

# LD-1000

**LASER-DRILLED CERAMIC SUBSTRATE  
VIA HOLE INSPECTION SYSTEM**

**M**IDAS Vision's LD-1000 automatic optical inspection (AOI) system is designed to reliably and comprehensively find the via hole defects that occur in laser-drilled ceramic substrates. Using precise template compare algorithms, the system instantly identifies problem vias, whether **mis-located, missing, partially clogged, blocked, oversized** or **undersized**. In addition to vias, the system also will inspect any other shape that is cut out by the laser.

Use of the LD-1000 drives virtually **defect-free vias** in machined ceramic substrates, and greatly enhances a ceramic supplier's competitiveness and standing with its customers.

The LD-1000 operates at high speed and can readily accommodate the cycle rate of laser drilling machines, thereby ensuring 100% via hole quality on each part. There is no limit to the number of holes that can be inspected, as cycle rate is independent of the number of holes. The system dramatically reduces set-up time of the laser tool by providing instant "first article" feedback.

Once a part is inspected, the operator can use the system for defect repair using the built-in verification station. Verification capability includes magnified displays of both the color-coded analysis of each defect and the defect's video image. In verification mode, the system presents the part toward the front of the machine nearest to the operator, to facilitate rework. The LD-1000 also includes a software tool for measurement of hole locations and sizes.

The LD-1000 comes ready for integration into any manufacturing facility as a stand-alone inspection system or an island of automation with loader and un-loader. Physically, it has a small footprint, and comes with casters for easy portability. Electrically, it uses standard single-phase 110/220 VAC power. By design, it requires very little maintenance. Manufacturing staffs will be drawn to use the LD-1000, not only for its extraordinary ability to catch defects, but also for its fast set-up, simple and intuitive operation, and effective displays.



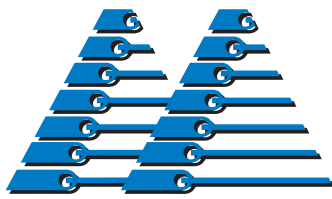
## ● LD-1000 Key Features

- Precise Inspection Of Laser-drilled Via Holes and Cut-outs
- Built-in Rework/Verification Station
- Golden Sample Reference or CAD Option
- High Throughput
- Fast Setup, Simple Operation
- Small Footprint
- Automatic Part Handling Option

25 Commercial Drive  
Wrentham, Massachusetts 02093  
[www.midasvision.com](http://www.midasvision.com)

phone: 508.384.9600  
fax: 508.384.8183  
email: [sales@midasvision.com](mailto:sales@midasvision.com)

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## SYSTEM SPECIFICATIONS

<b>Inspection Application</b>	Laser-drilled vias (and other cut-out shapes)
Substrate Types	Hard ceramic substrate
Substrate Size (maximum)	12" x 15" (30 x 38 cm) For other sizes, contact factory.
Active Inspection Area	8" x 10" (20 x 25 cm) For other sizes, contact factory.
Inspection Resolution Options	1 mil, 0.5 mil, 0.25 mil, or 0.125 mil. (25, 13, 6, or 3 $\mu$ m) For other resolutions, contact factory.
Inspection Speed	Both line rate and sample rate models available - contact factory.
Typical Defects Detected	Mis-located, missing, partially clogged, blocked, oversized or undersized vias
<b>Operation</b>	
Inspection Reference Generation	Template from Golden Sample (or CAD-generated template using optional software module)
Defect Verification/Repair	Video Microscope for on-line verification or repair.
Pattern Measurement Capability	Feature size and location
Defect Data Storage	ASCII delimited files for off-line use (SPC, Reporting, etc.)
Template Storage	Hard disk and vision processor RAM
New Part Set-up Time (example)	2-3 minutes for 36 in <sup>2</sup> (232 cm <sup>2</sup> ) @ 0.5 mil (13 $\mu$ m) pixel resolution
Operator Interface	Dedicated display terminals for: graphical process feedback operator input and machine status feedback live video microscope for defect verification/repair
Typical Training Time	Operator 3 hours Technician 3 days
<b>Options</b>	
Software Options	CAD2MIDAS, for creating inspection templates from Gerber 274X.
Electrical Options	Additional RAM template storage (on some models) CE Approval UPS (external)
Tooling/Mechanical Options	Universal tooling plate included. Custom tooling plate design guide provided. Edge rail load/unload tooling plate. Cassette-to-cassette part handling automation. Automatic theta alignment. Defect part marking. Resolution changeover kits
<b>Physical Specifications</b>	
Dimensions	72"W x 36"D x 72"H (.9 x .9 x 1.8 m) Footprint Max width at monitors ~ 60" (1.5 m)
Weight	350 lbs (160 kg)
Power	110/220 VAC 7 amp (10 amp max)
Safety	Semi-S2 Compliant

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