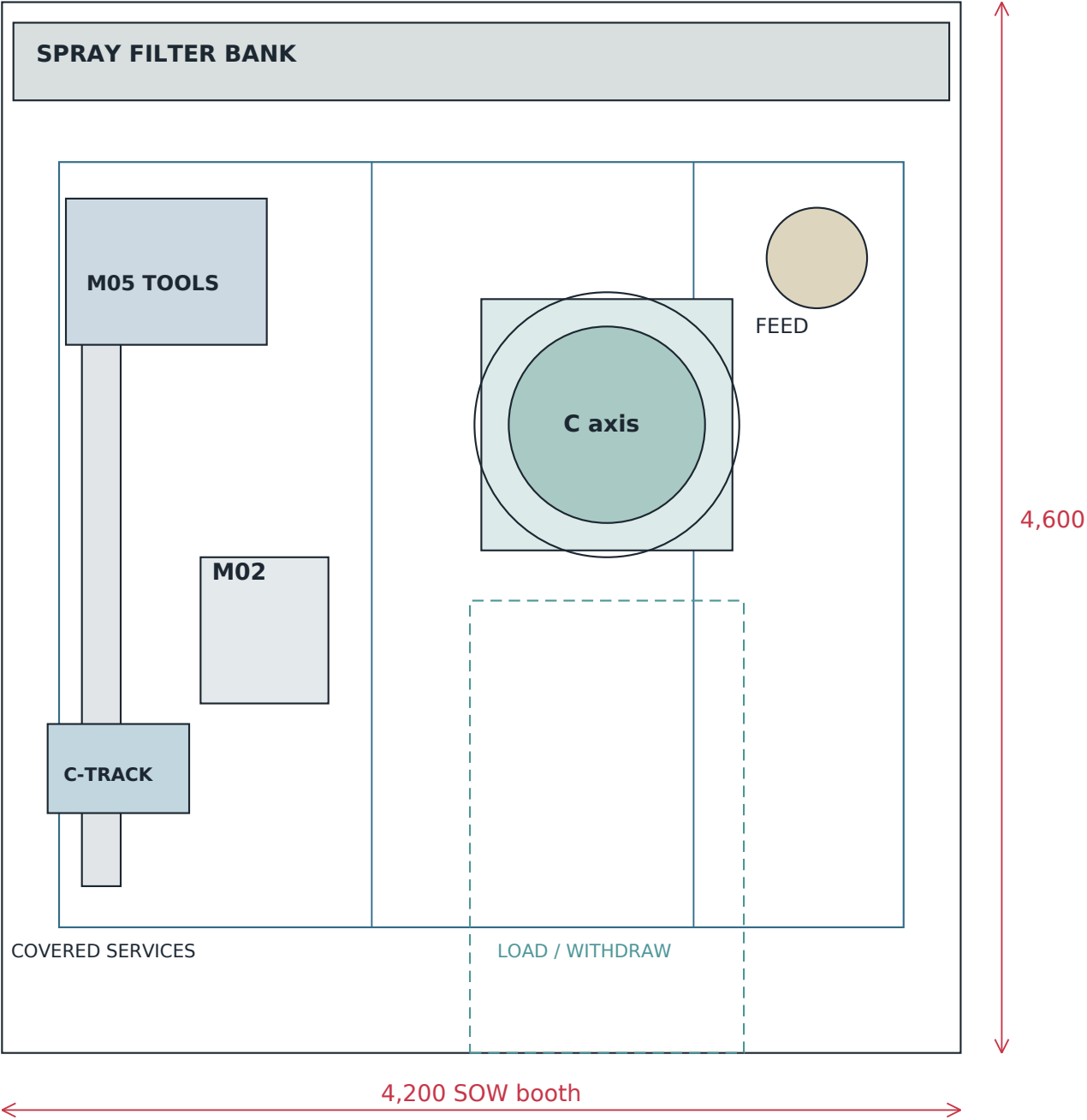




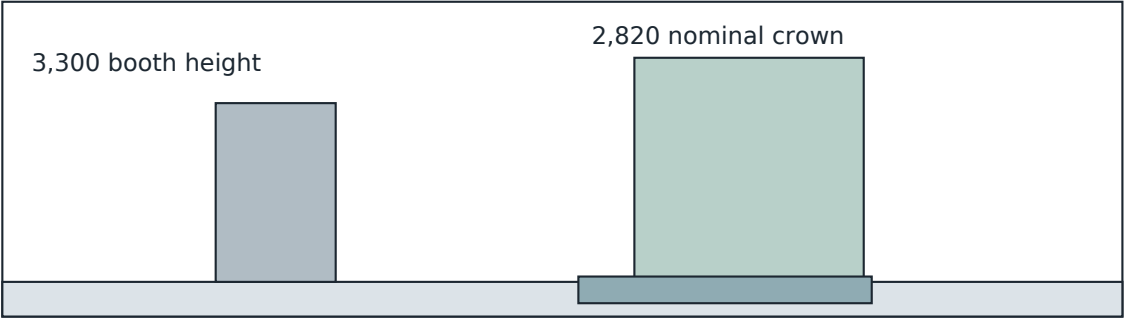
Final cell - layout and service boundaries

2.1 m workpiece study | Booth A dimensions from SOW | robot / tooling shown schematically

TOP VIEW



FRONT ELEVATION - height envelope schematic



M01 / Connected base

Robot/lift, vertical table, tool cabinet and tracker mast share bolted datum structure. Main rails 3,700 x 3,350. No floor anchors; feet carry working loads.

M02 / Robot and lift

ABB PoWa 20 official geometry in the 3D review. Final vertical lift concept up to 900 travel; OEM load/moment, brake and protective configuration to select.

M03 / Vertical C axis

Workpiece axis is vertical. Nominal seat 720 above floor; 2,100 part reaches 2,820. Square pallet sweep is about 1,556 diameter; check all indexed clearances.

External services - additional to booth

Controller/HMI outside front; dedicated dust collector at side; spray filter/exhaust duct/fan behind. Keep loading route, escape/access and filter maintenance space. Site survey fixes these external envelopes.

Lighting / guards / airflow

Perimeter lights, monitored access, overhead make-up air, extraction proof and covered service trunks. Booth walls are cut away only in the 3D presentation.

Option 2 is a new structural load case

IRB 5500-22 is a spray option requiring its own foundation, frame, mounting and reach design. Do not fit it to the PoWa base by changing only the adaptor plate.

