



Nomex automation: four quotations

One proposed line. Separate assembly and cutting workstreams, each with a POC entry route.

Quotation	Stage	Budget SGD	Included outcome	Options / scope boundary
Q912226010A Honeycomb assembly	POC	326,000	Handling, insertion, vision and glue trials. Prototype rigs and feasibility report.	12–16 weeks. Lab equipment use only. Production machine excluded.
Q912226011A Upstream die cutting	POC	168,000	Sheet feed, trial dies, waste release, inspection and mock loading handoff.	10–14 weeks. Preliminary cutting scope. Press supply excluded.
Q912226009J Honeycomb assembly	Complete project	936,000	ABB PoWa 20 cell, fixture, vision, drip and spray, controls and installation.	40–48 weeks including POC. Production platen / vibration costs extra.
Q912226012A Upstream die cutting	Complete project	450,000	New cutting station, feed, waste release, vision and assembly-loading transfer.	32–40 weeks including POC. Roll feed / existing-press retrofit excluded.

Both POCs: SGD 494,000

Complete systems: SGD 1,386,000

Route references, not additive. Reconcile accepted reusable POC work before the remaining-work quotation.



Honeycomb assembly POC

Q912226010A

SGD 326,000

12–16 weeks after approved inputs and samples

Handling and insertion

Supported vacuum / jaw gripper, spring-tension fixture, short strips, 5 × 5 grids and full-width trials.

Vision and adhesive testing

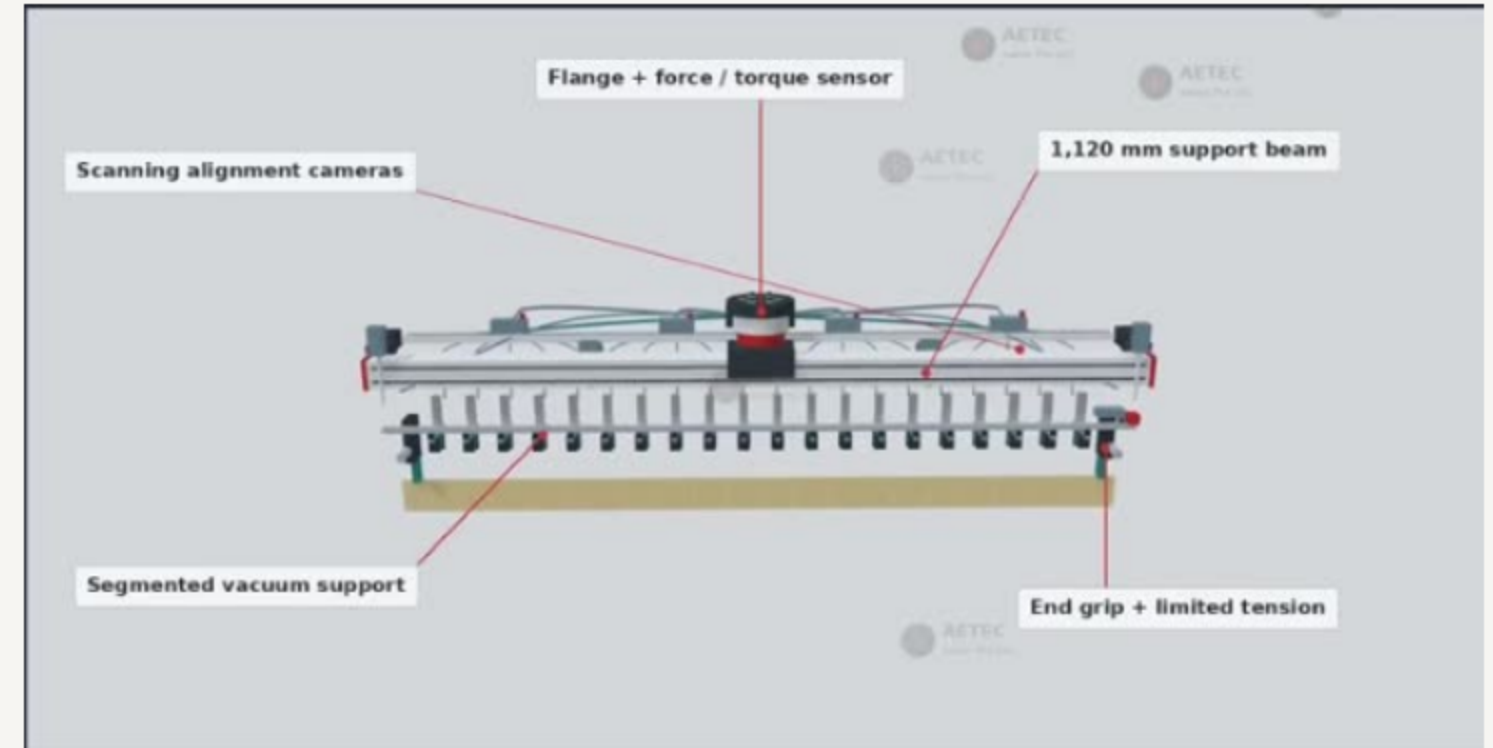
Camera alignment, post-placement checks, intersection drip, spray and a moving cover segment.

