

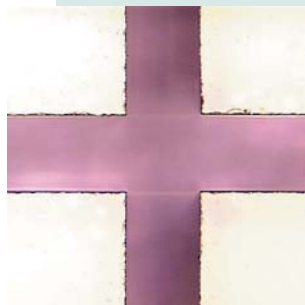
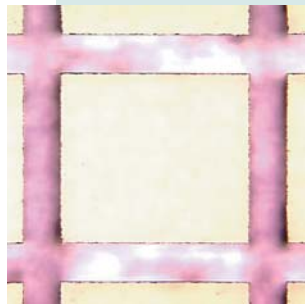
Dicing Solutions

for DWDM Optical Filter Applications

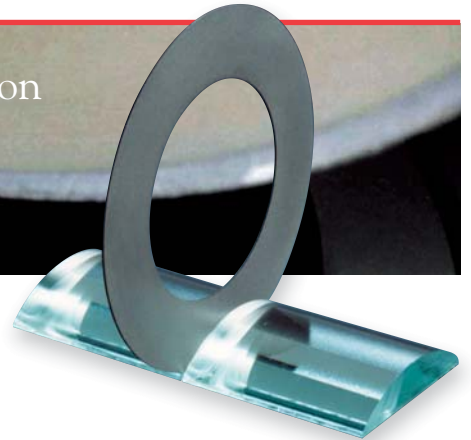
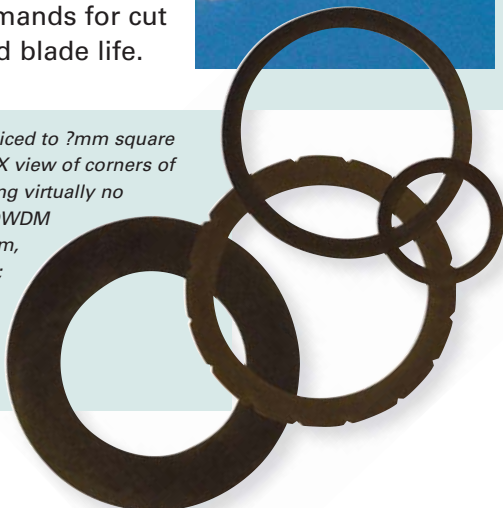
Developed expressly for precision dicing of coated glass wafers used in the construction of DWDM filters.

At the Forefront of Late-Breaking Technology

DWDM (Dense Wave Division Multiplexing) filters are playing a key role in significantly increasing the data transfer capacity across existing optical fiber networks. These filters utilize tiny glass cubes, to which layers of thin film coatings have been applied. The coatings filter specific wavelength ranges from the optical signal, allowing greater capacity without adding any additional cable to the network. After deposition of the coatings, dicing of the glass wafers poses many challenges, as individual cubes measure a mere 1-2 mm³ with more than a hundred ultra-thin layers that are 20,000 to 30,000 nm thick. Once again, ADT has responded to needs posed by the latest technological breakthroughs, with tools, equipment and know-how that comprise a proven, tested, and complete solution that meets and surpasses industry demands for cut quality, throughput and blade life.



From top: Glass wafer, diced to 7mm square using a 7" thick resin blade; 7X view of corners of 7mm square glass showing virtually no chipping; Glass cubes for DWDM filter, 7mm x 7mm x 7mm, diced with a resin blade; assortment of annular resin blades; Top right: Thick glass bar diced with a 5" resin blade.



- **Ideal Solution for DWDM Filter Applications**
- **High Power 7100adHM System Handles Hard, Thick Materials**
- **High Exposure Resin Blades Up to 5" Diameter**
- **Widths from .003" to .100"**
- **Extended Blade Life Increases Machine Uptime**

High Exposure Resin Blades for Hard, Thick Wafer Materials

When dicing hard, brittle materials in thicknesses greater by comparison to other dicing applications, blades are exposed to extremely high loads throughout the process. A wide range of high-strength resin blades have been specially formulated to ensure maximum blade life and superior cut quality despite these harsh conditions, and are available in thicknesses from 3 mils to 100 mils and diameters from 2" to 5"

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7100adHM Dicing System

With a high-power, 2.5 KW spindle capable of generating the torque to cut hard, thick wafers, and a variety of advanced process control and automatic alignment features, the 7100adHM is the ideal solution for dicing coated glass cubes used in the construction of DWDM filters.

- **Real-time Blade Load Monitoring**
- **Automatic Blade Wear Compensation**
- **Automatic Coolant Flow Monitoring and Control**
- **On-line Monitoring of Dressing Operations**
- **Integrated, High-power Vision System for Alignment and Inspection**

Advanced Process Control

The 7100adHM includes some of the industry's most advanced process control innovations ever to be featured in a dicing system. Real-time monitoring of the measured resistance against the blade and spindle has proven an extremely effective method for the maintenance of cut quality and is especially valuable under the high load conditions associated with the dicing of hard, thick materials. Automatic blade wear compensation, coolant flow control, and on-line monitoring of blade dressing procedures are also included.

Auto-Alignment of Workpiece

The foundation for the advanced automatic alignment features of the 7100adHM are a high accuracy lead screw and theta table with high resolution, closed-loop linear encoders. The system is laser interferometer certified to ensure the highest levels of precision and accuracy. Automatic Placement Compensation software provides high speed pattern recognition capability to adjust for workpiece inaccuracies and to insure precise, Y axis blade positioning and absolute angular correction for each cut. The system can be configured for a variety of workpiece mounting options that include lava bonding, pre-grooved stainless steel workholders, and magnetic or vacuum style chucks.

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