AETEC / DESIGN BASIS

Selected robot, revised rotary direction and scope

ABB PoWa 7

7 kg published payload
910 mm wrist / 1,050 mm flange reach
ABB OmniCore controller; cabinet version TBC
Independent simplified robot model, not ABB CAD.

Three-jaw chuck revision

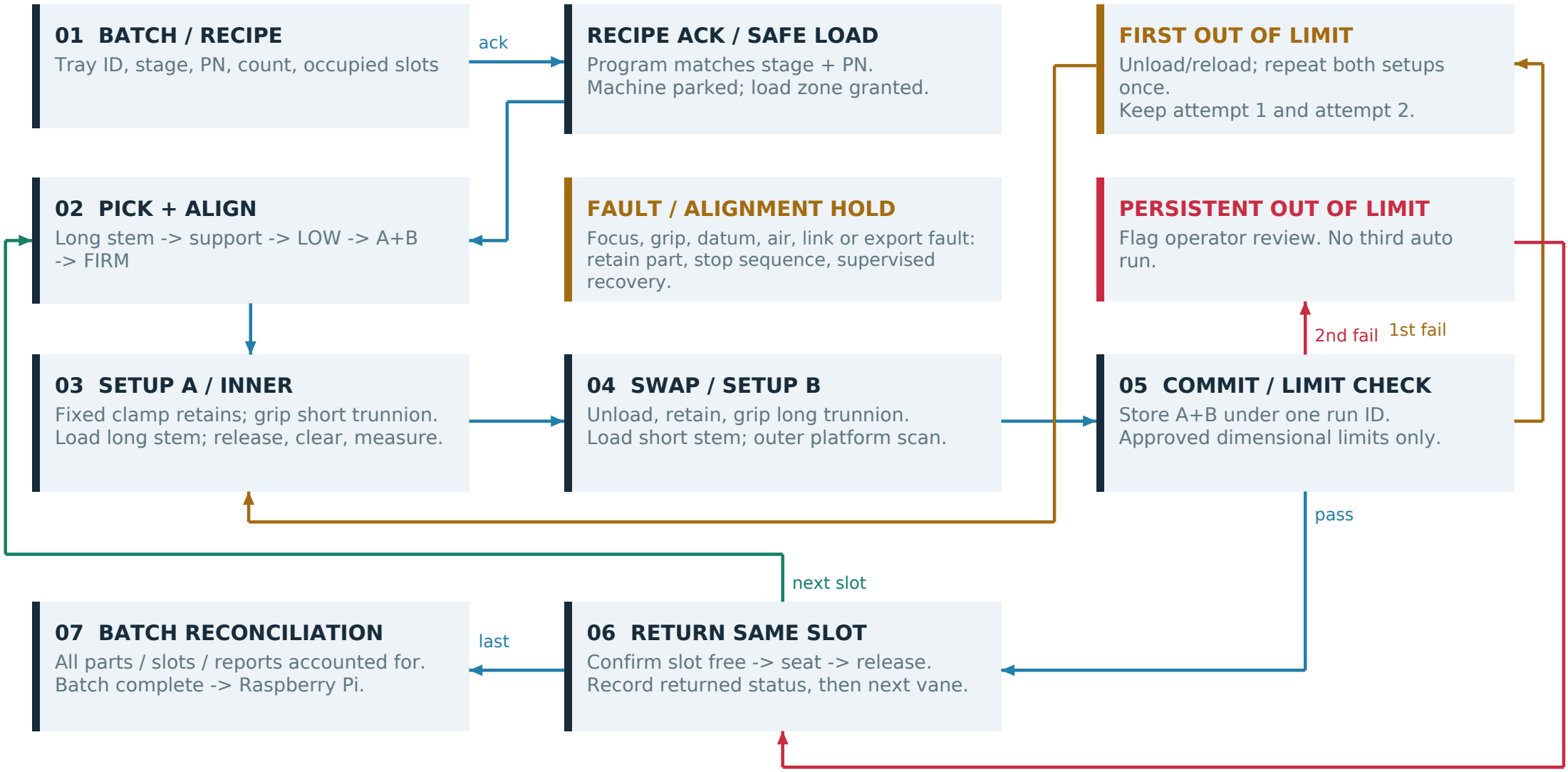
Proposed horizontal X-axis, chuck at the left.
Robot approaches from the right along the shaft axis.
RFQ p.7: flat surface up; curved surface outward.
Colin direction correction still needs site sign-off.

