Chapter 3

Flip-Chip bonding process

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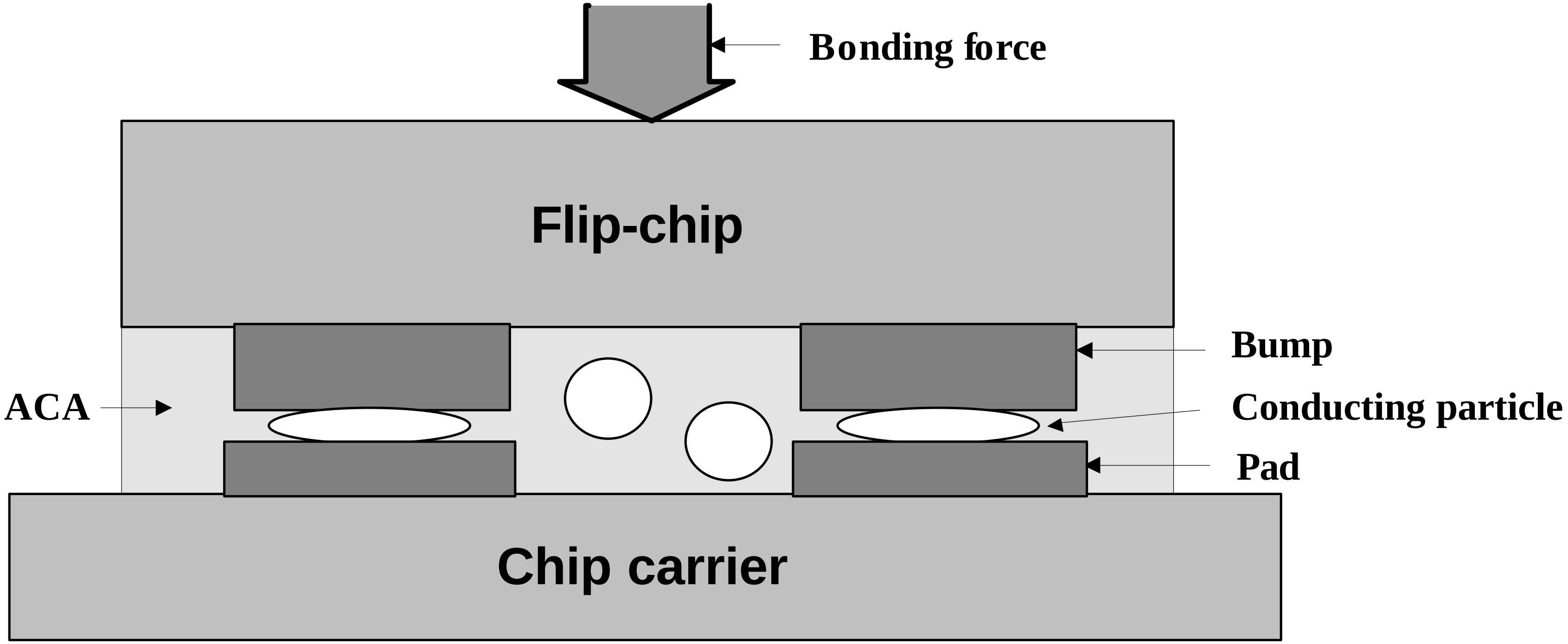
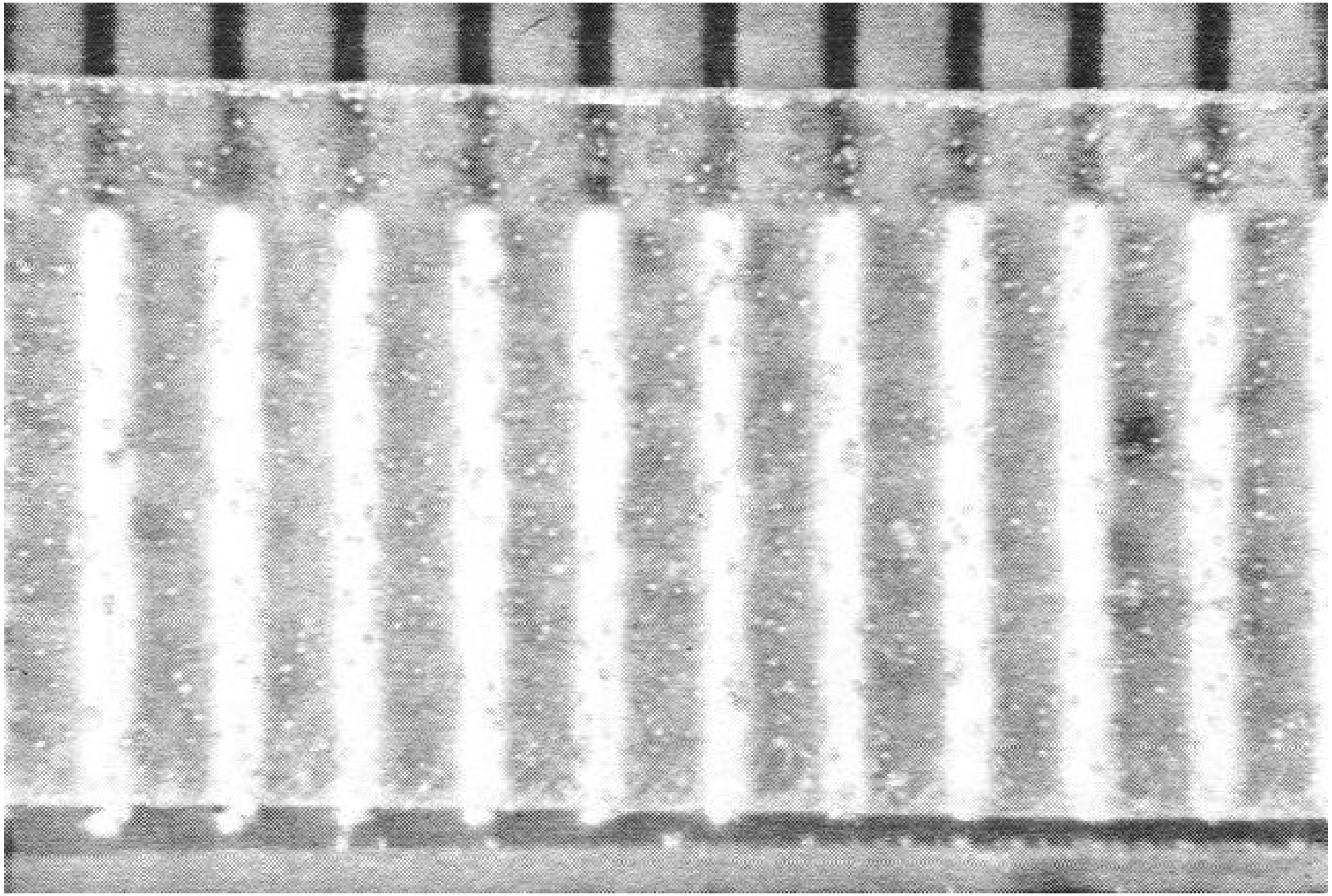
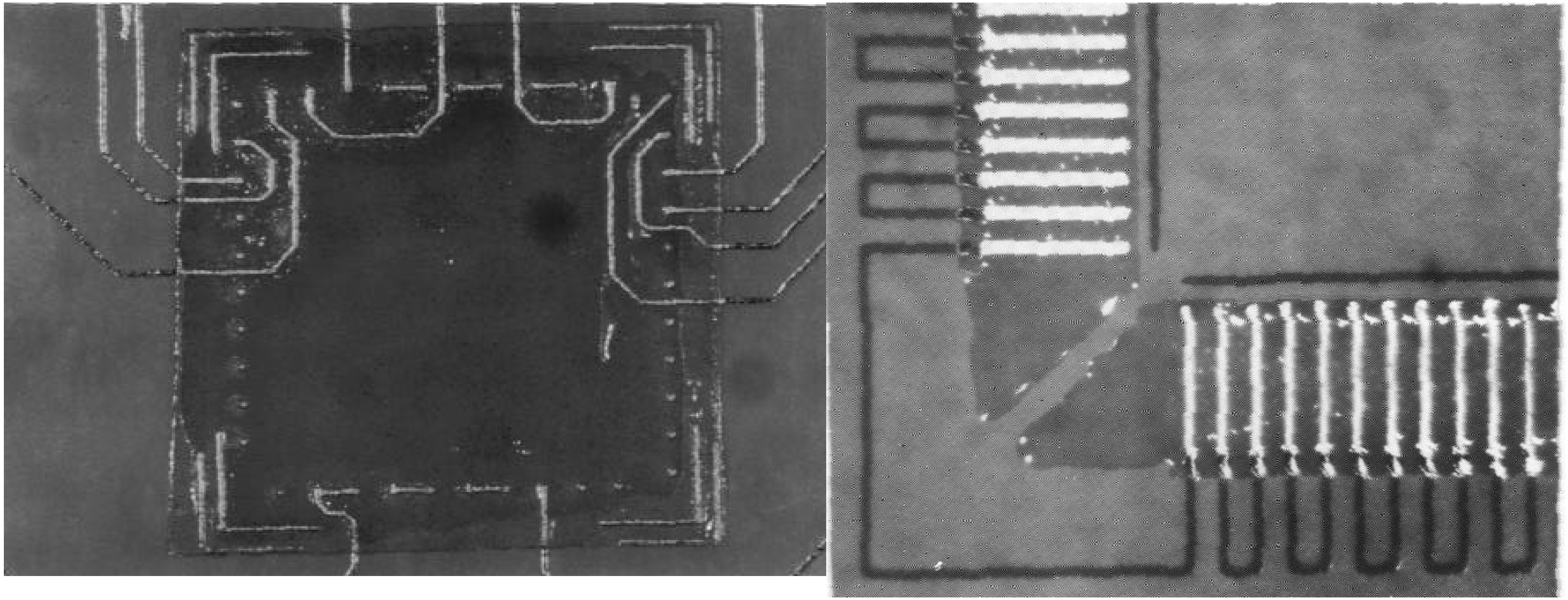


