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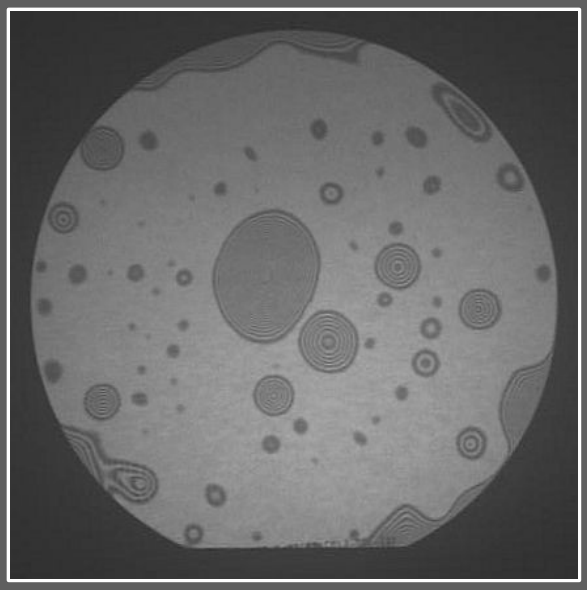
Product Information Brochure



IR Light Wafer Bonding Inspection Device

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IR Light Wafer Bonding Inspection Device

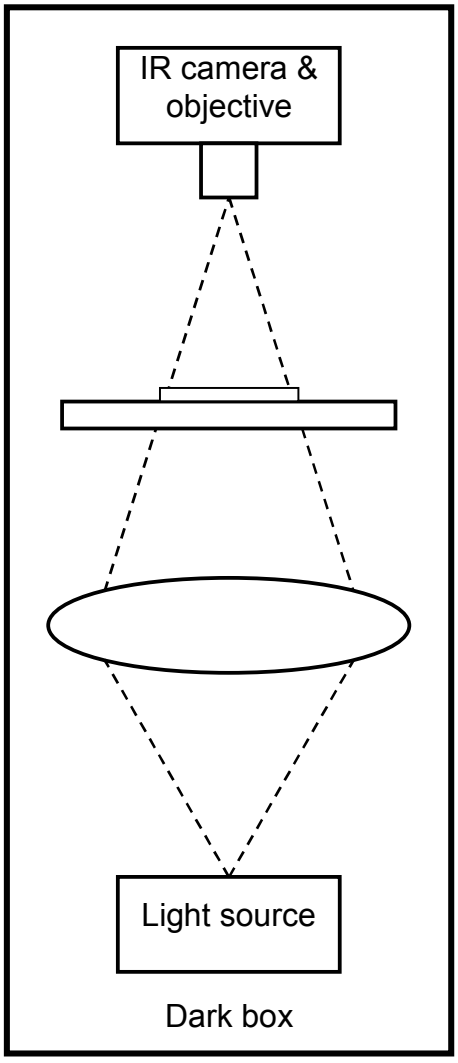
General Information

Silicon is transparent for infrared light. Our IR light wafer bonding inspection device (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 device is equipped with an infrared light source and a collimator optic that illuminates the wafer with a light beam having a uniform intensity. An IR sensitive camera displays the image of the inspected substrate on your computer through an USB connector. The field of view and magnification of the camera can be adjusted manually.

Idonus fabricates IR inspection devices for 100 mm, 150 mm and 200 mm wafers. Smaller wafer can be visualized with adapter rings. The 200 mm version is equipped with a motorized wafer holder, which allows to inspect the complete wafer at higher magnifications.

For the visualization of the wafers a personal computer with USB port and Windows 2000 or higher is required.