Item	Current concept	Basis / outstanding input
OGP SmartScope Flash CNC 300	900 x 900 x 1,540 mm	RFQ p.3 enclosure; exact internal CAD pending
Work table / tray	1,200 x 820 mm; top 900 mm	Larger RFQ layout option; 42 original-slot positions
Robot mounting	Reinforced table-mounted riser	Bolt pattern, mass, stiffness and anchor design TBC
Transfer module	Separate stationary pneumatic clamp	LOW grip -> two datums -> FIRM -> retained handoff
Inspection scope	Airfoil + inner + outer platform	Two setups; all 9 vane families / exact PN recipes
Equipment planning allowance	2,300 x 2,200 mm	No aisle, guarding or dynamic cable clearance included

The old front-loading rotation was an earlier design assumption. The revised direction is a review proposal, not a verified survey result.

AETEC / PROCESS FLOW

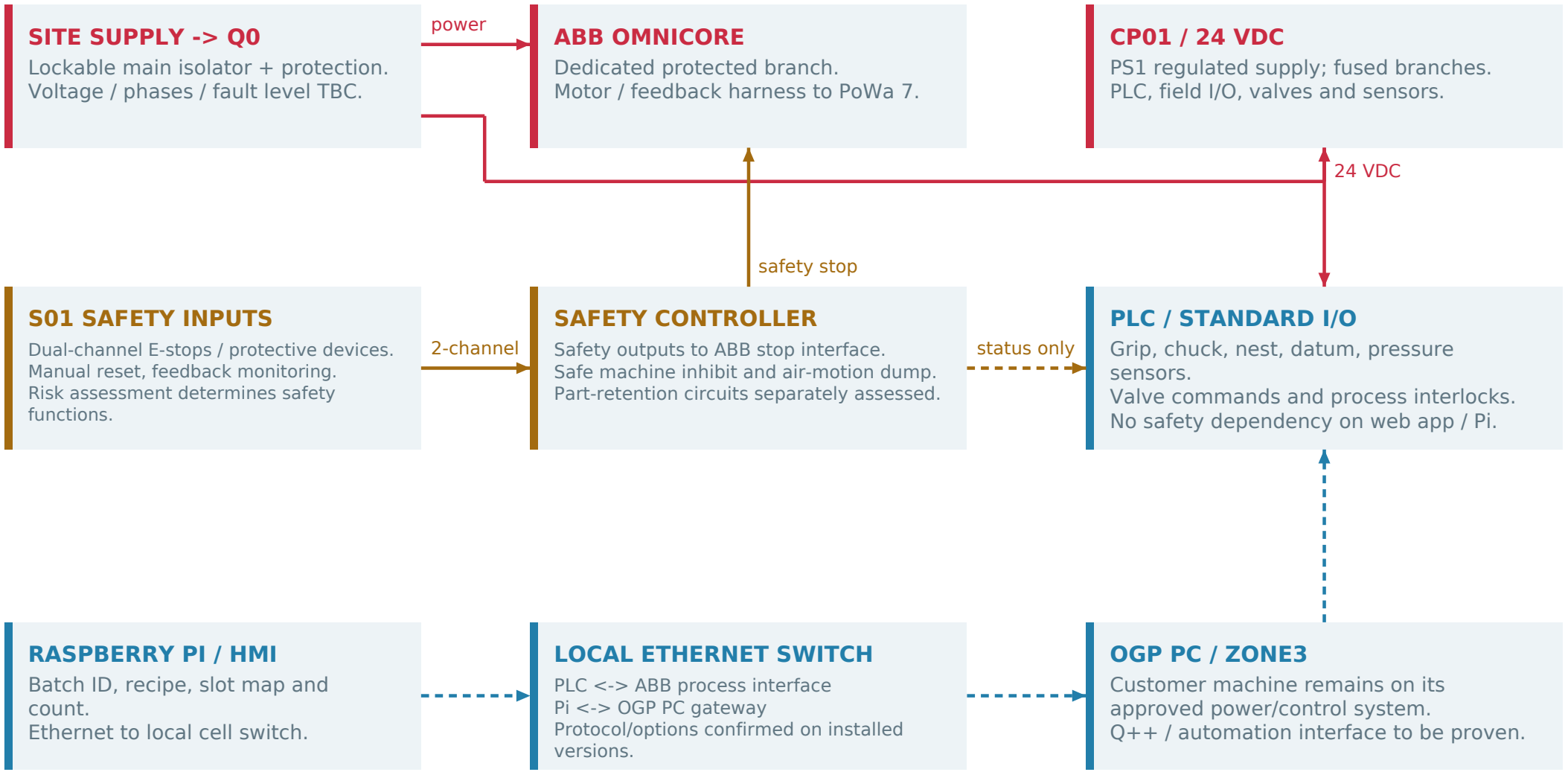
Full batch handling, two inspection setups and controlled retry



Any safety fault inhibits motion and restart. Logical process acknowledgements do not replace safety-rated interlocks. Measurements shown in the app are synthetic.