Schematic of ACA flip-chip joining

Film attach of ACF



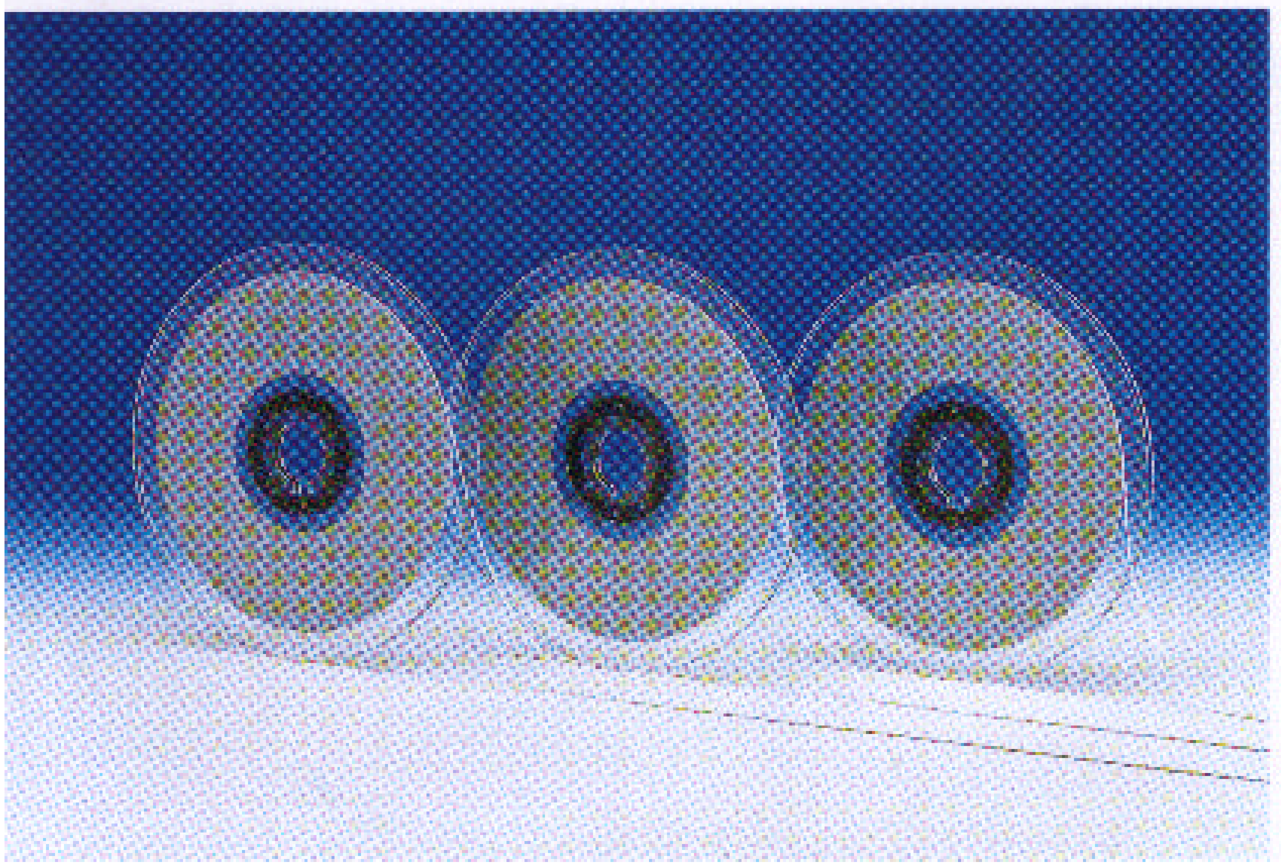
Stencil printing of ACA paste

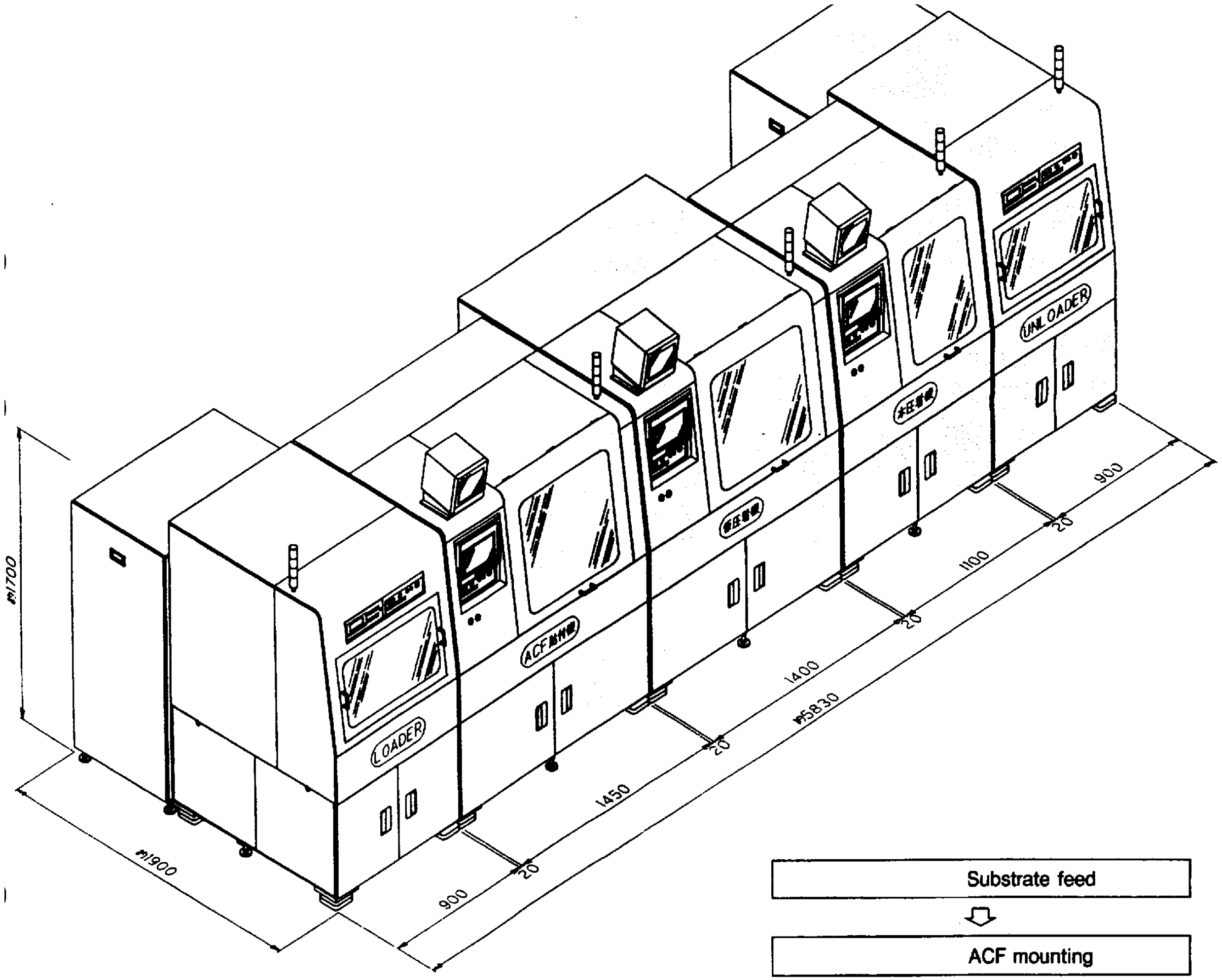


