晶圓切割研磨全方案

SILICON CARBIDE GRINDING WHEEL

Sail provides different range of SIC grinding wheel from rough, fine, ultra fine grinding for replacing imported grinding wheel

Improve Surface Finishing

Control Wafer Thickness

Remove Surface Damage Layer

Control Surface Shape

Application: Silicon Carbide

SAIL #8000 VS COMPETITORS

50% Wafer Breakage	Spindle Current	15%
≤ 2 nm Surface Roughness (Ra)	Wheel Wear	20%

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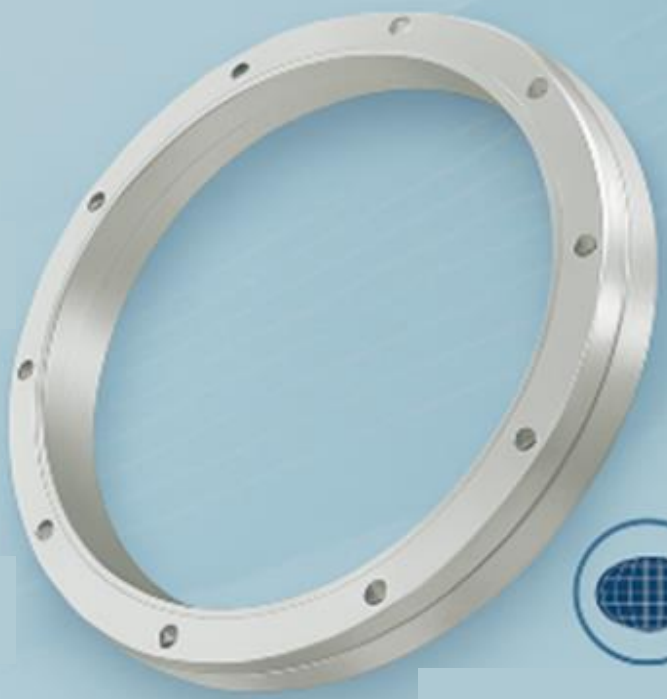
晶圓切割研磨全方案