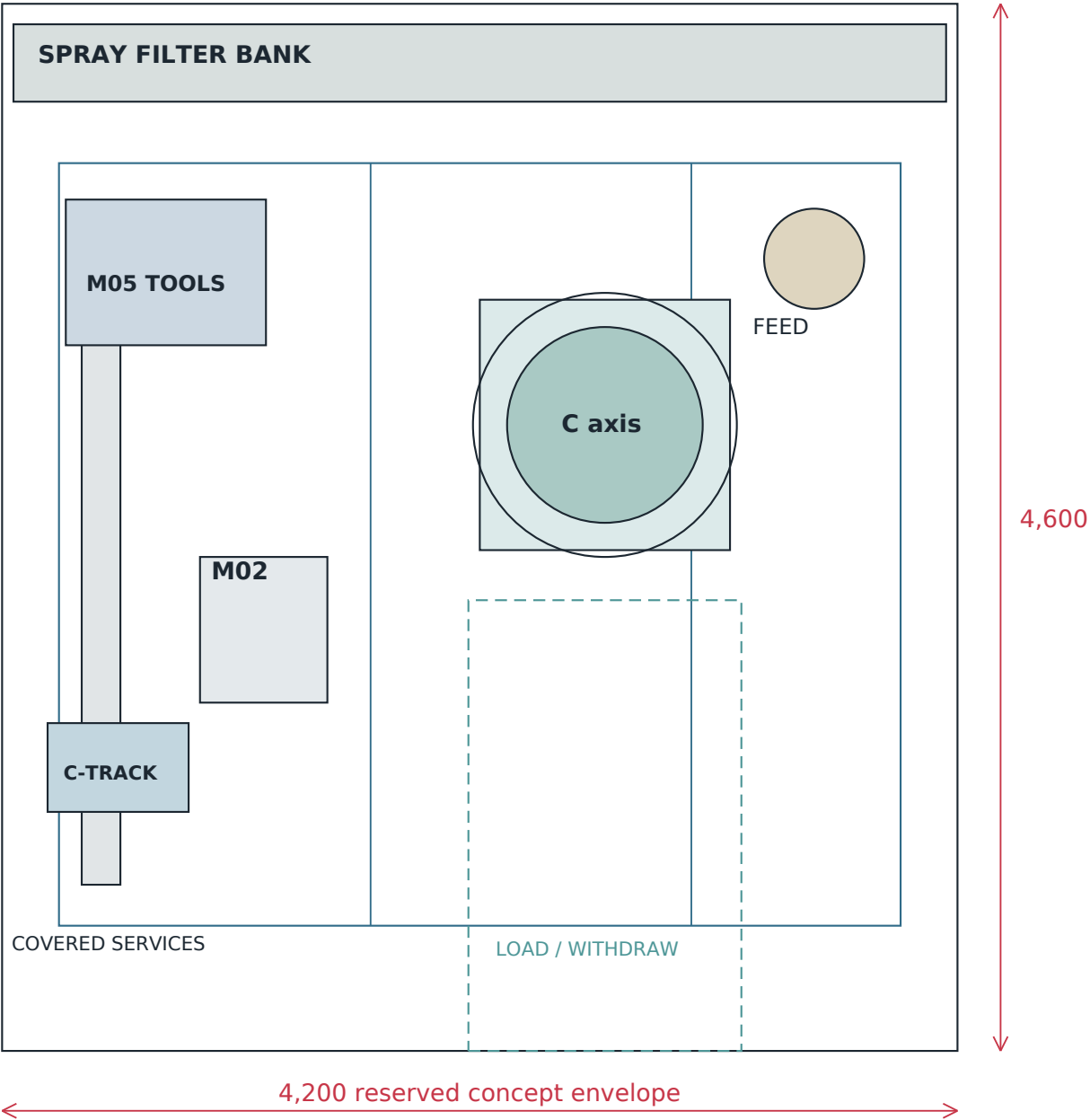




AETEC in-house POC - minimum physical setup

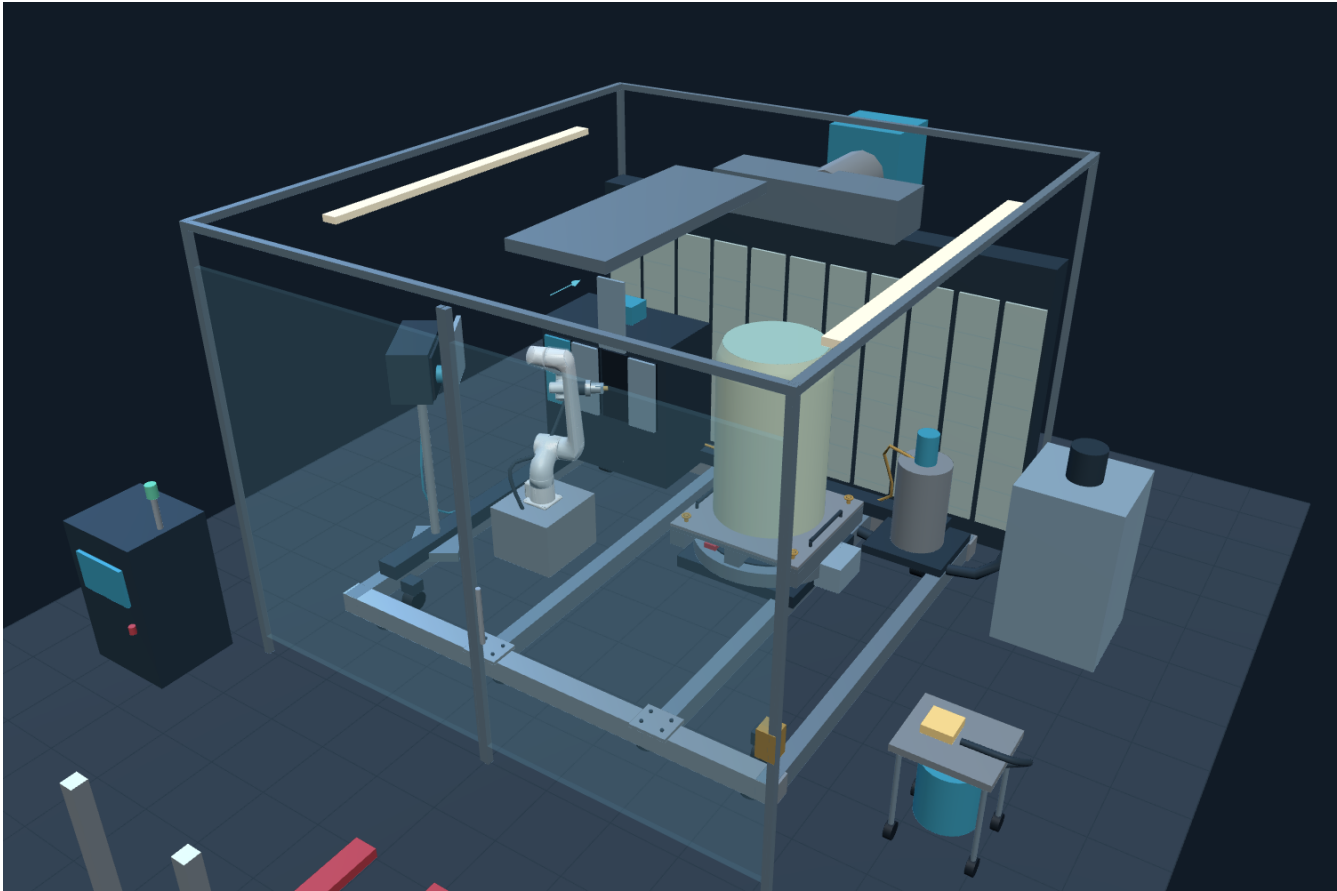
1.4 m customer samples | fixed raised robot | temporary equipment | actual bay survey required