Placement and removal of carrier film on ACF or stencil printing of ACA paste

Placement of flip-chip components

Curing and bonding using thermode bonder





Substrate feed

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ACF mounting

⇩

Temporary bonding

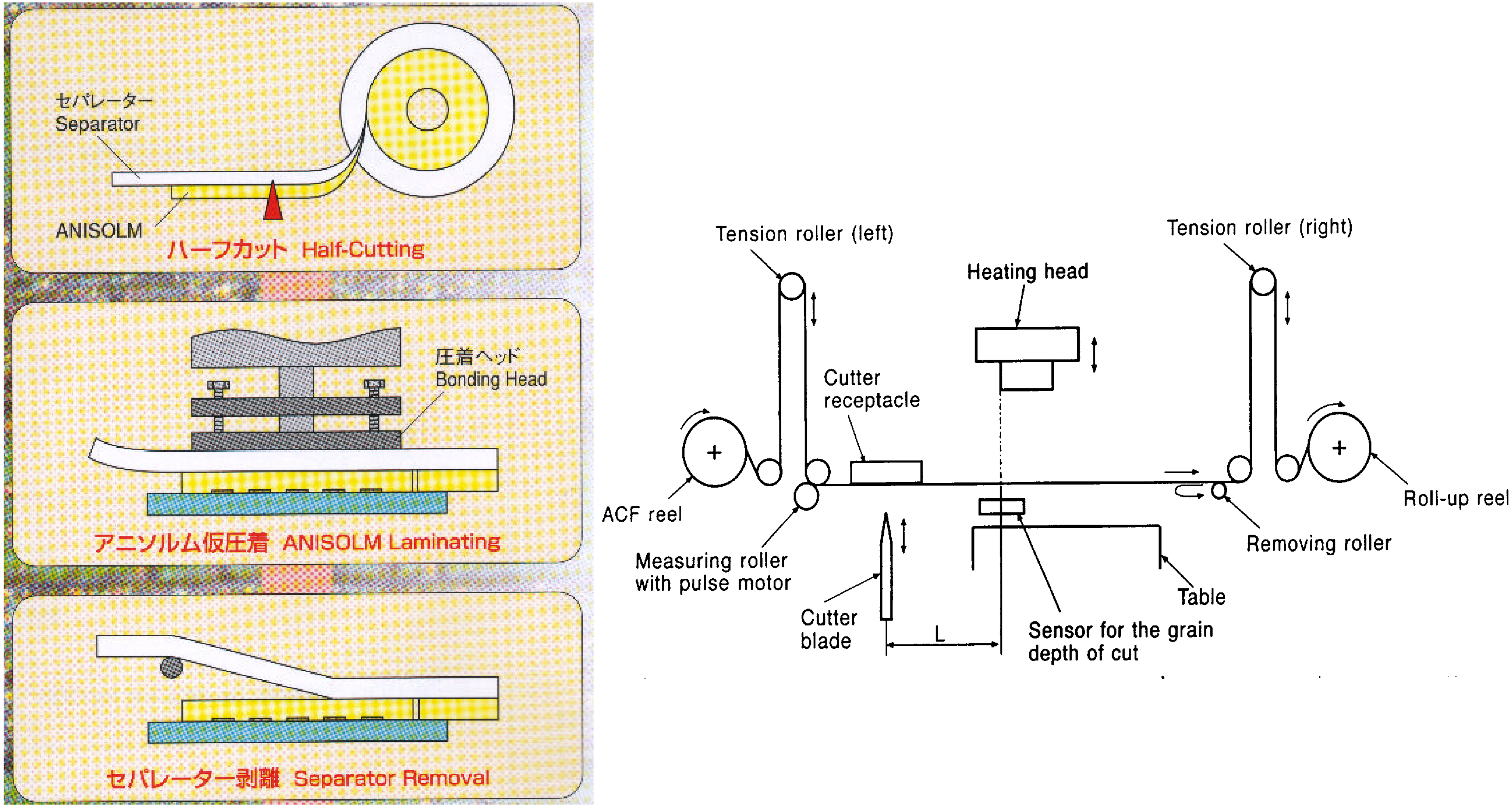
⇩

Final bonding

