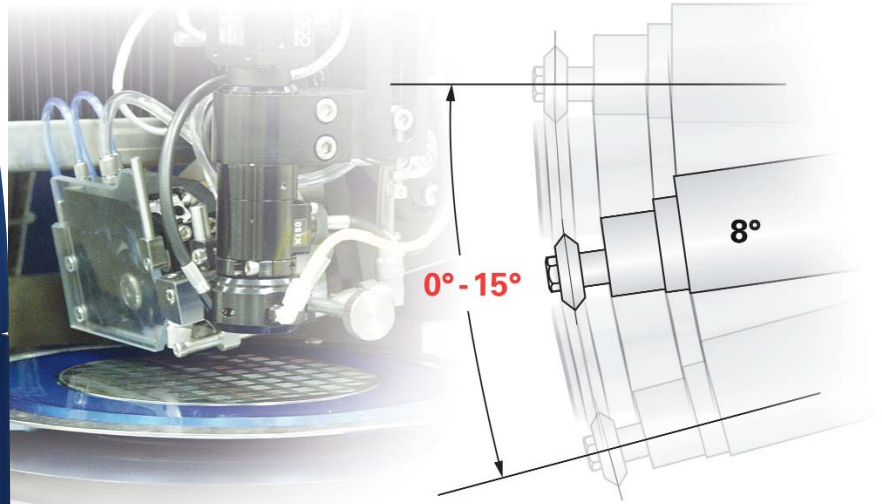


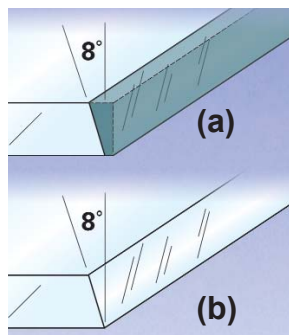
# Tilting Spindle for the 7100 Series *proVectus* Dicing System



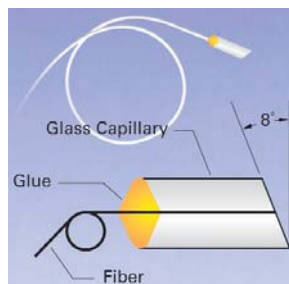
The Tilting Spindle capability for the 7100 Series' *proVectus* Dicing System is designed to meet the needs of optoelectronic component manufacturers by providing both perpendicular cuts and 8° angular cuts needed to suppress back-reflection in fiber optic components. A fast, efficient alternative to slow and expensive grinding processes, the Tilting Spindle offers significant cost-saving potential.

## Tilted to your advantage!

Many optoelectronic components utilize 8° angular surfaces to eliminate back-reflection at connection or termination points. For the benefit of manufacturers who rely on costly and time-consuming grinding techniques to produce these angled surfaces, K&S offers an alternative solution. The Tilting Spindle capability for the *proVectus* Dicing System is designed to allow perpendicular cutting of optoelectronic materials and, in just a few minutes, to be easily adjusted for dicing at angles between 0° and 15°. Fine adjustment of the spindle angle, along with blades, dicing parameters, and total process solutions developed specifically for your component type, provide very precise angular cuts and surface finishes. Customers have found that these cuts are of a quality sufficient to at least reduce, if not completely eliminate, the need for separate polishing operations.



The shaded area in (a) represents the amount of material to be removed by grinding and polishing after a perpendicular cut. An angular cut is shown in (b).



The 8° angular cut is used to suppress back-reflection in many optoelectronic components.