TOP VIEW



POC simplifications

Fixed pedestal; adapted table; prototype covered docks; existing qualified process interfaces. The production lift, permanent plant and new production equipment are design-study items.



Retain the important interfaces

Use vertical rotary indexing, removable fixture, repeatable docking, tool lock/ID, scanner/tracker protection, captured cleaning and fault sequencing. Perform physical contact and metrology trials.

Existing suitable facilities

Drawn room dimensions reserve planning space only; they are not measured AETEC facility dimensions. Prove available extraction, process suitability and utilities before wet/dirty trials.

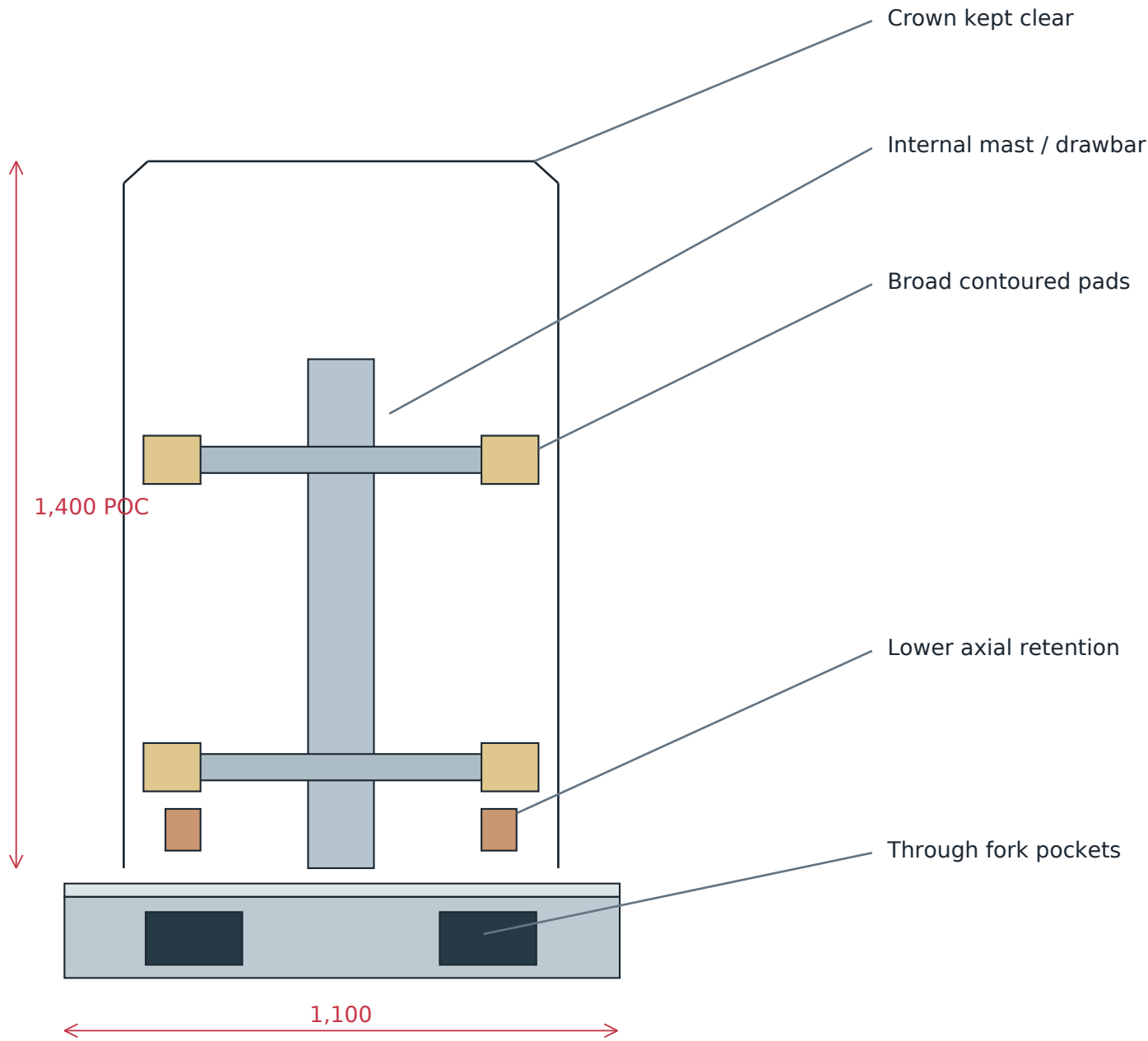




Fixture pallet - support, retention and handling

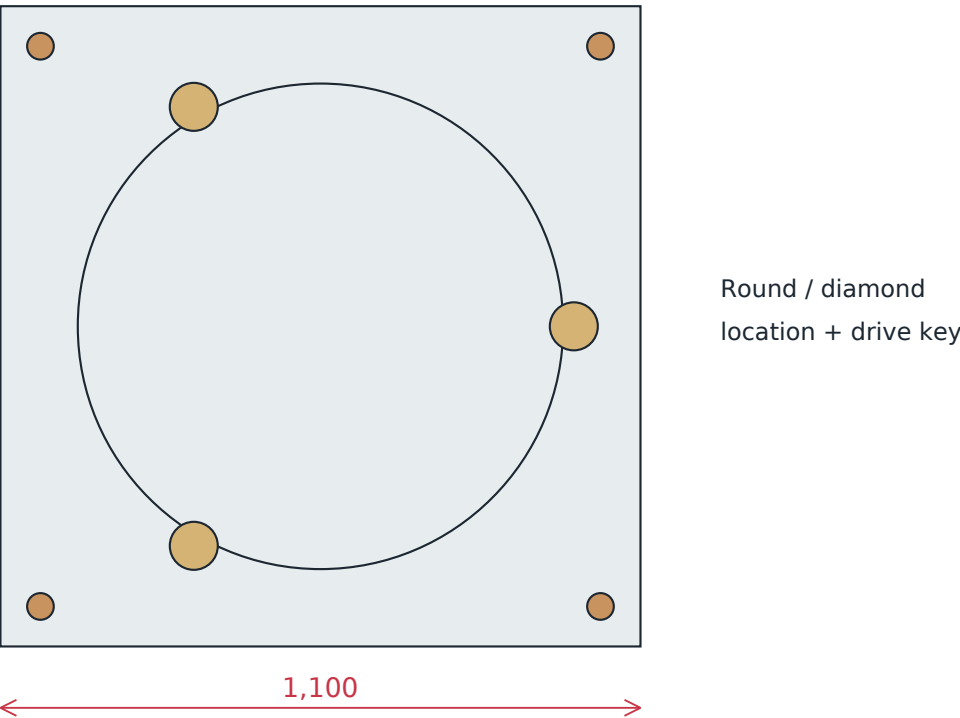
Concept section and docking details | closed crown unobstructed | no top support

FRONT SECTION - internal fixture visible



Design checks: pad pressure, skin/core crushing, mast bending, part deflection, spindle overturning, table stop torque, clamp loss, transport tipping and fork bending. A stacker performs the lift; pallet jack is ground transport only.