SILICON CARBIDE GRINDING WHEEL

賽爾提供多種矽碳化矽（SiC）砂輪，涵蓋粗磨、精磨和超精磨，以取代進口砂輪。

- **改善** 表面粗糙度
- **控制** 晶片厚度
- **去除** 表面損傷層
- **控制** 表面形貌



應用：碳化矽

SAIL #8000

對 比 競 爭 對 手

50% 晶圓破片率	主軸電流	15%
≤2nm 表面粗糙度（Ra）	砂輪磨耗	20%

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晶圓切割研磨全方案

NICKEL HUB BLADES

S30T SERIES

A blade with the high stiffness
guaranteed self-sharpening capability

Product Characteristic

Higher Stiffness
→ No wavy cut with high RPM & feed rate

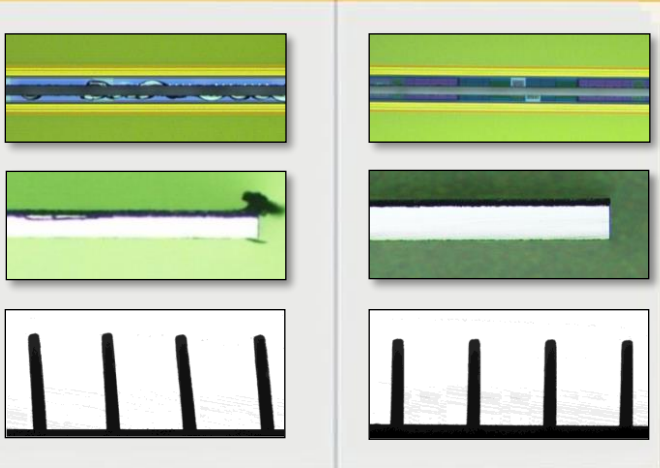
Higher E/K ratio
→ More than 35x

Self-sharpening
→ Less chipping & peeling

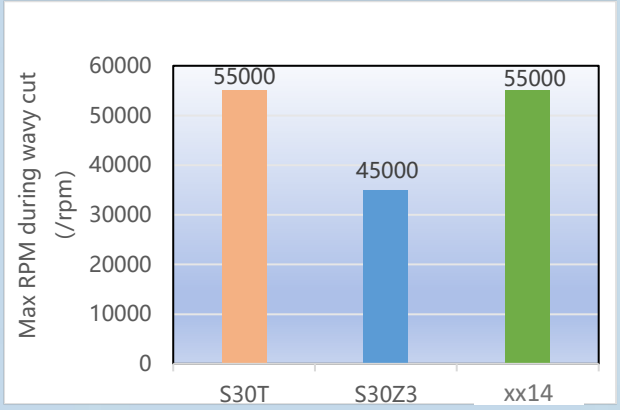
Application

- DAF/ LC Tape
  - -Sidewall crack due to tape adhesive
- Multi layer saw street
  - -Peeling
- Narrow saw street
  - -Precision cutting

Existing	S30T Blade



Method: Slowly increase RPM until wavy cut happened.



Method: Slowly increase feed rate until wavy cut

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晶圓切割研磨全方案

NICKEL HUB BLADES

S30T 系列

一款具有高剛性並具備自銳能力的刀片

產品特點

更高剛性
→ 高轉速與進給速率下無蛇形切割

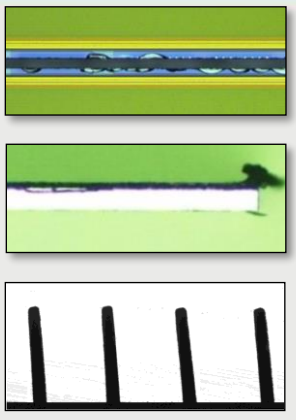
更高剛性
→ 超過 35x

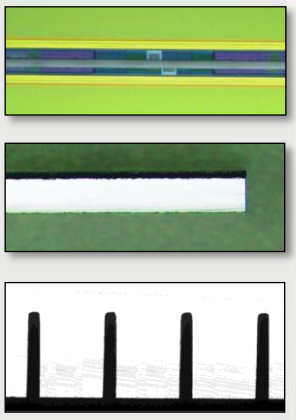
更高自銳利性
→ 減少崩邊與剝落

應用場景

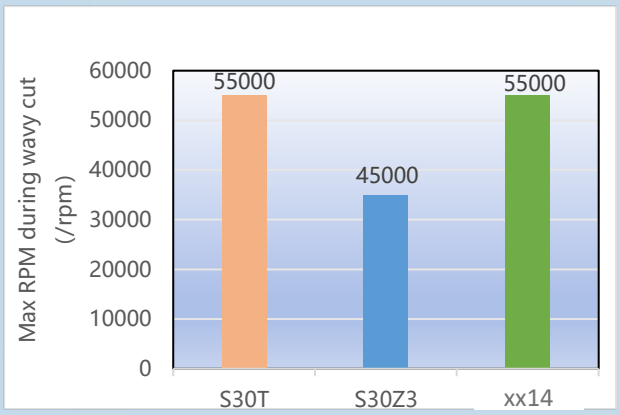
- DAF/ LC 膠帶
  -膠帶粘附導致的側壁裂紋
- **多層切割道**
  -剝落問題
- **窄切割道**
  -高精度切割

