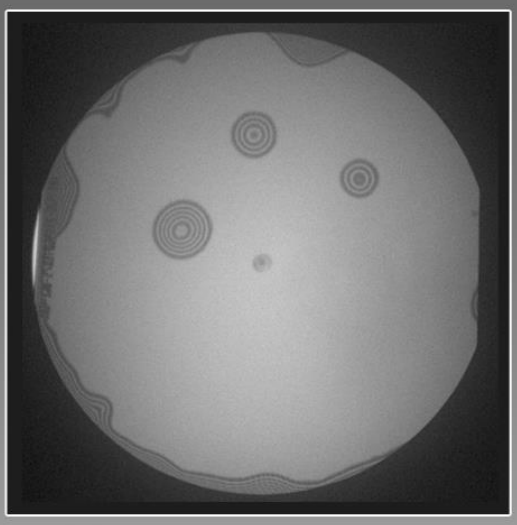

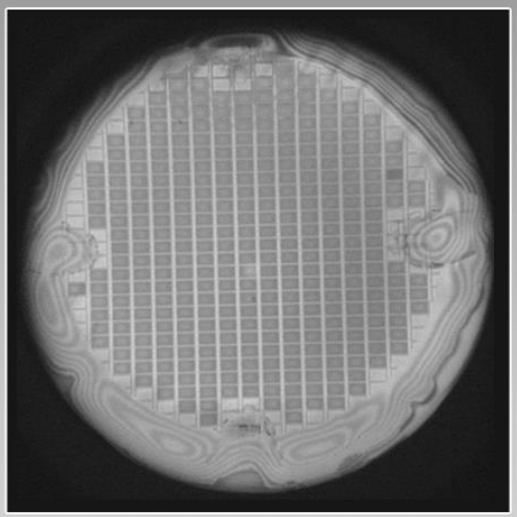

PRODUCT BROCHURE

IR Light Wafer Bonding Inspection System

Silicon is highly transparent to infrared (IR) light. The idonus IR light Wafer Bonding Inspection system (WBI) illuminates the silicon-based substrate from the back side and captures the light that passes through it.

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IR Light Wafer Bonding Inspection System

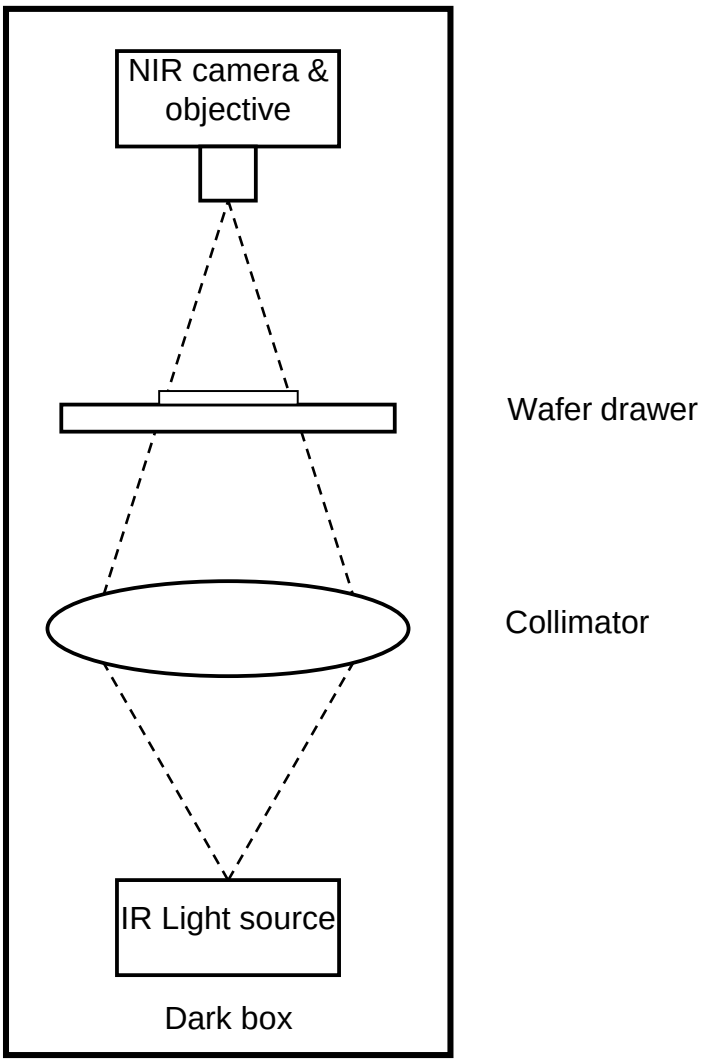
General Information

Silicon is transparent for infrared light. Our IR light wafer bonding inspection system (WBI) illuminates the silicon substrate from the back-side and captures the light that permeates the substrate. Therefore, it becomes possible to inspect phenomena between two silicon substrates, which are not visible from the outside.

The inspection system is equipped with an infrared light source and a collimator optic that illuminates the wafer with a light beam having a uniform intensity. A NIR sensitive camera displays the image of the inspected substrate on your computer via ethernet connection. The field of view and magnification of the camera can be adjusted manually.

idonus fabricates IR inspection system in standard version for up to 200 mm wafers or 300mm system custom build. Smaller wafer can be visualized by use of adapter chucks. Unique feature of the idonus WBI is an optical zoom which allows high quality images with a resolution of 2.3 MP of a detailed area of the wafer with a field of view down to 20x32mm. This for the system has a manual z-axis for the camera optics and a manual Y+R axis for wafer displacement. Furthermore the idonus WBI has smallest footprint in its class for a 200mm system with a size of 384 mm x 464 mm (W x D).