PALLET TOP - 3 seating datums / 4 lift interfaces



Stiff carrier / material basis

25 mm candidate aluminium top plate over deep rails; steel replaceable locating inserts; bonded connections. No thin cover plate carrying the mast load.

Positive retention must be possible on actual part

Internal pads locate/support. Axial restraint uses an approved lower internal feature. If absent, qualify an internal adapter before release; no unsupported friction-only assumption.

Ergonomics / lifting

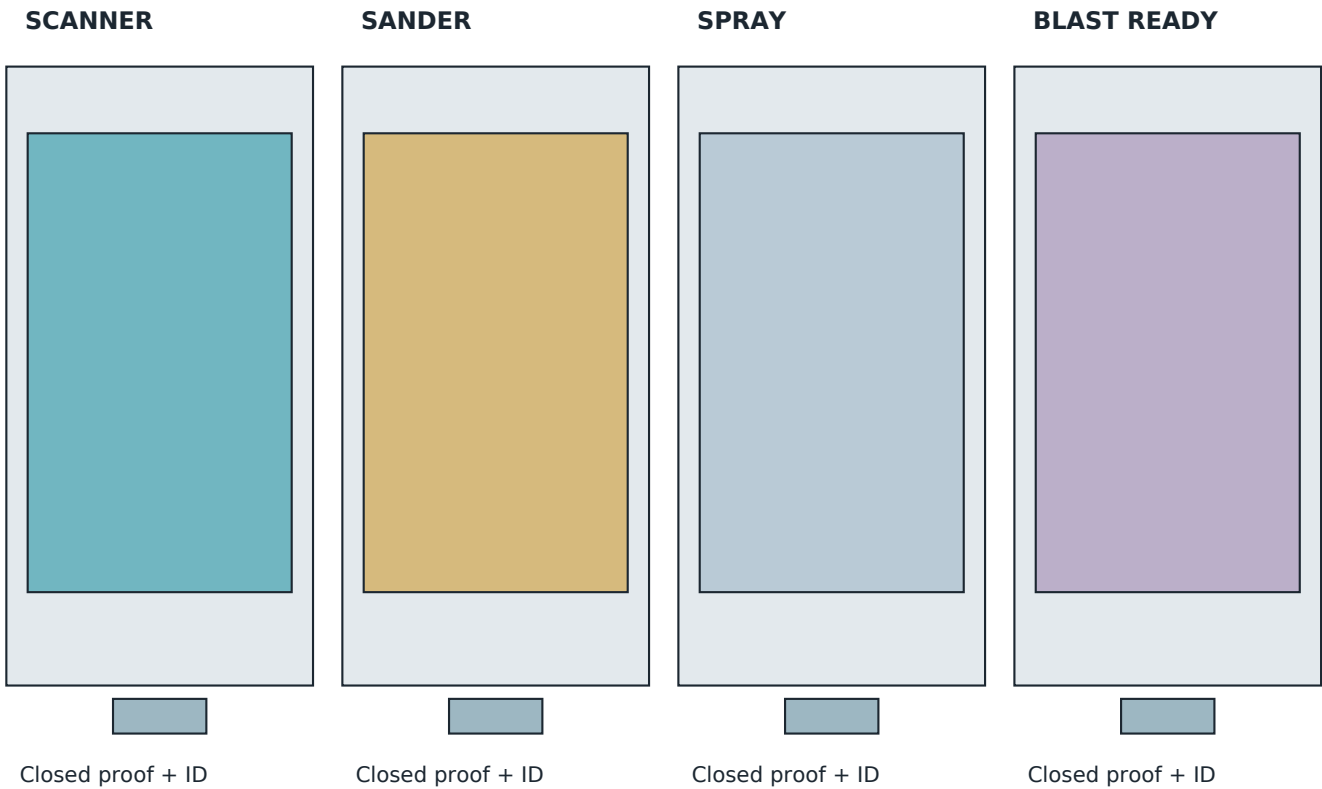
Fold-flat long grips, removable T-handle provision and rated lifting-eye interfaces. Pocket opening 190 x 105, pitch 580 is provisional. Freeze fork geometry, SWL and sling angles.