現有刀片	S30T 刀片

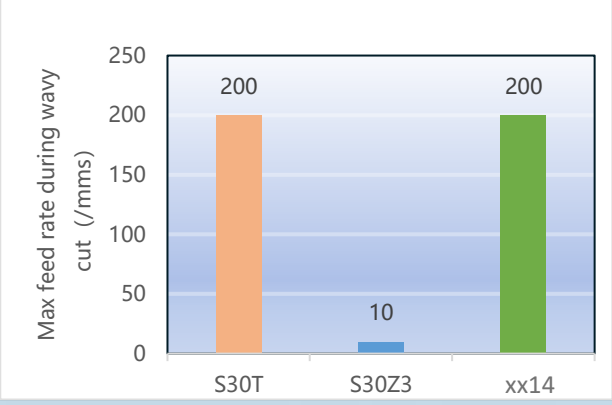




測試方法：緩慢增加主軸轉速直至產生蛇形切割



測試方法：緩慢增加進給速度直至產生蛇形切割



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晶圓切割研磨全方案

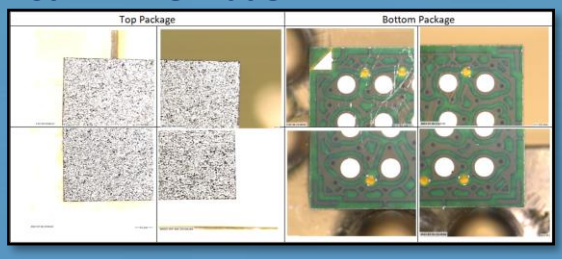
METAL BLADE (Ultra Thin)

A blade for handling narrow streets

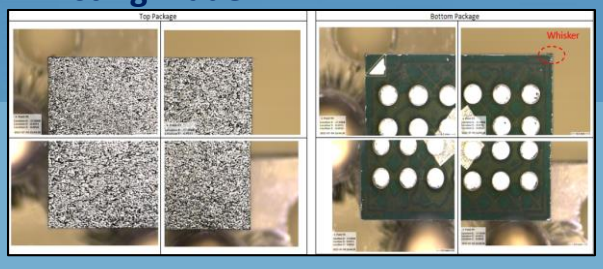
Characteristic

- ✓Thickness 40um – Narrow saw street
- ✓High strength – Blade life extended
- ✓High rigidity – Minimize wavy & slant cut

Sail M1A8 Blade



Existing Blade



Succes story 1

Existing Production Blade	MS07C	MS07C1	
30K/min	30K/min	30K/min	25K/min
450mm/s			
0.1um/meter	0.2um/meter	0.3um/meter	
500pcs	20pcs	10pcs	10pcs
2.150 mm			
Controlled 5.5k meters	~10k meters	~7k meter	
Whisker found	Whisker found	Less whisker	No whisker
Within control spec +- 50um			

Succes story 2

Product details

Device	: 25LD 6.25 x 6.25 x 5.01mm BGA
Package Size	: 6.25mm x 6.25mm
Package thickness	: **5.01 mm**

Customers Requirement

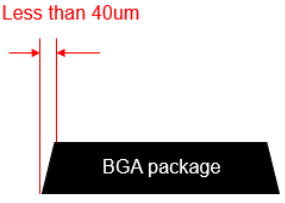
Package Dimension	: No Crack allowed
Chipping & Crack	: No dust and burr allowed
Slant Cut on units	: less than 40um
Target blade life	: 130 meters

Customers Cutting Parameters

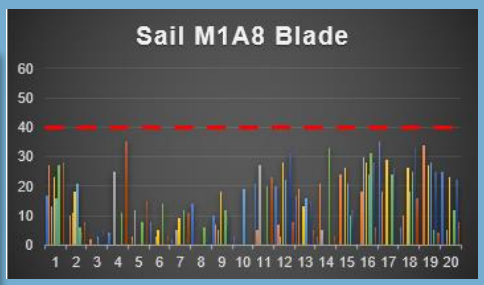
Spindle RPM	: 20K/min
Cutting Feed Rate	: 12mm/s
Blade height	: 0.065mm (Tape Saw)

Blade Specification for eval

1) M1A8 SD240N20MS07C 81.6x0.28x40



Slant Cut sample
(Side view)



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晶圓切割研磨全方案

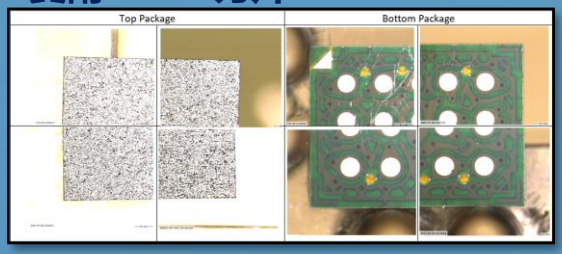
METAL BLADE
(超薄)

