

7100 Series

2" and 4" Spindle Dicing Systems



- *Enhanced Productivity*
- *Advanced Process Capability*
- *High Flexibility*

Take an important step forward...

The 7100 family of 2" and 4" spindle dicing systems deliver a level of affordability and flexibility that is unprecedented in the industry. With four different models to choose from, each one optimized for a specific range of applications, Kulicke & Soffa can supply our customers with solutions that offer the lowest possible cost of ownership, while providing the most advanced dicing technology available anywhere.



7100 Family Ties

Common to all four of the 7100 Series systems are standard features that incorporate the technical innovation, advanced process control and reliable performance for which Kulicke & Soffa is world renowned.

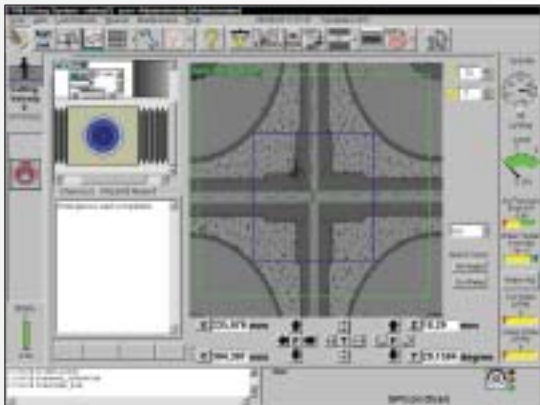


Extreme Precision and Accuracy

A heavy-duty, cast-iron base structure and extremely rigid, front-mounting of the spindle provides $\pm 1 \mu\text{m}$ accuracy.

Advanced Hardware Platform for High Reliability and Low Maintenance

The modular design of the 7100 family features state-of-the-art DSP-based controllers and a reduced number of electronic subsystems, resulting in increased reliability and reduced maintenance.



The digital vision system is fully integrated with the 7100 control software and GUI. Live video allows quick and easy teaching of the pattern recognition system for automatic cut positioning and theta alignment, as well as automatic kerf inspection.

Increased Yield, Throughput, and Process Control

All 7100 Series models include an IEEE 1394 protocol (Fire-Wire) digital vision system for automatic theta alignment, kerf check, and cut position verification.

User-Friendly, Windows XP-Based Software Platform

The 7100 Series operating system is Windows XP based and designed for extreme ease of use, while providing the industry's most advanced levels of process control and real-time monitoring in a multi-language GUI.

- *Fast, auto-alignment and cut positioning for increased throughput*
- *Auto-cut position verification for greater productivity*
- *Auto-kerf check for greater yield*

...with 7100 technology.

proV[↑]ectus

2", DC, Brushless, Front-mount Spindle with Closed-loop Control (60,000 RPM Max.)

Optimized for multi-angle dicing of thin, **tight tolerance product** up to 200 mm x 200 mm, such as:

- Opto-electronic Components
- PCB and BGA Panels
- High-Brightness LEDs
- VCSELs
- ASICs
- MEMS
- PZT



4" proF[↑]ORTIS

4", 2.5 KW, Front-mount Spindle with Closed-loop Control (30,000 RPM Max.)

Optimized for multi-panel dicing of thick and hard materials up to 200 mm x 200 mm, **with the highest level of precision**, such as:

- Glass
- DWDM Optical Filters
- Thick Ceramic
- SAW Filters
- Glass/Silicon Sensors



V[↑]ectus

2", Front-mount, Air-driven Spindle (60,000 RPM Max.)

Optimized for simple, two-channel alignment of thin material product up to 150 mm x 150 mm with a **low unit cost per device**, such as:

- Low Cost Semiconductor Devices
- Discrete Surface Mount Devices
- Standard LEDs
- Thin-film Devices
- LTCCs

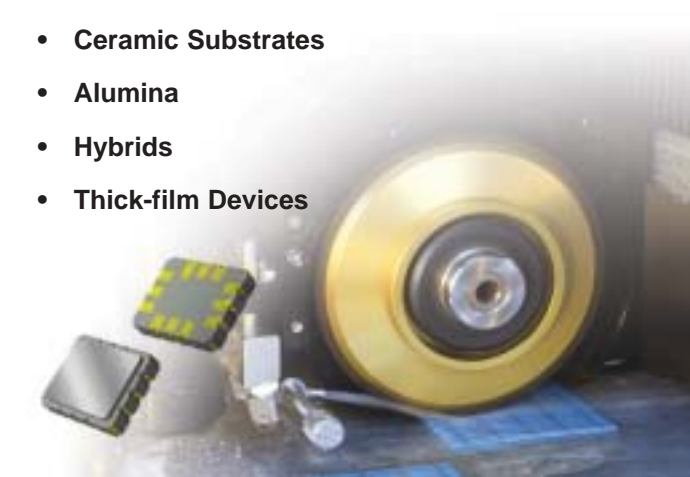


4" F[↑]ORTIS

4", 1.7 KW, Front-mount, Air-driven Spindle (30,000 RPM Max.)

