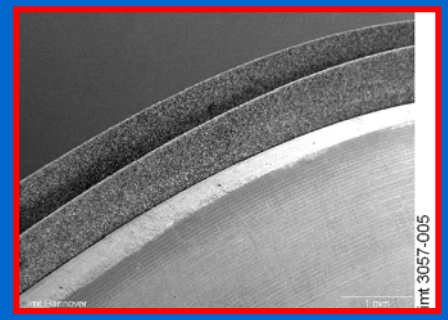
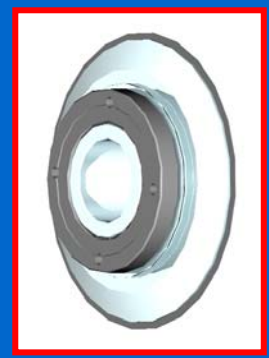
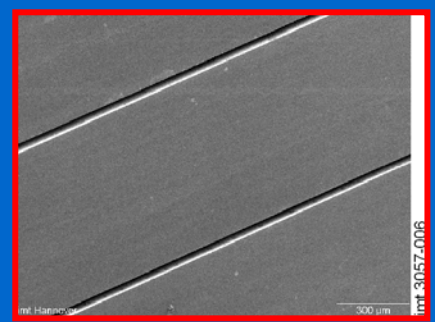
1A8 Microgang







High-Precision Slicing – Electronics

Luke Glinski – November 1, 2002

Worcester, MA – U.S.A.

SAINT-GOBAIN ABRASIVES

NORTON

Agenda

- Concept
- Sample Specification
- Gang Assembly
- Initial Conditioning
- Operating Parameters
- Contact Information

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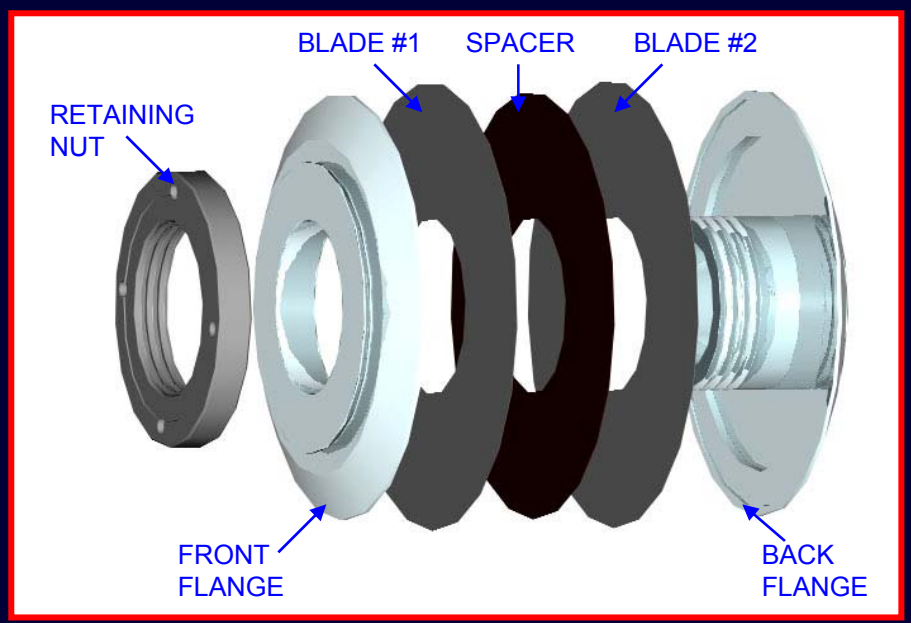
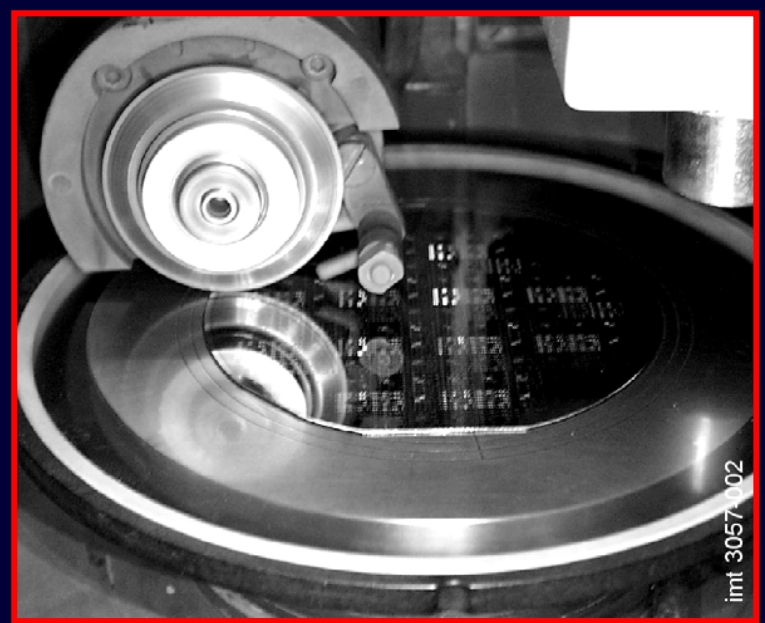
Concept

Norton's 1A8 Microgang dicing delivers double productivity without making significant changes to machine setup.