Measured development campaign

300 pickup attempts, 30 full-width insertions and up to 3 combined tooling refinement cycles.

Included: POC-scale platen / vibration screening.

Excluded: production robot, full machine and site SAT.



Supported-strip handling concept from the project video

What management receives

Prototype records, trial evidence, feasibility report and a revised production recommendation.



Upstream die-cutting POC

Q912226011A

SGD 168,000

10–14 weeks after inputs and trial-press confirmation

Sheet handling and trial tooling

Single-sheet separation and registration. One coupon die plus one nominal full-width die.

Cut, release and transfer

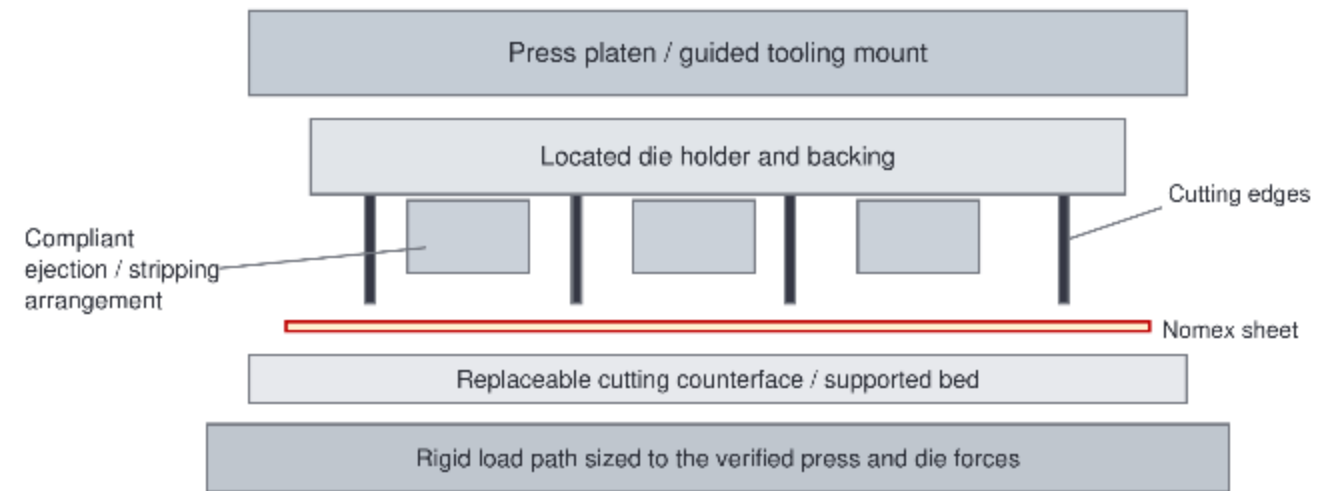
Evaluate cut quality, waste separation, strip orientation, vision and handoff to a mock loading datum.

Measured development campaign

180 coupon strokes, 30 full-width cutting attempts, 60 transfers and up to 2 combined refinements.

Preliminary scope: confirm sheet format and cutting drawings. Production press and automatic line excluded.

DIE CUTTING | Concept section; tooling chosen after trials



Cut, eject and support the sheet before separating the waste skeleton from usable strips.

Existing concept section. Final tooling follows material trials.

What management receives

Trial dies and records, loading-interface definition, feasibility report and a production recommendation.



Complete honeycomb assembly system

Q912226009J / Revision J

SGD 936,000

40–48 weeks, including the initial POC

Flexible-paper assembly cell

ABB PoWa 20, supported gripper, spring-tension fixture and modular aluminium-profile construction.