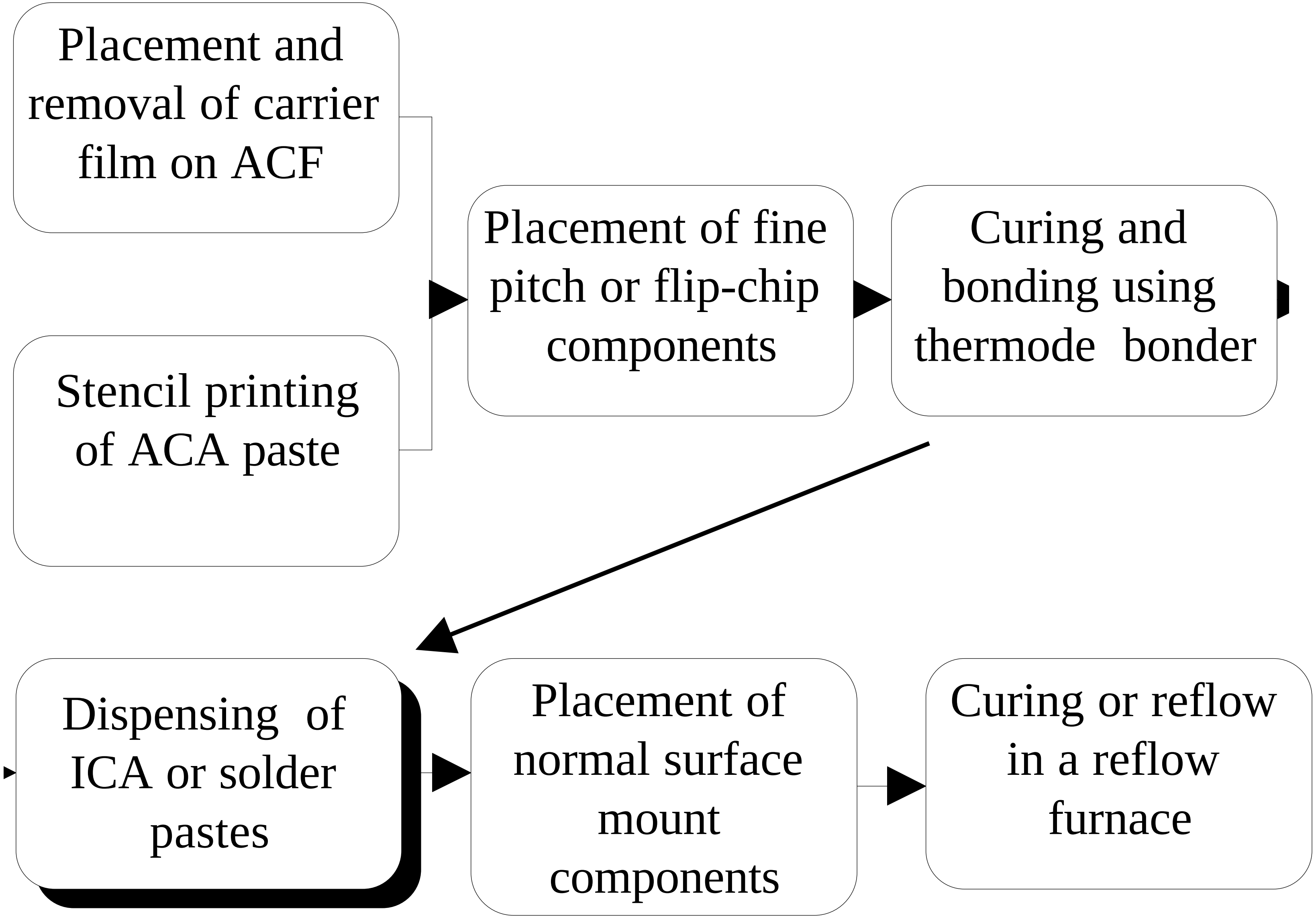
⇩

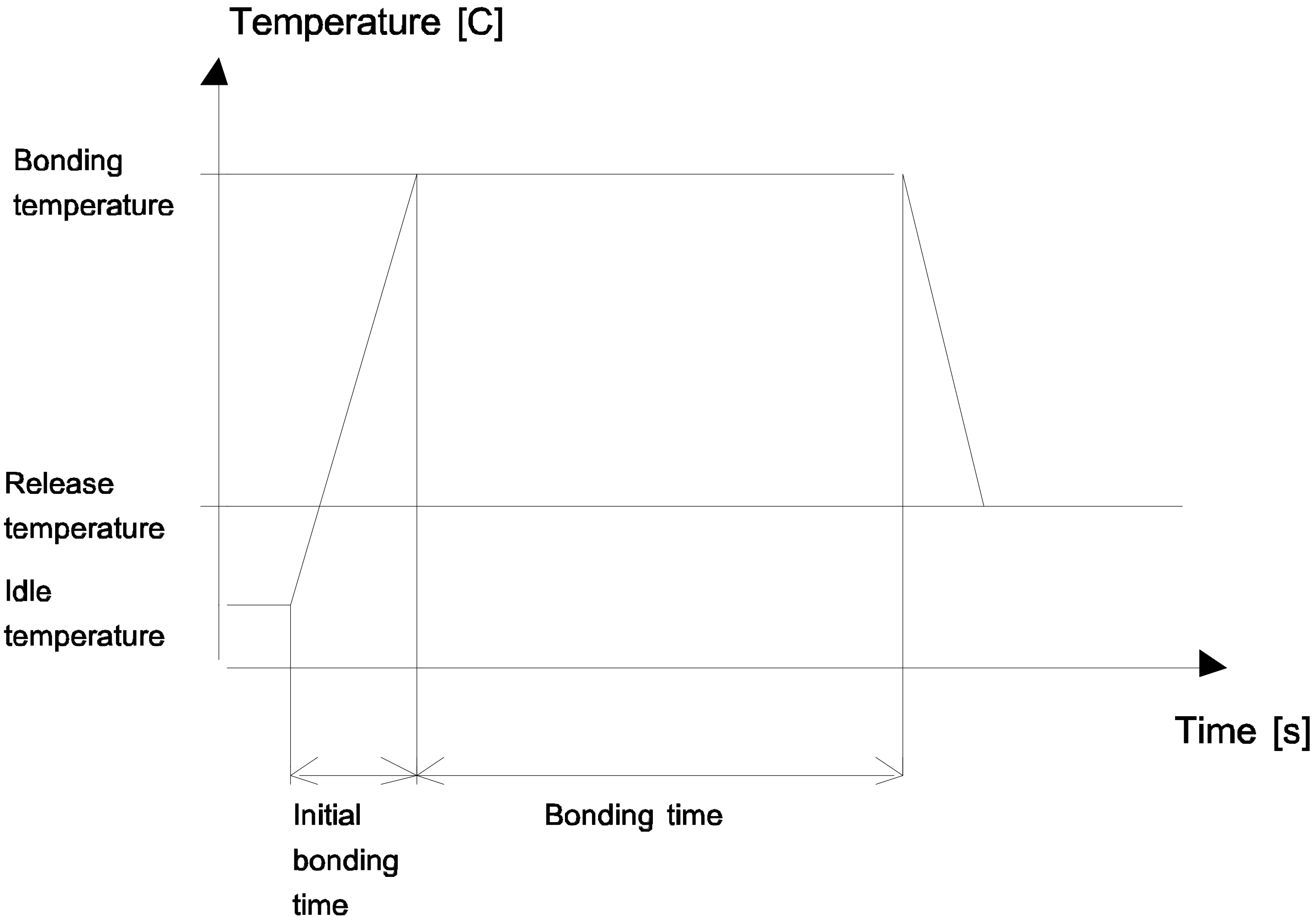
Stacking

Automatic process flow for flip-chip bonding using ACF film on FR-4 substrate.