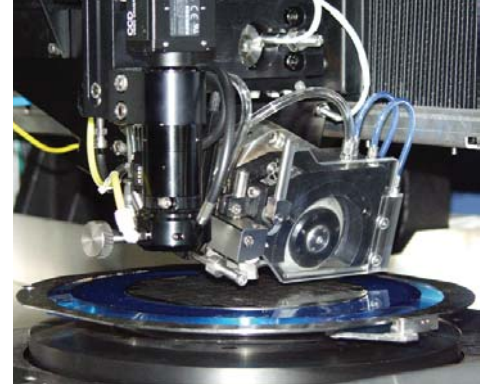
- **Quick changeover from perpendicular (0°) to any angle up to 15°**
- **Permits angular dicing of**
  - Planar Wave Guides**
    - Si, Silica-on-Silicon
    - Polymers on Si
    - InP
    - GaAs
  - Fiber Wave Guides**
    - LiNbO<sub>3</sub>
    - Fused Silica
- **Dedicated programmable work stations for both angular settings**
- **Field fine adjustment capability**
- **0.1° angular repeatability**
- **0.1° angular resolution**

# Tilting Spindle

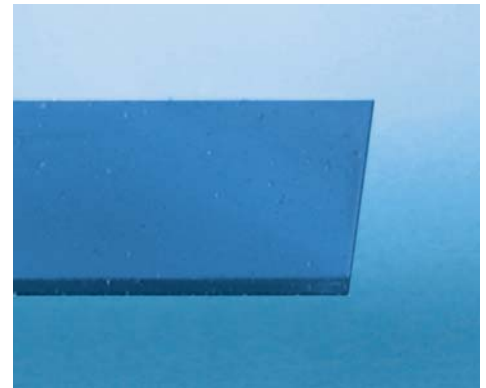
for the 7100 Series *pro*Vectus Dicing System

## Specifications

|                              |   |
|------------------------------|---|
| <b>Work Piece Size</b>       | Up to 200 mm x 200 mm   |
| <b>Blade Size</b>            | 2" - 3"   |
| <b>Spindle</b>               | Air bearing, DC-brushless<br>60,000 RPM / 1.2 KW  |
| <b>Tilt Mechanism</b>        |   |
| Range                        | 0° - 15°  |
| Repeatability                | 0.1°  |
| Resolution                   | 0.1°  |
| # of working stations        | 2   |
| Fine field adjustment        | Yes   |
| Avg. time to change angle    | 10 minutes  |
| Adjustment method            | Manual - rotating handle mechanism  |
| <b>Indexing Axis (Y)</b>     |   |
| Drive                        | Ball bearing lead screw with stepper motor  |
| Control                      | Linear encoder  |
| Resolution                   | 0.2 µm  |
| Cumulative accuracy          | 1.5 µm  |
| Indexing accuracy            | 1.0 µm  |
| <b>Feed Axis (X)</b>         |   |
| Drive                        | Ball bearing lead screw w/ DC-brushless motor   |
| Feed rate                    | Up to 350 mm/sec  |
| <b>Cut Depth Axis (Z)</b>    |   |
| Drive                        | Ball bearing lead screw with stepper motor  |
| Resolution                   | 0.2 µm  |
| Accuracy                     | 2.0 µm  |
| Repeatability                | 1.0 µm  |
| Stroke w/ 2" blade, 0° tilt  | 45 mm   |
| Stroke w/ 2" blade, 15° tilt | 18 mm   |
| <b>Rotary Axis (θ)</b>       |   |
| Drive                        | Closed-loop, direct-drive, DC-brushless   |
| Accuracy                     | 4 arc-sec   |
| Repeatability                | 4 arc-sec   |
| Stroke                       | 350°  |
| <b>Vision System</b>         | Digital camera, Fire-Wire technology,<br>bright LED illumination (vertical & oblique),<br>x60 to x240 magnification |
| <b>Utilities</b>             |   |
| Electrical                   | 200-240 VAC, 50/60 Hz, Single phase   |
| Air                          | 350 L/min @ 5.5 bar   |
| Spindle coolant              | 1.1 L/min tap water   |
| Cutting water (DI/ tap)      | Up to 7 L/min   |
| <b>Dimensions (HxWxD)</b>    | 1600 x 1000 x 1300 mm   |
| <b>Weight</b>                | 900 Kg  |



*The 7100adTS spindle adjustment takes no more than a few minutes and requires no special setup or reprogramming when switching to a different cutting angle.*



*Image of an actual 8° angular cut accomplished with a tilting spindle system.*

For sales, service and manufacturing locations, visit:

[www.adt-co.com](http://www.adt-co.com)

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