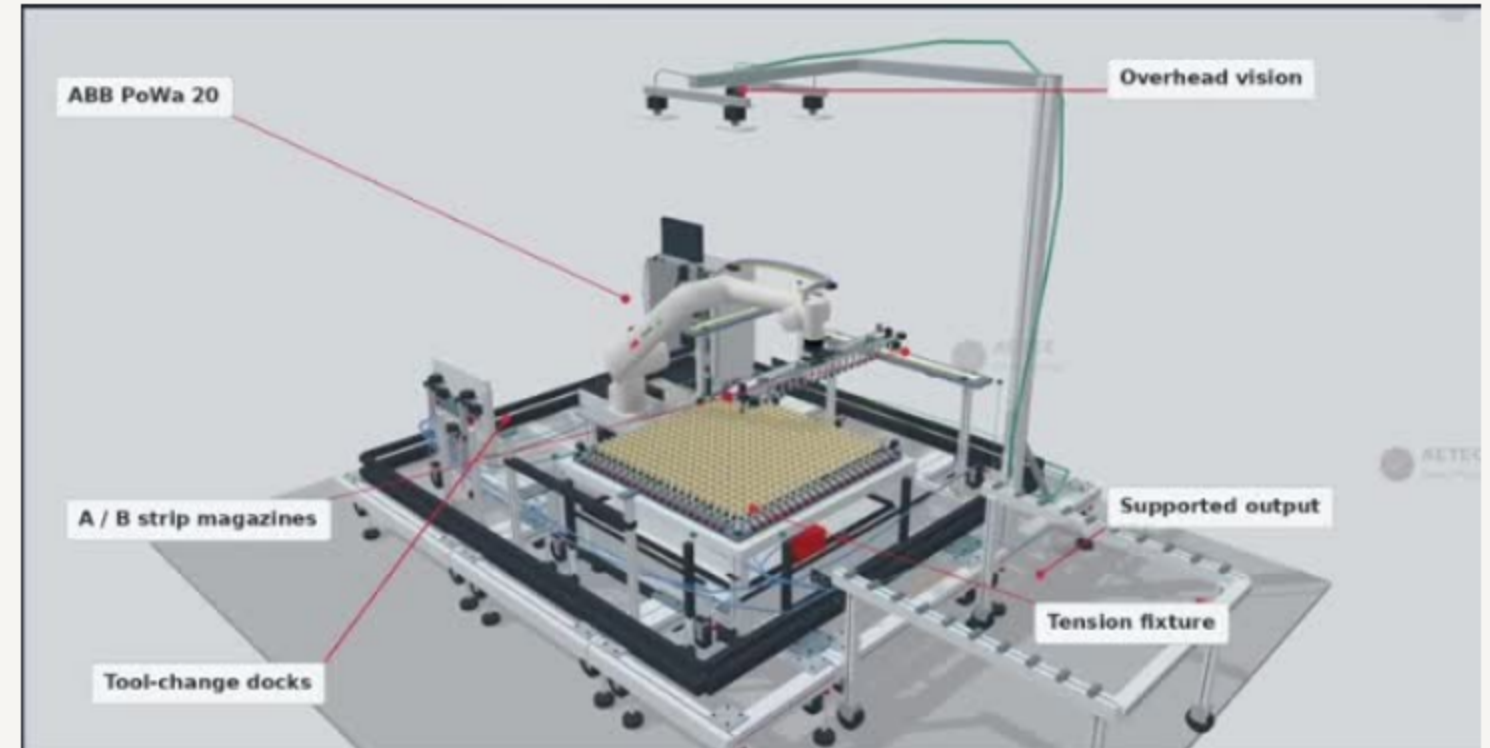
Inspection and both adhesive modes

Camera alignment and grid / height checks. Drip and spray included, with automatic spray covers.

Controls, build and handover

Robot / PLC / local PC software, engineering drawings, FAT, Singapore installation, SAT and training.

Extra-priced options: production platen / vibration. Upstream cutting and transfer are separate supply.



Nominal 1,000 × 1,000 mm core. 50 mm reference geometry.

Budget allocation

R&D and engineering 526k

Hardware / fabrication 360k

Assembly, validation and delivery 50k



Complete upstream cutting and loading system

Q912226012A

SGD 450,000

32–40 weeks, including the initial POC

Raw sheets to inspected strips

New guarded cutting station, sheet magazine, registration, production tooling and waste release.