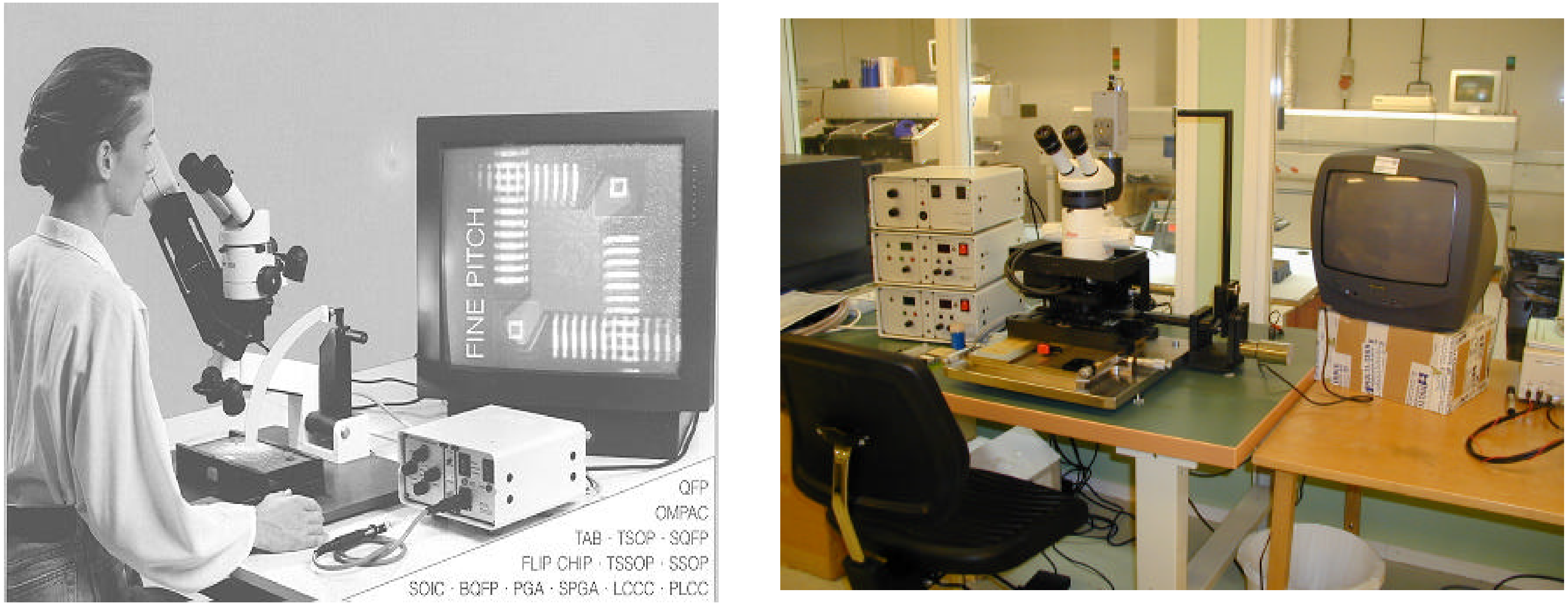


Carrier film removal mechanism in an automatic bonding line.