For the visualization of the wafers a computer with ethernet port and Windows OS is required.



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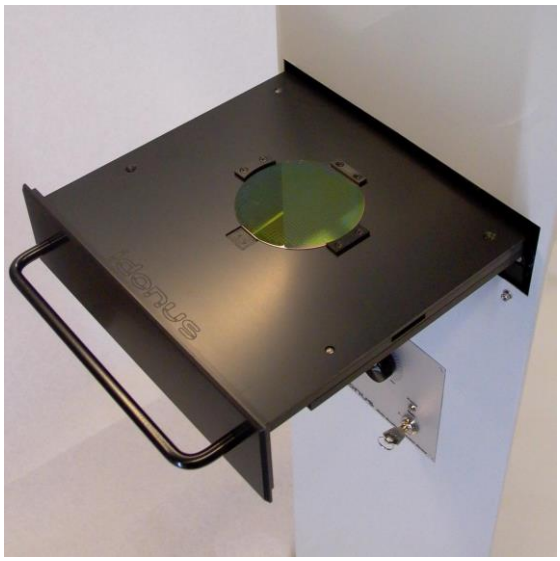
IR Light Wafer Bonding Inspection System

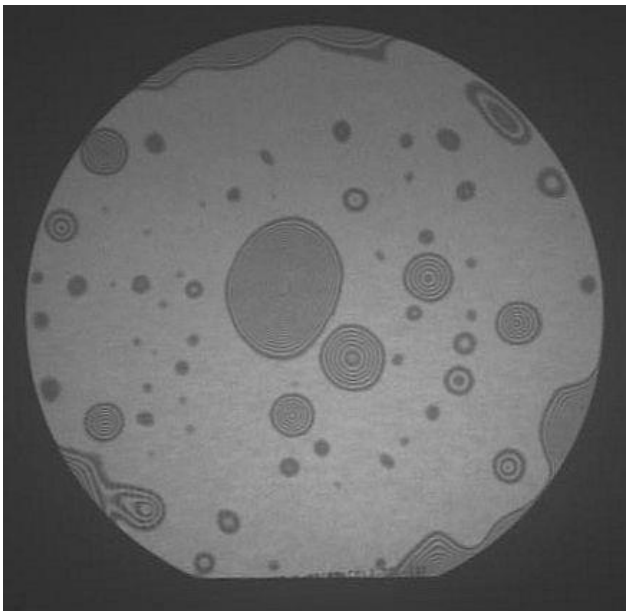
General Information

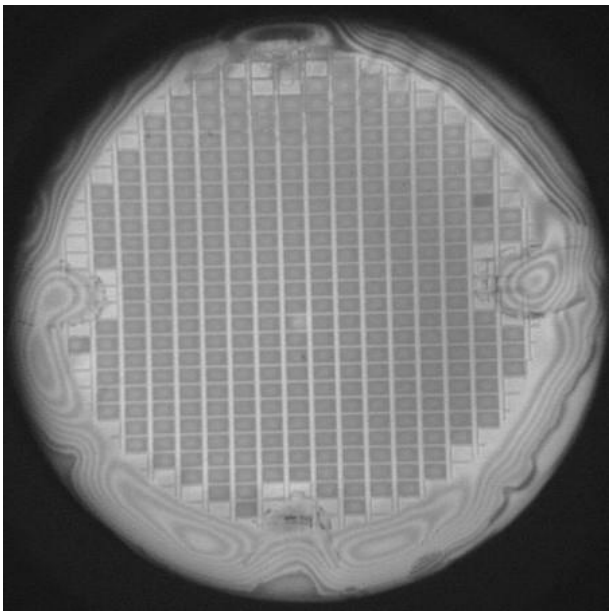
Applications:

- Inspection before and after fusion bonding
- Alignment of silicon wafers/chips
- Quality control
- Inspection of large, released MEMS devices
- Measurement of the etching speed of buried materials (e.g. SOI wafers)



The wafer is loaded from the front side. For smaller wafers adapter chucks can be used.





Examples of IR-images: The left image shows two silicon wafers after fusion bonding (picture courtesy of CSEM SA). The total thickness is 1.0 mm. The un-bonded areas between the two wafers are visualized by the inference patterns. The right image shows a bonding of pre-structured wafers. The regular pattern consists of etched cavities. The interference pattern at the border also indicates a bad bonding in this area.

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IR Light Wafer Bonding Inspection System

Specifications

Product Code	**WBI200**
Wafer sizes	Any substrate size up to 200 mm diameter
Wafer chuck	200mm; optional any size available
Camera	Monochrome 2.3 Megapixel NIR camera with GigE interface
Camera resolution	1920 x 1200 Px; 5um Px size
Minimum viewable feature (= 1 Pixel) at 200mm FOV	166 um
Optical zoom	FOV between 200 mm wafer size and 20x32 mm
Minimum viewable feature (= 1 Pixel) at 20mm FOV	16 um
Motion axis	3 axis (Z + Y + R) manual operation
IR illumination type	Through substrate illumination
IR light source wavelength	Broadband 1 um
IR light source radiation	Adjustable 10% to 100%
Dimensions (W x D x H)	384 x 464 x 1864 mm^3
Footprint (W x D)	384 x 464 mm^2
Weight	40 kg
Facility Requirements for installation	
Supply power	230 VAC, 50 Hz or 110 VAC, 60Hz
Power consumption	150 VA
	Computer with Ethernet port and Microsoft Windows OS
Image visualisation	Camera image viewed on PC
	Software for camera framegrabbing and image vizualization provided via camera manufacturer
Optional	
Image analysis software	On request available

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