

AUTOGLASS INSPECTOR AGI-T™

Transmitted Optical Distortion Measurement System

AGI-T System Overview

The Glasstech AutoGlassInspector System is a cost-effective solution for quantifying transmitted optical distortion in automotive glass. Glasstech's AGI-T provides the optical quality measurements required by many automotive manufacturers around the world. The system consists of a Windows-based, computer-controlled, digital image acquisition system utilizing advanced computer programming to analyze automotive transmitted optics. The AGI-T system is available for lab inspection and in-line inspection in a production factory environment.

Process Description

The AGI-TL (lab) system measures transmitted distortion in a single digital image. All components remain stationary during the image capture to eliminate any outside interference of the image.

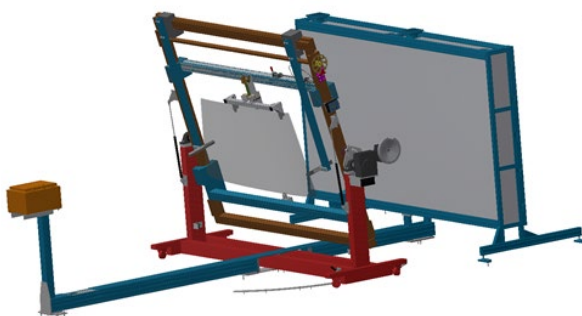
Once the glass is placed in the stand, which is set at installation angle, the image is recorded and the computer begins to analyze the data. The glass can be removed from the stand once the image is recorded and before the analysis is completed.

AGI-TL System Components

- High performance Windows computer system with dual wide-screen monitors
- High resolution machine vision camera, remotely powered and computer-controlled
- Precision adjustable glass stand with auto-centering glass support mechanisms
- Installation angle electronic sensor with feedback displayed on the computer monitor
- Backlit pattern array screen
- System backbone for maintaining the alignment of all components
- Interconnection cables
- System operating desk
- Operations manual

AGI-TIL System Components

- High performance Windows computer system with dual wide-screen monitors
- High resolution machine vision camera, remotely powered and computer-controlled
- Servo controlled positioner and tilt mechanism
- Servo controlled glass conveyor
- Backlit pattern array screen
- System operating desk
- Operations manual



AGI-TL (Transmitted – Lab Inspection)



AGI-TIL (Transmitted – In-Line Inspection)

AUTOGLASS INSPECTOR AGI-T™ TECHNICAL FEATURES

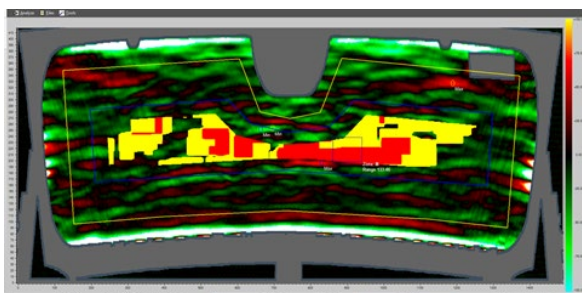
System Capability

Maximum glass size:	1220mm x 1828mm (48" x 72")
Maximum distortion:	+/- 450 millidopters (mdpt)
Analysis time:	< 8 seconds
Installation angle:	0-80 degrees from vertical
Yaw angle:	0-45 degrees (lab system only)
2-D distortion views:	Horizontal, vertical
1-D distortion views:	Vertical and horizontal line plot for each 2-D view
Automatic masking:	Paint band, defroster wires, antenna wires
Manual masking:	Easy masking of irrelevant anomalies
Manual zone definition:	Defined by simple-to-use drawing tools
Zone and region definition:	User-defined zones to meet all automotive glass standards
Complete statistical evaluation of zones and regions:	Minimum, maximum, average, range and standard deviation within zones or regions overlaid on the 2-D view image

AGI-TL Lab Transmitted Inspection

Key Features

- Meets the TL957 requirements for optical evaluation
- Glass is inspected at installation angle
- Part alignment system ensures that parts are accurately and repeatedly positioned for consistent measurements
- Intuitive Windows-based user interface



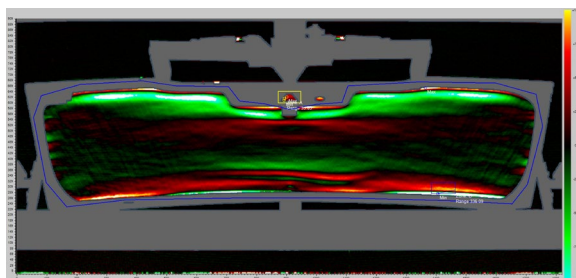
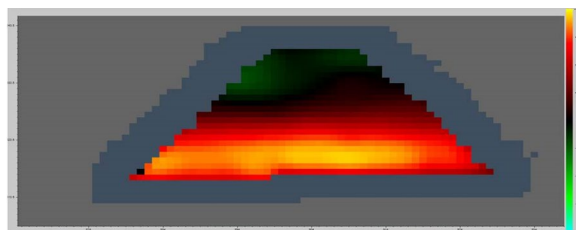
AGI-TIL In-Line Transmitted Inspection

Key Features

- Meets TL957 requirements for optical evaluation
- Glass is evaluated at installation angle
- Minimum cycle time: 8 seconds
- Identical results to the AGI lab system
- Can run any number of different parts consecutively by identifying the part using image recognition technology
- Turnkey system with small footprint
- Easy customization of software to accommodate customer's quality data structure and data flow

AGI-T Windshield Multifunction Camera Location Evaluation (for ADAS systems)

- Approximately 750 measurement points in ADAS area shown below
- Measurements unaffected by the paint edge
- Readings within 5mm of paint edge



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