AETEC / ELECTRICAL ARCHITECTURE

Functional single-line and controls topology; terminal design follows component selection

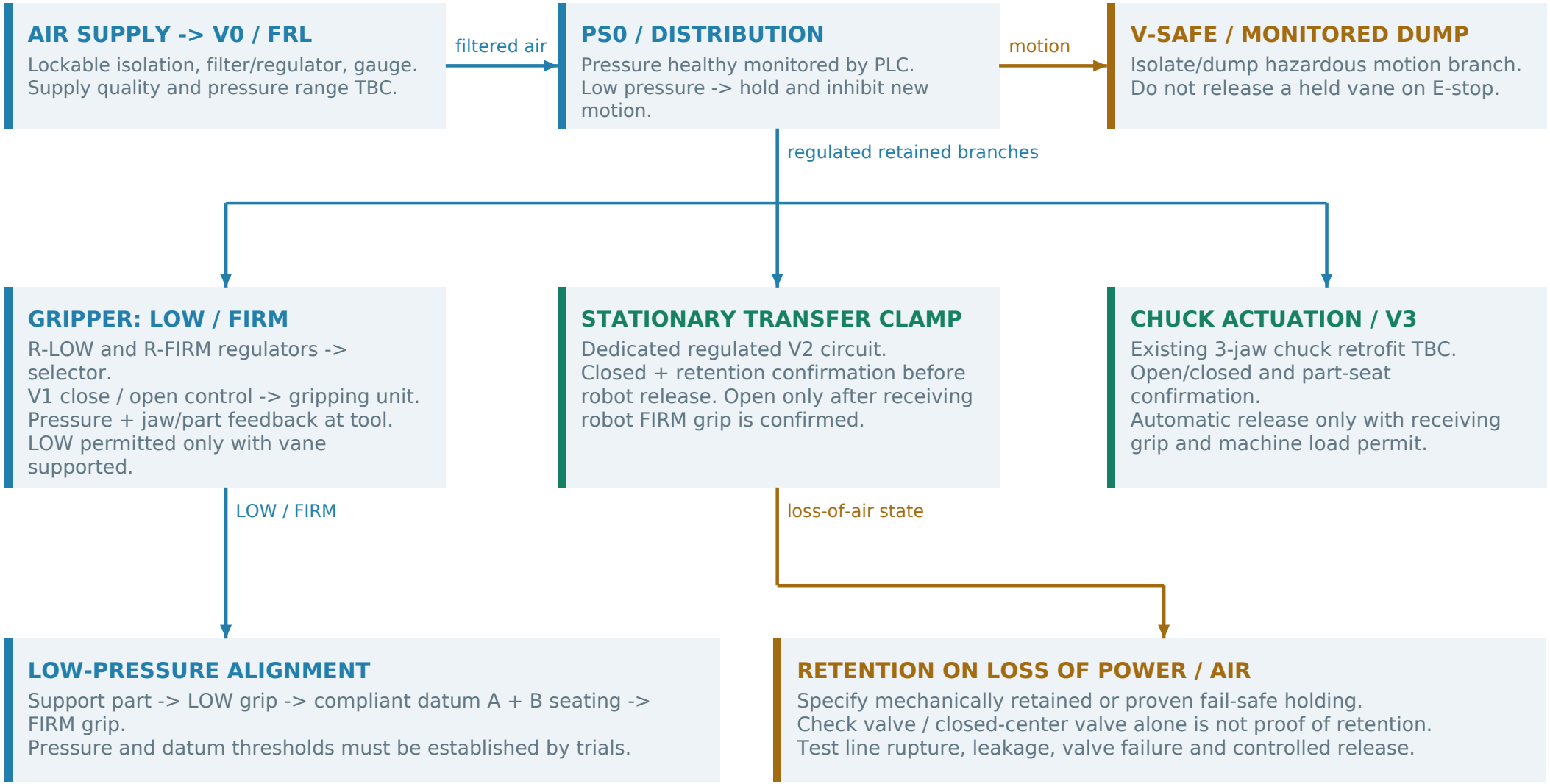


PE: bond panel, robot mount, controller and exposed conductive structures. Keep power, analog/sensor and Ethernet routes separated.

