



Budgetary Quotation

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Prepared by	Prepared for
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Estimated project budget in SGD, excluding GST. The amounts below are project-planning allowances, not confirmed ABB or other supplier offers. This revision replaces the earlier concept estimate for the defined modular scope; final fixed pricing follows POC and supplier confirmation.

Configuration	Estimated amount SGD
Drip	489,840.00
Spray	525,320.00
Dual mode	553,020.00

The dual-mode configuration includes both adhesive heads, automatic spray protection and the modular connection allowance. The small POC hardware in H20 and trial labour E01 are included once. Separate optional work is not included in these totals.

Budget component	Amount SGD
Common	472,440.00
Drip	17,400.00
Spray	52,880.00
Dual	10,300.00

Planning uncertainty: +/-25% of the selected package budget; this range is not an additional contingency charge. No firm supplier pricing or commercial discount has been assumed.



Common machine and integration detail

Item	Description	Qty	Unit SGD	Amount SGD
H01	ABB PoWa 20 CRB 1920-20/1.67, controller, pendant and standard robot software	1 set	65,000	65,000
H02	Nine bolted transport subframes, robot load rails, removable masts, brackets, casters, feet and service access	1 lot	41,600	41,600
H03	Keyed full-length strip magazine with pickup presentation and single-sheet sensing	2 set	6,400	12,800
H04	1,120 mm EOAT, guided jaw bridge, 20 pads, F/T sensor and two scanning cameras with slides	1 set	43,900	43,900
H05	Automatic robot coupler with three tool-side plates, lock sensing and utility interfaces	1 set	13,800	13,800
H06	Located 1 m open core carrier with fixed lower support rails	1 set	7,400	7,400
H07	Fixed datum clamp with replaceable paper pads	42 pc	140	5,880
H08	Floating spring clamp, guide, preload adjuster and back-off mechanism	42 pc	310	13,020
H09	Fixture jaw and spring-displacement sensing with distributed I/O	1 lot	6,900	6,900
H10	Three retractable comb rails with actuation and position sensing	1 set	4,900	4,900
H11	Three-position tool parking rack and located tool nests	1 set	2,800	2,800
H12	Overhead inspection camera with lens, lighting and mount	4 set	3,200	12,800
H13	Vision processor, camera integration hardware and image record interface	1 set	6,800	6,800
H14	Laser profiler controller and one sensor head on the selected adhesive tool	1 set	16,500	16,500
H15	PLC, safety interface, electrical cabinet, local computer interface and standard cell wiring	1 lot	20,000	20,000



Common scope continued

Item	Description	Qty	Unit SGD	Amount SGD
H16	Cell safeguarding, interlocks, safety control and protective-function design allowance	1 lot	14,800	14,800
H17	Four-zone vacuum, independent sensing, restricted branches, jaw air and coupler utilities	1 lot	9,200	9,200
H18	Supported carrier parking and cure trolley	1 set	3,800	3,800
H19	Coded module bays, prewired harnesses, local connectors, caps, PE bonds and labels	1 lot	8,800	8,800
H20	Small POC profile fixture, printed change parts, jaws, force measurement allowance and fasteners	1 lot	6,200	6,200
E01	Nomex handling and adhesive coupon development	160 h	90	14,400
E02	Mechanical detail design and robot/tool load review	380 h	85	32,300
E03	Electrical and pneumatic detail design	140 h	85	11,900
E04	Robot, PLC and vision integration for common assembly and inspection	420 h	95	39,900
E05	Machine assembly, wiring support and alignment	240 h	75	18,000
E06	Workshop FAT, trial records and recovery verification	152 h	85	12,920
E07	Singapore site installation, SAT and operator training	96 h	95	9,120
E08	Operating instructions, engineering records and local application handover	40 h	85	3,400
E09	Module interface detail, revised motion/cable review, native CAD coordination and reconnection trials	160 h	85	13,600



Adhesive configuration additions

Drip additions

Item	Description	Qty	Unit SGD	Amount SGD
D01	Metered needle valve, fluid reservoir, regulator and dispense controller	1 set	7,500	7,500
D02	Purge cup and shot-mass verification hardware	1 set	2,400	2,400
D03	Needle tooling, fluid routing and initial cleaning accessories	1 lot	1,800	1,800
D04	441-point recipe development, dose trials and dispense integration	60 h	95	5,700

Spray additions

Item	Description	Qty	Unit SGD	Amount SGD
S01	Metered spray valve, fluid supply and atomizing-air control	1 set	8,700	8,700
S02	Rigid perimeter shield leaves with corner and edge protection	4 pc	1,200	4,800
S03	Guided 450 mm shield lift assembly with actuator and travel confirmation	4 set	1,800	7,200
S04	90 degree fold actuators and linkages	4 set	720	2,880
S05	Replaceable liners, outward drains and under-core catch tray	1 lot	4,100	4,100
S06	Shield sensing, pneumatic controls and sequence integration hardware	1 lot	3,600	3,600
S07	Local spray containment and extraction/filter unit allowance	1 set	14,000	14,000
S08	Spray/cover control integration and coating coupon development	80 h	95	7,600

Dual additions

Item	Description	Qty	Unit SGD	Amount SGD
X01	Additional profiler sensor head for the second adhesive tool	1 pc	6,500	6,500
X02	Dual-mode selection, separate fluid recipes and cross-calibration	40 h	95	3,800



Options, development boundaries and terms

Optional item	Budget SGD	Boundary
Guided alignment platen	19,800	Mechanical guides, hard stops, load sensing and static seating trials.
Vibration evaluation addition	6,800	Only with the platen; trial actuator/control and dry-coupon testing.
Extra complete carrier	33,200	Carrier, 84 clamps and defined local sensing.
Robotic finished-panel unloading	Separate quotation	Requires a supported panel tool, parking, paths and safety changes.

The included trial scope covers the defined material and two tooling iterations within the E01/H20 allowances. Unexpected requirements for vibration, a different insertion method, hidden-edge inspection, new adhesive chemistry or additional curing equipment require an agreed technical and commercial variation. Safety required for the agreed machine and correction of nonconforming agreed deliverables are included obligations.

Indicative schedule: 24 to 28 weeks after order, agreed inputs and representative material, subject to POC outcome and supplier availability. No contractual takt or yield is set by the animation.

Manual magazine replenishment, supported operator-assisted output and one Singapore installation/SAT allowance are included. Automatic cutting, bulk feeding, margin trimming, robotic panel unloading, oven/skin press, overseas travel, facility utilities and repeated relocations are excluded unless selected. Technical proposal EX01-EX12 defines the detailed boundary.

Proposed milestone	Share	Dual-mode example SGD
Order confirmation	30%	165,906.00
Design confirmation	30%	165,906.00
Delivery	20%	110,604.00
SAT / handover	20%	110,604.00

Budget validity: 30 days for discussion. Proposed 12-month equipment/workmanship warranty from delivery; wear parts, consumables, paper/adhesive variability, contamination and unauthorised modifications are excluded. Final order terms, acceptance criteria, supplier offers and authorised quotation number must be agreed before a binding order.