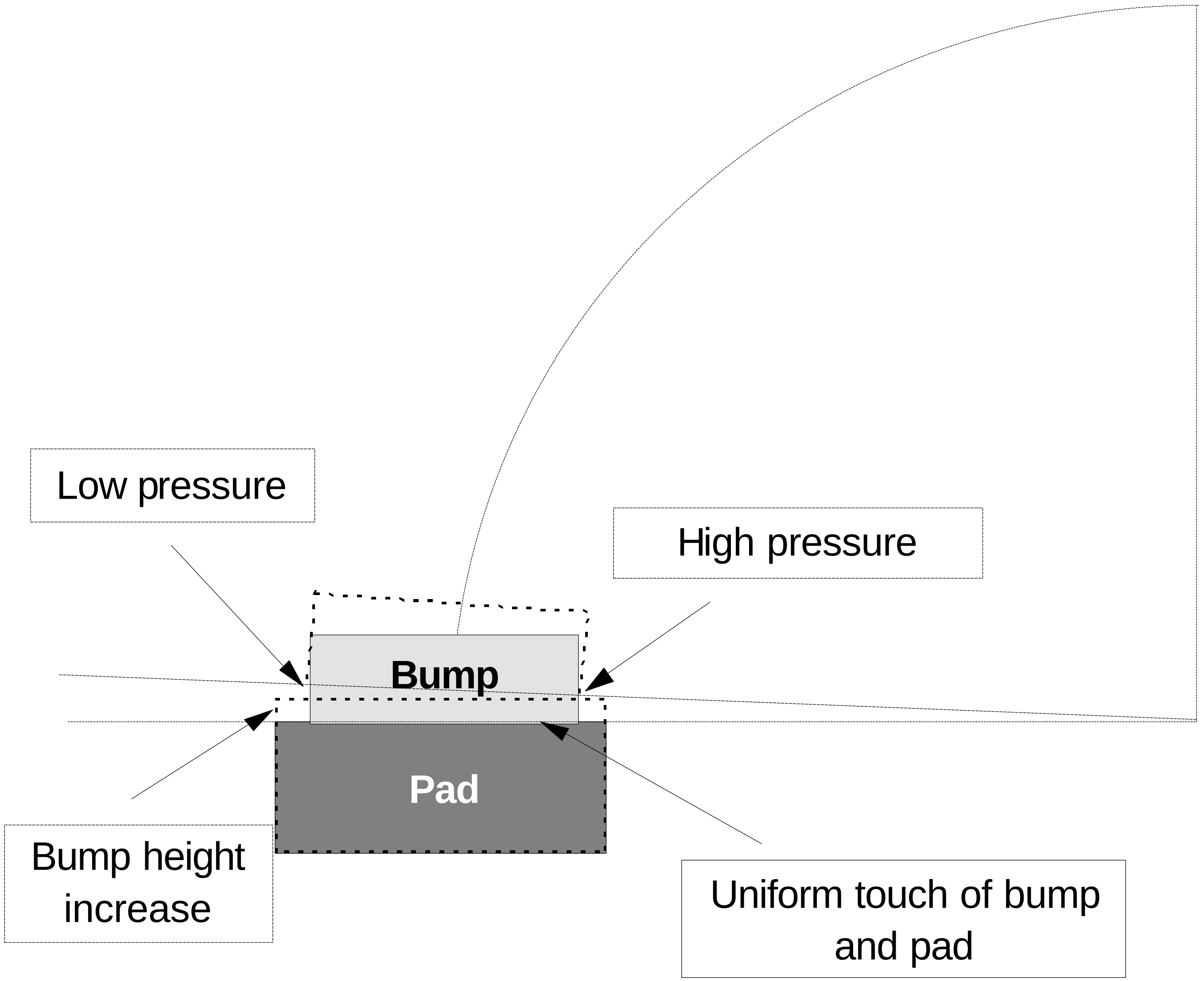

Placement and removal of carrier film on ACF
Stencil printing of ACA paste
Placement of fine pitch or flip-chip components
Curing and bonding using thermode bonder
Dispensing of ICA or solder pastes
Placement of normal surface mount components
Curing or reflow in a reflow furnace



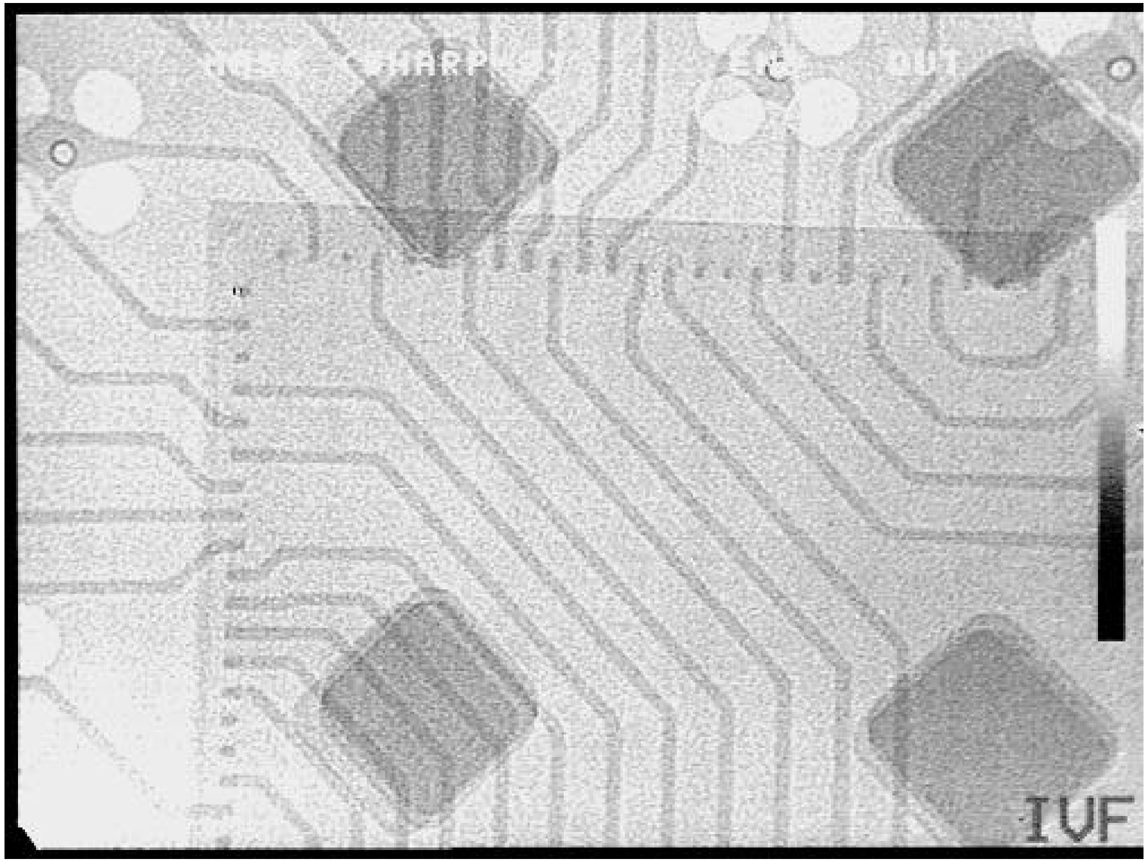
Temperature profile of the thermodes during bonding



Flip-Chip bonding equipment


Low pressure
High pressure
Bump
Pad
Bump height increase
Uniform touch of bump and pad

Assembly accuracy



Assembly accuracy