Connection ratings, breaker/fuse sizes, terminal numbers, pinouts and required safety performance are TBC. This drawing must not be used for field wiring.

AETEC / PNEUMATIC ARCHITECTURE

Separate compliant alignment, retained holding and motion energy isolation



Setpoints, valve symbols/port numbers, cylinder/gripper make and pneumatic BOM remain to detail. Neither clamping force nor self-alignment dynamics is solved here.

AETEC / OGP / ZONE3 PROGRAMMING

Aetec scope includes the measuring-machine programs, not only robot motion

Work package	Required output
Installed-system survey	Confirm Zone3 version/licence, Q++ access, rotary calibration, optics, I/O/API and backups.
Recipe engineering - all 9 families	CFM56-7B IGV + stages 1-3; LEAP-1A IGV + stages 1-4. Exact PN/repair revision controls applicability.
Two setups and datums	Setup A: airfoil + inner platform. Setup B: outer platform. Reacquire datum/focus after each reload.
Measurement path creation	Implement every applicable approved section/feature. Prove optical coverage, jaw clearance and rotary poses.
Automatic control interface	Select / acknowledge recipe, safe-load, part-loaded, start, busy, done, result committed and fault recovery.
Reporting and retry	Offline CSV + Excel-compatible report, red out-of-limit marking, both attempts and original-slot records.
Validation and handover	Golden samples, manual/automatic correlation, repeated load/unload, backup/source, training and open interface docs.

No executable Zone3/Q++ or ABB program is claimed. Final programs require the installed machine interface, approved feature list, reference parts and acceptance tolerances.

AETEC / INTERFACE / CABLE SCHEDULE

Proposed allocation; hardware addresses and connector pinouts are not assigned

Tag	Connection / signal group	Design requirement
CB01	Site -> CP01 / ABB supply	Separately protected; size after load / fault-current calculation; PE continuity.
CB02	ABB controller -> PoWa 7	Manufacturer motor/feedback harness; routing, bend radius and service loops per ABB.
CB03	Robot tool -> EOAT	24 VDC/sensor cable + air lines; strain relief, torsion limit and collision envelope.
CB04	CP01 -> fixed transfer / chuck	Valves and feedback; shield/ground practice per selected hardware.
NET01-04	PLC, ABB, Raspberry Pi, OGP PC	Local switched Ethernet; approved protocol/licenses, watchdogs and documented configuration.
SF01	E-stops / protective devices -> safety I/O	Separate safety channel/feedback design; supervised reset; never software-only safety.
AIR01-04	FRL -> tool / transfer / chuck / dump	Identify each hose, retain fittings, protect from rotary winding and optical work volume.

Standard inputs: grip open/firm, part present, transfer open/closed, datum A/B, chuck open/closed, air pressure, original-slot availability, Zone3 ready/busy/done/fault.

Standard outputs: robot grip open/close + LOW/FIRM selection; transfer open/close; chuck open/close; program request/start/ack; stack light. Safety commands use independent rated interfaces.

Hose/cable dimensions are not selected. Do not permit unlimited wrist rotation; resolve routing and a controlled unwind before hardware operation.

AETEC / VALIDATION / RELEASE STATUS

Evidence applies only to the specified digital geometry and saved trajectory

DIGITAL CHECK RESULT

5 vanes; 20,946 sampled states; 186,356,562 box-pair checks; 0 unexpected reported overlaps.

Check	Required release evidence
Manufacturer robot geometry	Matching PoWa 7 CAD, kinematics, joint limits, payload and tool CoG in ABB RobotStudio.
Chuck / machine survey	Colin sign-off of axis, facing side, actual mounting position, insertion path and rotary datum.
Workholding and short stem	Contact stress, no marking, alignment repeatability, minimum jaw engagement and retained holding tests.
Moving cables and hoses	ABB dress-pack path, minimum bend radius, torsion/unwind, strain relief, full sweep at every joint pose.
Electrical / safety	Detailed rated drawings, protective functions, power/air-loss response, restart prevention and validation.
Machine programming / SAT	All approved features and PN recipes, repeat-loading correlation, retry/fault recovery, data export and handover.

The screen excludes approved contact fits and adjacent joint housings. It is discrete, uses conservative boxes and provisional geometry, and does not establish physical safety, stopping distance or a production cycle time.

Only the five-vane baseline is covered by its saved audit. All 42 slots, all 9 geometries, changed layouts and fault-recovery paths require their own validation.