適用於狹窄切割道的切割刀片

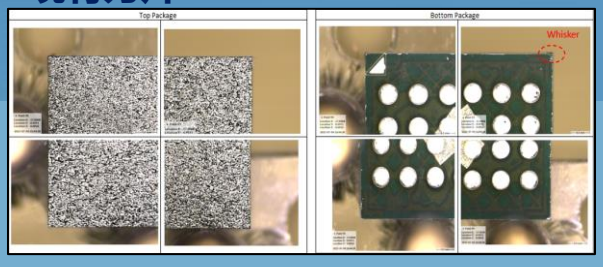
產品特點

- ✓厚度 40um – 狹窄切割道
- ✓高強度 – 延長刀片壽命
- ✓高剛性 – 最小化蛇形和傾斜切割

賽爾 M1A8 刀片



現有刀片



成功案例 1

現有產線刀片	MS07C	MS07C1	
30K/min	30K/min	30K/min	25K/min
450mm/s			
0.1um/meter	0.2um/meter	0.3um/meter	
500pcs	20pcs	10pcs	10pcs
2.150 mm			
標準 5.5k meters	~10k meters	~7k meter	
有須邊	有須邊	少量須邊	無須邊
標準 +- 50um			

成功案例 2

Product details

Device	: 25LD 6.25 x 6.25 x 5.01mm BGA
Package Size	: 6.25mm x 6.25mm
Package thickness	: **5.01 mm**

Customers Requirement

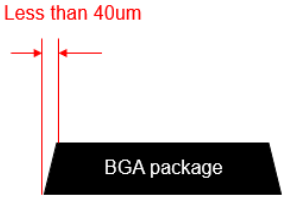
Package Dimension	: No Crack allowed
Chipping & Crack	: No dust and burr allowed
Slant Cut on units	: less than 40um
Target blade life	: 130 meters

Customers Cutting Parameters

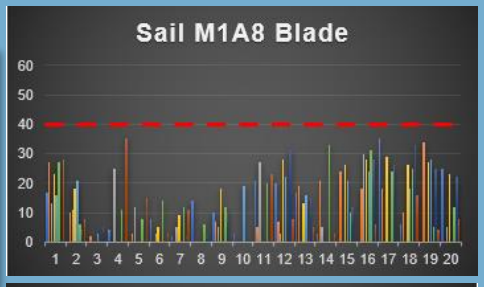
Spindle RPM	: 20K/min
Cutting Feed Rate	: 12mm/s
Blade height	: 0.065mm (Tape Saw)

Blade Specification for eval

1) M1A8 SD240N20MS07C 81.6x0.28x40



Slant Cut sample
(Side view)



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晶圓切割研磨全方案

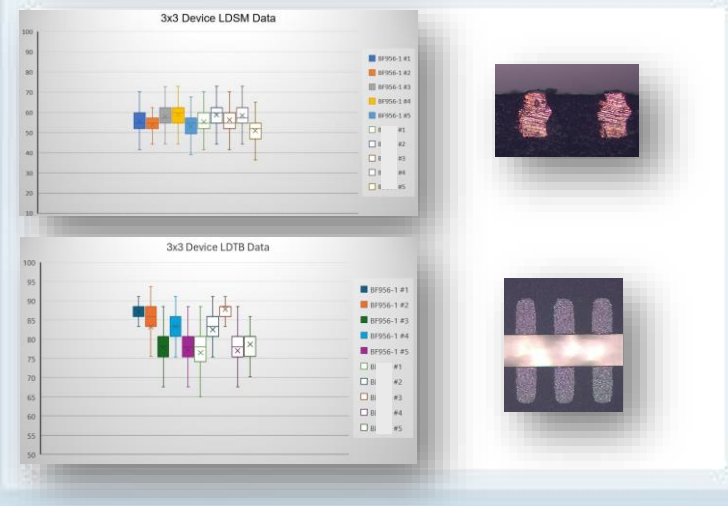
RESIN BLADE B1A8 SERIES

A blade with the ability to handle highly brittle materials

Characteristic

- ✓High elasticity – Brittle materials
- ✓High precision – QFN burr & smearing
- ✓Wide variety of bond types