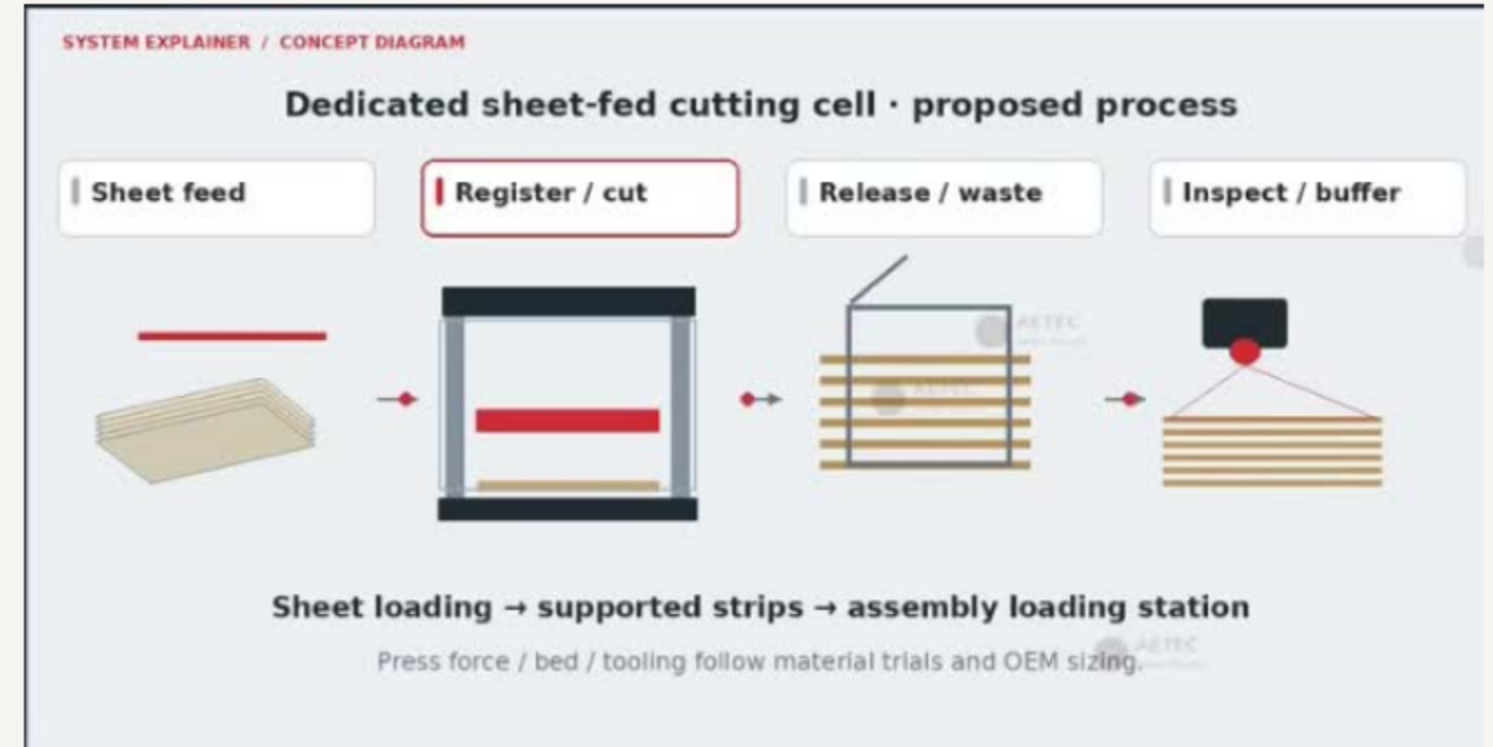
Direct assembly-loading interface

Supported A/B strip transfer, output buffer, vision and controller handshakes with the assembly station.

Controls, build and handover

Modular frames, safeguards, PLC / operator interface, drawings, FAT, Singapore installation, SAT and training.

Separate scope: assembly machine. Roll feed, extra formats and existing-press retrofit require new pricing.



Proposed sheet-fed process. Press / die sizing follows trials.

Budget allocation

Equipment and tooling 348k
Development / design / software 65k
Integration and handover 37k