Optimized for single substrate dicing of thick material product up to 150 mm x 150 mm with a relatively **low unit cost per device**, such as:

- Ceramic Substrates
- Alumina
- Hybrids
- Thick-film Devices



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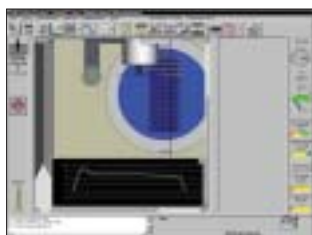
pro Features

The proVectus and proFortis include standard features that allow dicing of tight-tolerance devices and panels that require extreme accuracy and a high level of process control.



Direct-drive Turntable

Both the proVectus and proFortis systems include a direct-drive turntable with closed-loop control and 350° rotation. In unison with Y-axis linear encoding, unwavering accuracy and parallelism are insured over long distances.



LoadMonitor for Real-time Control

K&S' exclusive LoadMonitor system utilizes direct feed-back from the DC spindle motor to maintain spindle RPM. Real-time monitoring and control of spindle speed prevents chipping and insures cut quality.



Fully Visible Cutting Chamber

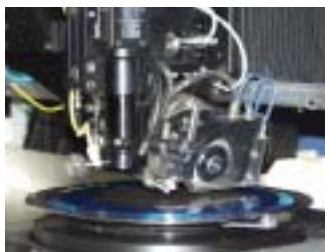
pro Configurations

The advanced features of the proVectus and proFortis systems allow users to take advantage of a number of configurations that increase capability, workpiece capacity and throughput.

Large Area Capability



Tilting Spindle



AutoLoader



Blade Shaping Station



Before shaping

After shaping

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Choose the system that best fits your requirements.

*V*ectus *pro*Vectus 4" FORTIS 4" *pro*FORTIS

Work Piece Size

200 mm x 200 mm	•	•	•	•
300 mm x 300 mm Configuration		•		•

Spindle

2", Front-mount, air-driven, DC brushless with closed-loop control 60,000 RPM max.	•	•		
4", Center-mount, air-driven, AC 30,000 RPM max., 1.7 KW			•	
4", Center-mount, air-driven, DC brushless with closed-loop control 30,000 RPM max., 2.5 KW				•
Tilting Spindle Configuration		•		

Cut Positioning

Closed-loop, Y-axis linear encoder	•	•	•	•
Non-contact, optical height sensing	•	•		•
Button height sensing			•	
170° range, stepper-driven turntable	•		•	
350° range, direct-drive turntable with closed-loop control		•		•

Vision System

Pattern Recognition System with auto-focusing & programmable illumination	•	•	•	•
Vertical & oblique, bright LED illumination	•	•	•	•
High-definition imaging		•		•

Work Area Covers

Full-transparent		•		•
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Material Handling

Auto Loader Configuration		•		•
All standard or custom chucks and frame adapters	•	•	•	•

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Specifications

Vectus **proVectus** **4" FORTIS** **4" proFORTIS**

Work Piece Size	Up to 200 mm x 200 mm			
Blade Size	2" - 3"		4" - 5"	
Spindle	Air bearing, DC-brushless 60,000 RPM / 1.2 KW		Air bearing, 30,000 RPM / 1.7 KW	Air bearing, DC-brushless 30,000 RPM / 2.5 KW
Indexing Axis (Y)	Ball bearing lead screw with stepper motor			
Drive	Linear encoder			
Control	0.2 µm			
Resolution	1.5 µm			
Cumulative accuracy	1.0 µm			
Indexing accuracy				
Feed Axis (X)	Ball bearing lead screw with DC-brushless motor			
Drive	Up to 350 mm/sec			
Feed rate				
Cut Depth Axis (Z)	Ball bearing lead screw with stepper motor			
Drive	0.2 µm			
Resolution	2.0 µm			
Accuracy	1.0 µm			
Repeatability	50 mm			
Stroke				
Rotary Axis (θ)	Stepper motor	Closed-loop, direct-drive, DC-brushless	Stepper motor	Closed-loop, direct-drive, DC-brushless
Drive	-	4 arc-sec	-	4 arc-sec
Accuracy	6 arc-sec	4 arc-sec	6 arc-sec	4 arc-sec
Repeatability	170°	350°	170°	350°
Stroke				
Vision System	Digital camera, Fire-Wire technology, bright LED illumination (vertical & oblique) Magnification from x60 to x240			
Utilities	200-240 VAC, 50/60 Hz, Single phase			
Electrical	350 L/min @ 5.5 bar			
Air	1.1 L/min tap water			
Spindle coolant	Up to 7 L/min			
Cutting water (DI/ tap)				
Dimensions (HxWxD)	1600 x 1000 x 1300 mm			
Weight	900 Kg			



For sales, service and manufacturing locations, visit:

www.adt-co.com

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