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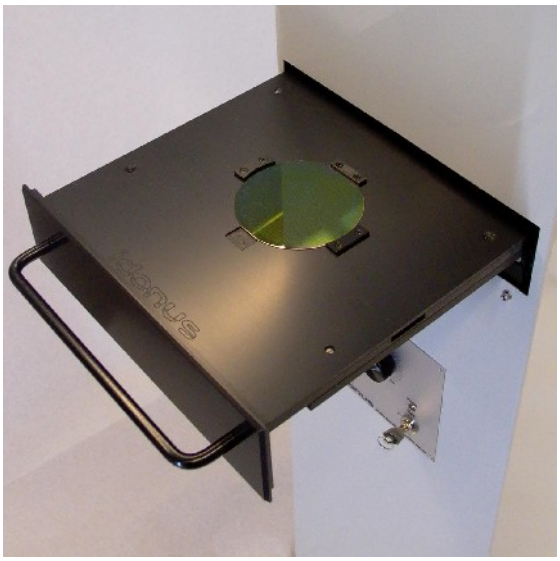
IR Light Wafer Bonding Inspection Device

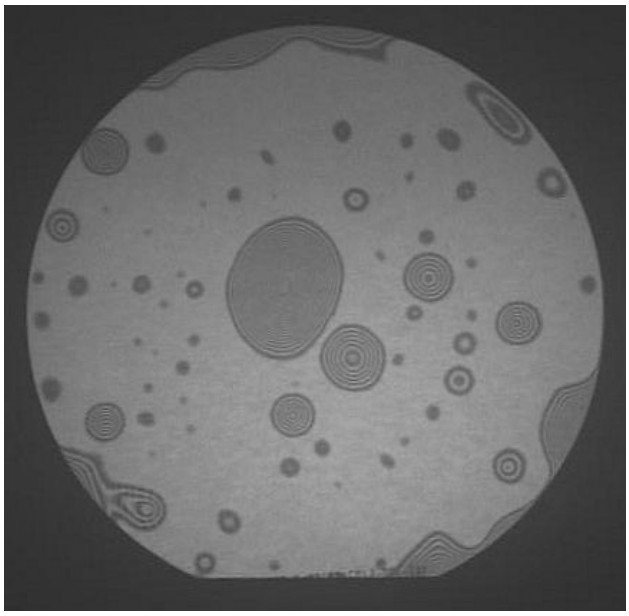
General Information

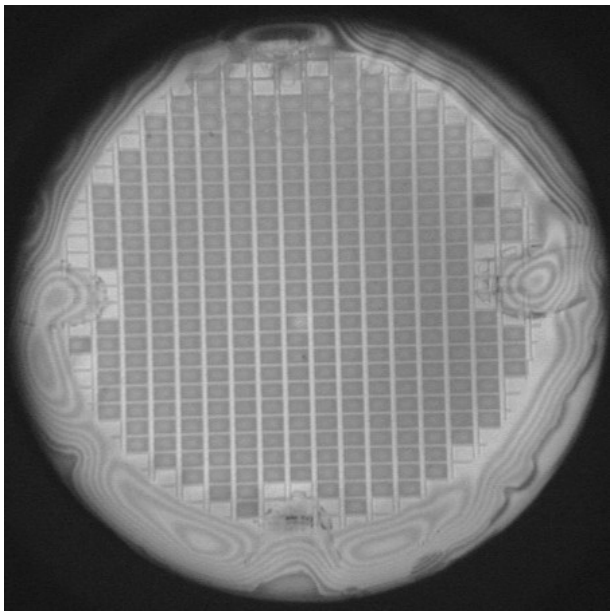
Applications:

- 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 rings 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 Device

Specifications

Product Code	**WBI100**	**WBI150**	**WBI200**
Wafer sizes	up to 100mm / 4”	up to 150mm / 6”	up to 200mm / 8”
Minimum viewable feature size (= 1 Pixel)	100µm	150µm	200µm
FOV (diameter)	100mm	150mm	200mm
Camera	Monochrome 1.4 Megapixel NIR camera with USB 2.0 output		
IR light source wavelength	1µm		
Power	230 VAC, 50 Hz or 110 VAC, 60Hz		
Power consumption	125 VA		
Dimensions (w x d x h)	380 x 460 x 1810 mm^3		
Weight	40kg		
Footprint	380 x 460 mm^2		
Requirements for installation	PC or Laptop with USB 2.0 port Microsoft operating system (Windows 2000 or higher)		
Image visualisation	Camera image viewed on PC Software for framegrabbing and visualisation provided		
Optional			
Zoom optics	FOV between wafer size and ø 20mm		
Image analysis software	On request available		

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