Succes story 1

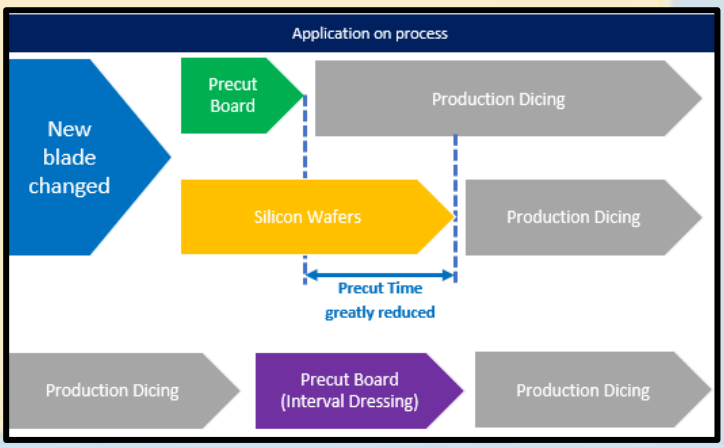


PRECUT BOARD

A precutting tool for blade conditioning or dressing

Characteristic

- ✓Significant reduction of precut time
- ✓Reduce blade loading with interval dressing
- ✓Suitable for different types of blades



Contact us for custom solutions!

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晶圓切割研磨全方案

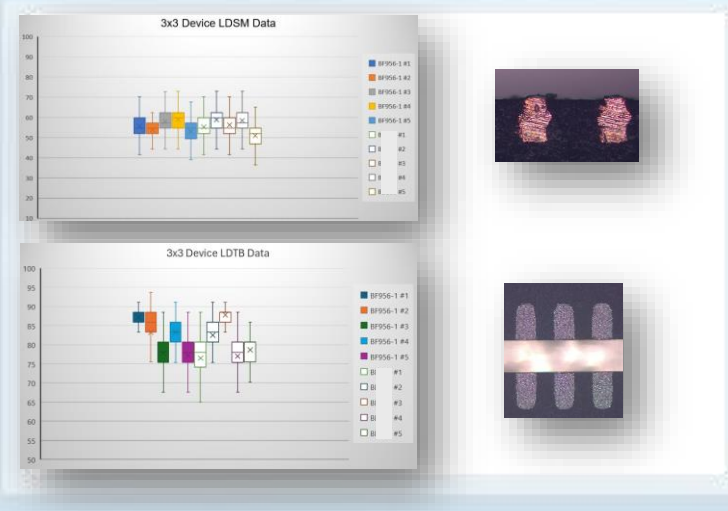
RESIN BLADE B1A8 系列

具備切割高脆性材料能力的刀片

產品特點

✓高彈性 – 適合脆性材料
✓高精度 – 適用於QFN無毛邊及拖尾控制
✓多種結合劑類型可選

成功案例 1

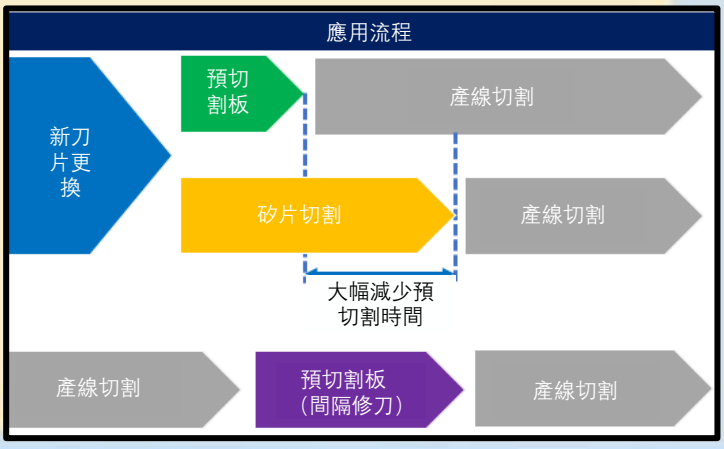


PRECUT BOARD

用於刀片整形或修整的預切割工具

產品特點

✓顯著縮短預切割時間
✓通過間隔修刀降低刀片負荷
✓適用於不同類型的切割刀片



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