Debond & Cleave Tool (DB&C)

The DB&C tool is a small footprint tool designed for layer transfer applications in high volume manufacturing. The process is a dynamic, mechanically-assisted, low stress cleave action in which a donor layer transfers to a handle wafer at room temperature. SiGen's proprietary cleave technology combines a cleave initiation action followed by programmed separation force that optimizes cleave quality and uniformity.

Applications

SOI (silicon-on-insulator) Used to reduce device voltage operation and power consumption, improve device speed.

DSB (direct silicon bond) Improved device mobility in CMOS circuitry by providing separate crystal orientation layers for NMOS and PMOS.

SOQ (silicon-on-quartz) Transferred single-crystal silicon onto a quartz substrate used for RF, display and optical applications.

SOG (silicon-on-glass) Transferred single-crystal silicon onto bulk glass enabling low-cost, high-efficiency solar cells, displays, and optical applications.

CSS (customer-specific-substrate) A combination of donor-layer materials on unique handle substrates, including III-V and II-VI donor materials and sapphire, ceramics, and flexible handle substrates.

The SiGen DB & C tools allow for a room temperature low stress layer transfer.

DB&C Tool Specs

Major Features:

- Room temperature cleaving process
- High throughput
- Very high yields >99%
- Low stress process
- Fully automated

General Specifications

Substrate size:	200mm and 300mm
Thickness:	725µm and 775µm
Throughput:	30 wafers/hour

Facilities Requirements

Footprint:	40"W x 40"D x 94"H 102cm W x 102cm D x 239cm H
Clean room:	Class 1 mini-environment
Power:	208 VAC, 60Hz, 20 Amps, 3 Phase
Compressed Gas:	CDA or N_2 , to 100 psig

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