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Proposed Specifications

Flange

Flange Set:	*2.187DBA-120*
Flange OD:	*49.4538mm (1.947″)*
Flange ID:	*15mm (0.5906″)*

Blade

Blade specification:	*Norton PD-3/6*
Blade OD	*50.4698mm 1.987″*
Blade ID:	*40mm (1.575″)*
Blade thickness:	

Spacer

Spacer OD:	*49.4538mm (1.947″)*
Spacer ID:	*40mm (1.575″)*
Spacer thickness:	*300µm (0.0118″)*

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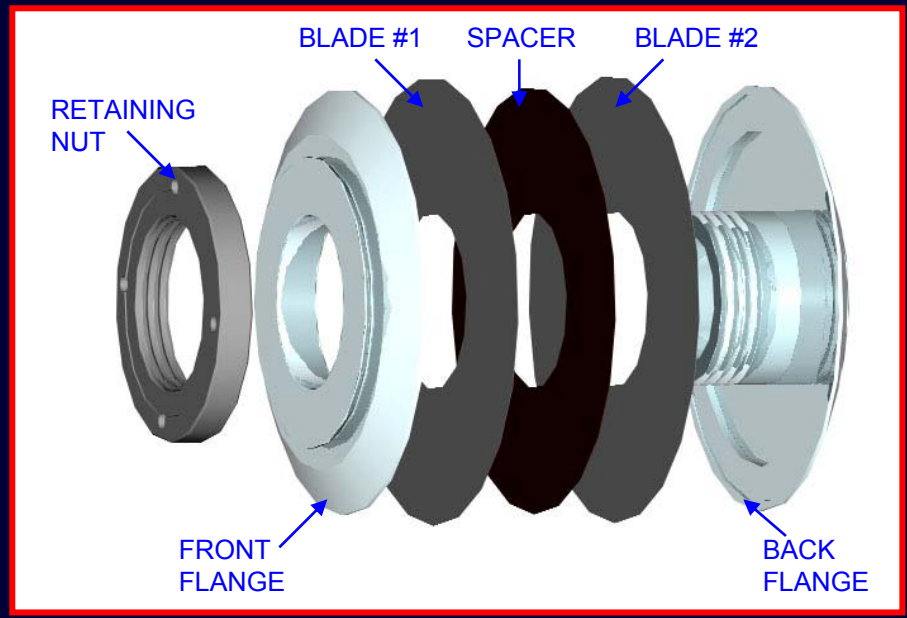
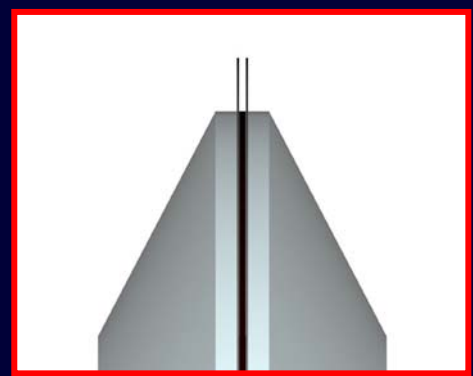
Gang Assembly

Gang Assembly - Just as in any standard dicing operation the blade mount or flange set should be clean and free from burrs or nicks before the blades and spacer are assembled. Gangs can be assembled off the machine or set up with the back flange left on the machine and the blades, spacer and front flange put on right in place.





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Initial Conditioning

Truing – The assembled gang should now be trued on a Silicon Carbide (SiC) block to ensure that both blades are cutting exactly at he same depth. Cuts may be made in a dummy wafer to check this because if one blade is cutting too deep it may weaken the tape and result in tearing during the pick and place process.

Step 1: Use a dressing board (37C600). Cut in both directions. Use production depth of cut +0.002” (50µm)

in/sec	mm/s	# of lines
0.4	10	10
0.8	20	10

Dresser board: 37C600
Dimensions: 50mm x 50mm x 3mm
Total cut length: 20 passes (1m)
Feed rate: See table on left.
Wheel Speed: 4000-6000 RPM

Step 2: Cut in plain silicon. Use same cutting mode of cut as used in production. If this cannot be done in plain silicon, then use the cycle parameters on the right to ramp up cutting speed on production wafers.

in/sec	mm/s	# of lines
0.4	10	10
0.8	20	10
1.2	30	10
1.6	40	20
2	50	20
1.4	60	20
2.8	70	30
3.2	80	30
3.6	90	30
4	100	40
4.4	110	50
4.8	120	50
5.2	130	50
5.6	140	50
6	150	60
6.4	160	60
6.8	170	70
7.2	180	70

Operating Parameters

Once truing is completed, operating parameters should match standard dicing parameters. Dicing tests showed that the dual gang wheel dicing approach is suitable for achieving the same feed rate as single wheel dicing, as well as obtaining a comparable kerf quality.

Suggested Feed Rate:	50 – 150 mm/s
Suggested Wheel Speed:	20K-40K
Suggested Coolant:	Dual or single nozzle setup which can deliver adequate coolant to both dicing wheels.

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