



VISION-GUIDED ROBOTIC BUCKING CELL

Hand-bucking quality for dried cannabis harvests. Machine vision finds every bucking point; a pneumatic nipper severs the stem above the bud, so the flower never takes the load. An operator loads branches — the cell does the rest.

PRINCIPLE OF OPERATION

- ▶ **Cut, not pull.** Shears sever the stem; the bud is never dragged through a plate.
- ▶ **Per-bud targeting.** Each cut point is found and confidence-scored individually.
- ▶ **Bottom-up sequencing.** Cleared stem never blocks the next cut.
- ▶ **Re-scan after every cut**, with branch rotation for access to all sides.
- ▶ **Hang-once handling.** Branches ride an overhead carrier from load to bare-stem eject.

VISION

CLOSE-RANGE	End-effector camera + macro lens, backlit target
WORKSPACE	Basler stereo rig — live 3D depth map
DETECTION	Trained bud / cut-point model, confidence-scored
DEPTH USE	Depth-validated clusters; distance-aware approach
ADAPTATION	Built-in annotation + retraining on your cultivars

MOTION & CUTTING

ARM	UFACTORY xArm collaborative arm
END-EFFECTOR	VESSEL pneumatic air nipper, replaceable blades
APPROACH	Two-phase: fast travel, gentle final plunge
TRAVEL SPEED	Up to 800 mm/s between targets
BLADE CHANGE	Operator-serviceable consumable, spares on hand

CONTROLS & SOFTWARE

INTERFACE	Browser-served from the cell over your LAN
INSTALLS	None · no license server · no cloud dependency
OPERATOR MODE	START / STOP / HOME / backlight
ENGINEERING VIEW	Live feeds, cut queue, jog, calibration, console
SIMULATE	Replays full sequences on recorded branches
LOGGING	Per-cut counts, timing and session throughput

FACILITY REQUIREMENTS

POWER	Standard outlet · draw TBD
AIR	Small compressor for the shears — no plant air
FOOTPRINT	dimensions pending production frame
NETWORK	LAN or Wi-Fi for the browser interface
CIVIL WORKS	None — no drains, no three-phase, no construction
STAFFING	One loader , no specialist operator

MATERIAL

INTENDED	Dried branches (dry-buck step)
PRESENTATION	Hung from carrier, as dried — no re-orientation
CULTIVARS	Retrainable per strain; tuned during pilot
OUTPUT	Whole buds; bare stem auto-ejected

THROUGHPUT

RATE PER CELL	to be published from pilot data
OUR POSITION	No throughput figure until measured over full shifts on customer material

CONFIGURATIONS

TIER 01 • MINIMUM

TWO-STATION CELL

Two arms on one overhead carrier loop.
Smallest system sold. One loader.

TIER 02 • THROUGHPUT

FOUR-STATION CELL

Four arms on the same loop and
footprint class. Field-upgradable from
Tier 01.

TIER 03 • ROOM-LINKED

WHOLE-ROOM CONVEYOR

Track extends into the dry room — hang
once at harvest, continuous feed to the
arms.

Fall 2026 pilot programme. Before a system is sold, it is proven on your material: the cell runs in your facility for your harvest window, operated by our technicians and **priced as a service, with no capital purchase**. Every number measured — pounds per hour, labour cost per pound, damage rate, uptime — is yours to keep, and the pilot fee credits toward a system if you convert. Results are published only with your approval.