

Performance of ULF coated drill



ULFコートドリル加工事例

$\phi 0.15$ Micro-hole drilling performance

Work material: **MCL-E-700G (R)** (halogen-free material)
t0.41 (Double sided 12/12 μ mCu) **5 panels / stack**

Entry sheet: OK0825AQ-MK10

N:270,000 min⁻¹ F:2.7 m/min f:10 μ m/rev

Set life:6,000 hits x 3 = Total 18,000hits

Work material : Hitachi Chemical Co., Ltd.
Entry sheet : KATAGI ALUMINUM PRODUCTS,LTD.



ULF $\phi 0.15$

application: FBGA / BGA / device substrate etc...

ULFコートドリル $\phi 0.15\text{mm}$ 加工事例

用途: 半導体パッケージ、各種デバイス用基板 等



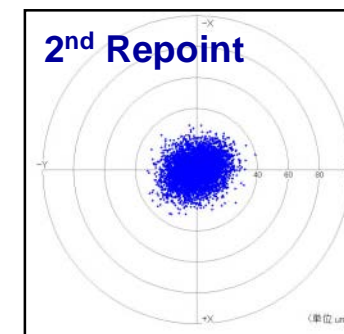
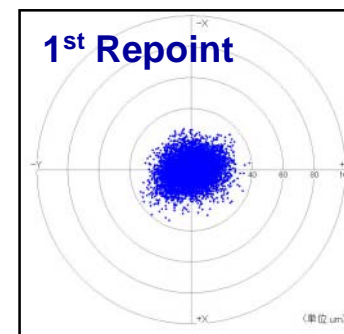
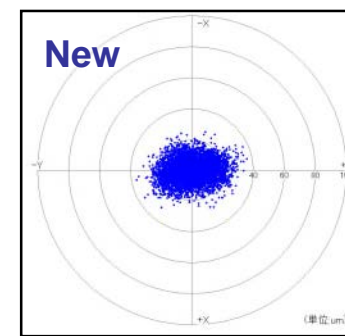
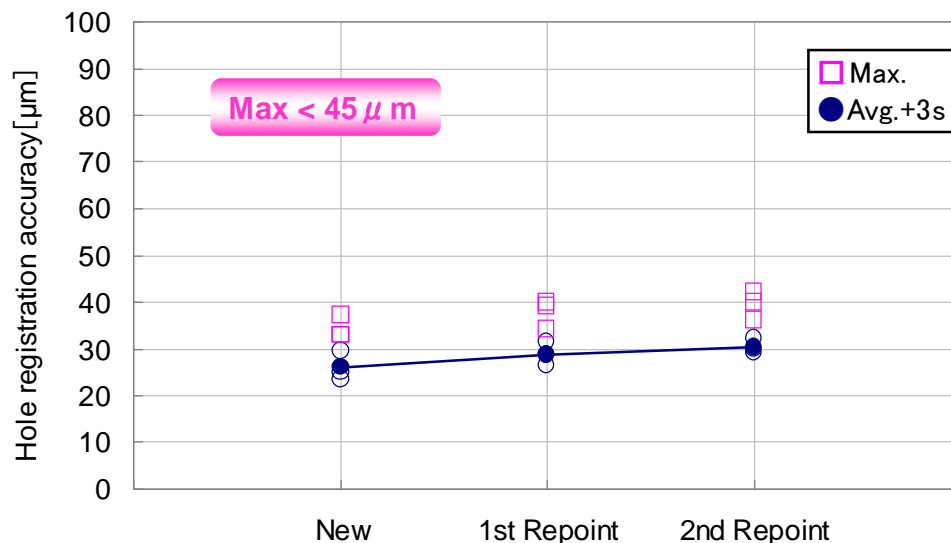
Drilling condition [加工条件]

Work material : **MCL-E-700G(R)** t0.41 (Double sided 12/12 μm Copper) **5 panels / stack**
 Entry sheet : OK0825AQ-MK10 Back-up board : Paper phenol
 N : 270,000 min^{-1} F : 2.7 m/min f : 10 $\mu\text{m/rev}$
 Set life: 6,000 hits x 3 = Total 18,000 hits

Low-CTE material
 Promising hole quality!
 低熱膨張基板 (Low-CTE type) における
 安定した品質の確保を実現

Performance of ULF coated drill [ULFコートドリルの性能]

Hole registration accuracy [穴位置精度]



Work material : Hitachi Chemical Co., Ltd.
 Entry sheet : KATAGI ALUMINUM PRODUCTS, LTD.





