable tables of coordinates
  - manually editing the table
  - Reading Excel files (. Csv)
  - Teaching positions using the keypad
- Forward, reverse or first position
  - Keypad buttons provides operation in the MOI mode for the leap to the individual positions

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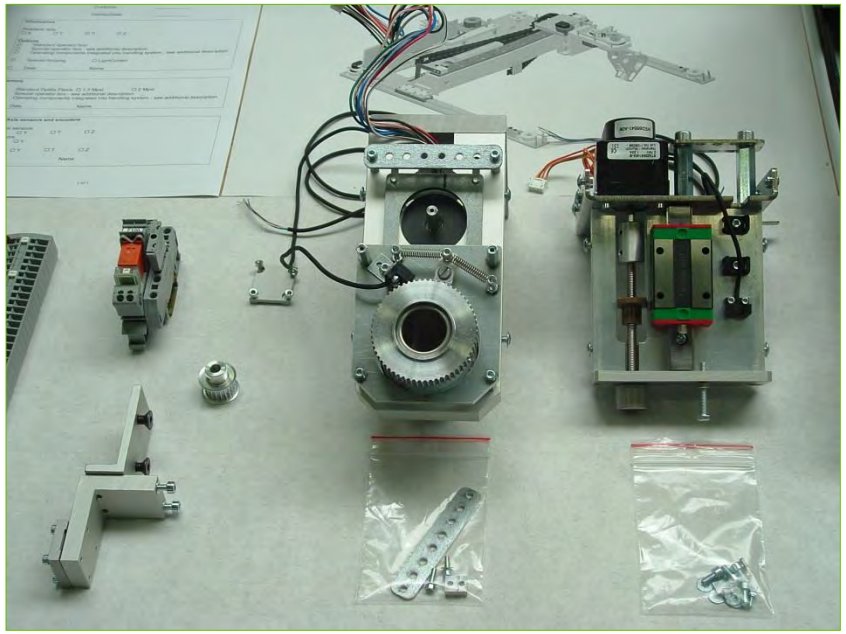
VinCam – Types (dimensions)

Order Code	Description
VinCam II **S**	**S**mall size; traveling distance X-axis= **360mm**, Y-axis = **320mm**
	Machine dimension: L=**700mm**, D(T)=**1200mm**, H=370mm
VinCam II **M**	**M**id size; traveling distance X-axis= **420mm**, Y-axis = **320mm**
	Machine dimension: L=**780mm**, D(T)=**1200mm**, H=370mm
VinCam II **MD**	**M**id size; traveling distance X-axis= **420mm**, Y-axis = **480mm**, **Dual lane**
	Machine dimension: L=**780mm**, D(T)=**1360mm**, H=370mm
VinCam II **L**	**L**arge size; traveling distance X-axis= **500mm**, Y-axis = **480mm**
	Machine dimension: L=**900mm**, D(T)=**1360mm**, H=370mm
VinCam II **C**	**C**ustomized size; traveling distance X-axis= ____**mm**, Y-axis = ____**mm**
	Machine dimension: L=____**mm**, D(T)=____mm, **H=370mm**

VinCam production @ ACHAT Engineering

Assembly X/Y-Portal

Camera head (Z, Phi)



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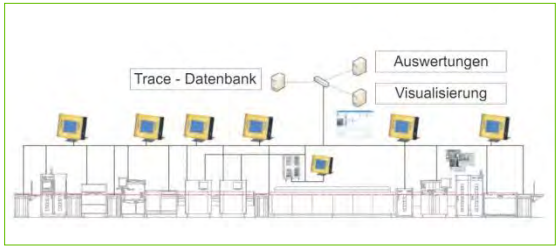
ACHAT5 Product groups

Board handling

Inspection

Traceability



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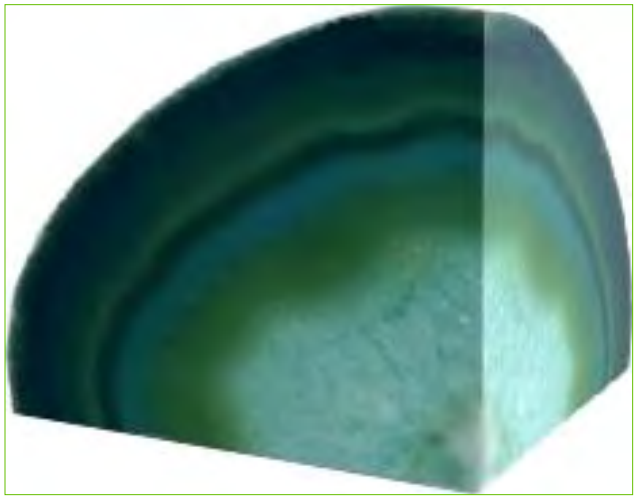
ACHAT Engineering GmbH

Agate Geode (logo-inspiration)



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- **A**utomation
- **C**ustomzing
- **H**andling
- **A**OI-options
- **T**raceability
- **5** disciplines at only one stop

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