ULF $\phi 0.15$

application: FBGA / BGA / device substrate etc...

ULFコートドリル $\phi 0.15\text{mm}$ 加工事例

用途: 半導体パッケージ、各種デバイス用基板 等



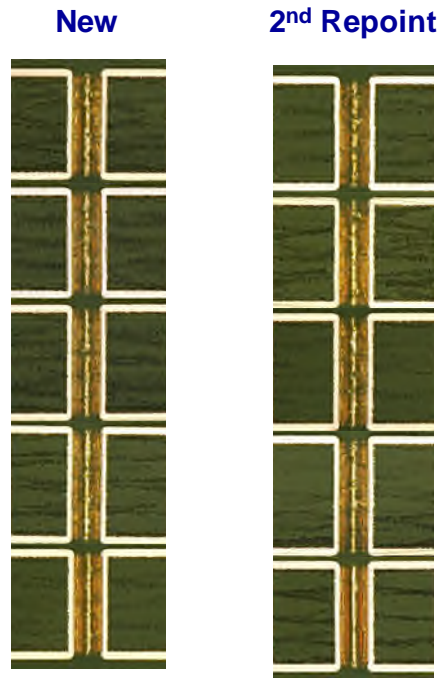
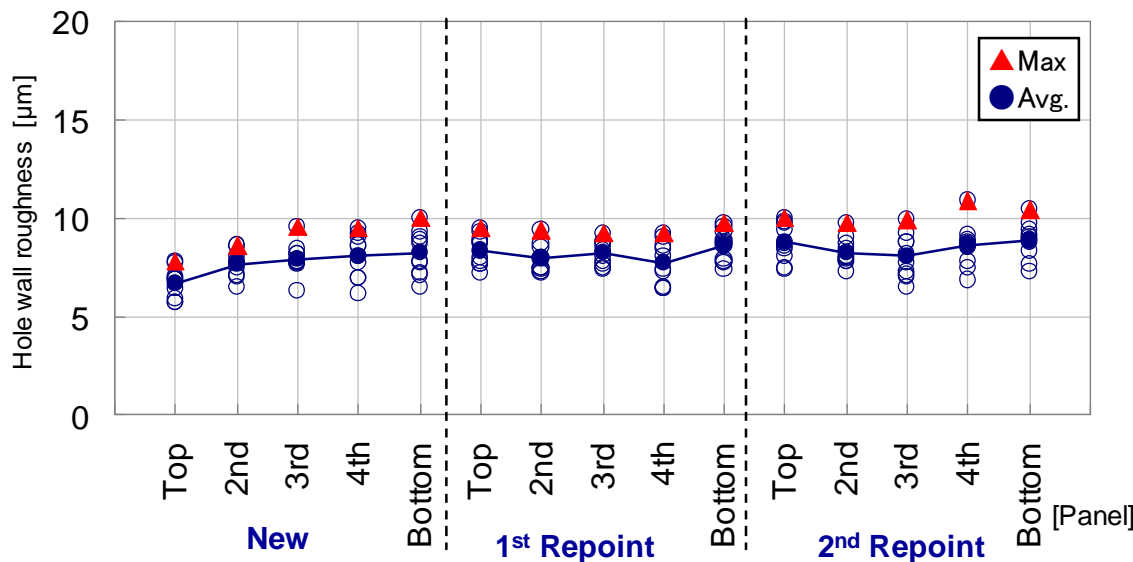
Drilling condition [加工条件]

Work material : **MCL-E-700G(R)** t0.41 (Double sided $12/12\mu\text{m}$ Copper) **5 panels / stack**
 Entry sheet : OK0825AQ-MK10 Back-up board : Paper phenol
 N : $270,000\text{ min}^{-1}$ F : 2.7 m/min f : $10\mu\text{ m/rev}$
 Set life: $6,000\text{ hits} \times 3 = \text{Total } 18,000\text{hits}$

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Performance of ULF coated drill [ULFコートドリルの性能]

Hole wall roughness [内壁粗さ]



Max < 12 μm



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 Entry sheet : KATAGI ALUMINUM PRODUCTS, LTD.