Tool docks and optical protection

Creaform MetraSCAN BLACK+ Elite + C-Track+ Elite | shutter / lock / pressure feedback



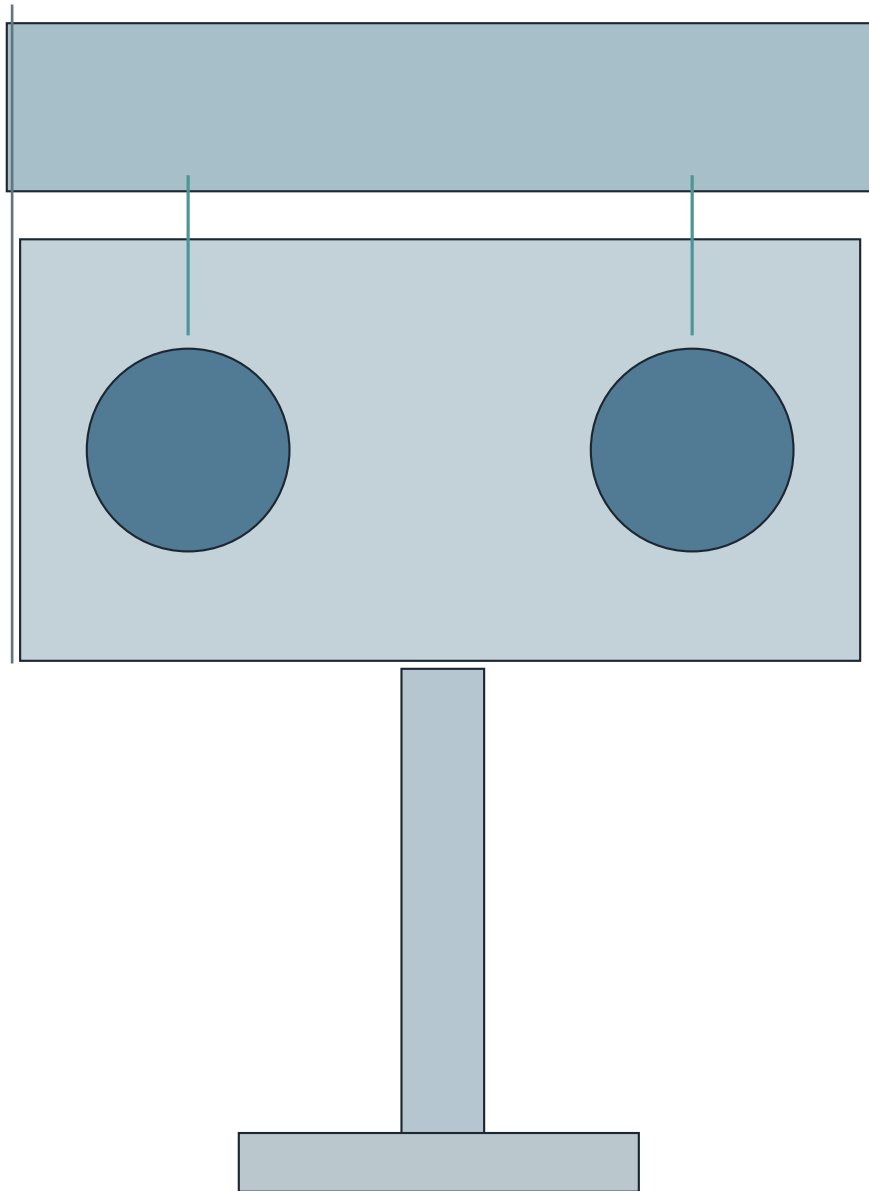
Clean versus wet compartments

Separate scanner bay from spray/flush catchpot and sanding debris. Tool-side caps and robot-master shroud protect mating interfaces. Reserve blast dock only; actual blasting is separately qualified.

Uncovering rule

Tool off, extraction proven, required clearance completed, clean surface/witness and stable temperature; then open tracker and scanner cover. Confirm visibility and reference stability before measuring.

FIXED C-TRACK / SHUTTER SHOWN RETRACTED



Tracker remains fixed to common metrology mast.
Shutter covers full optical face before dirty process.

Purge and feedback

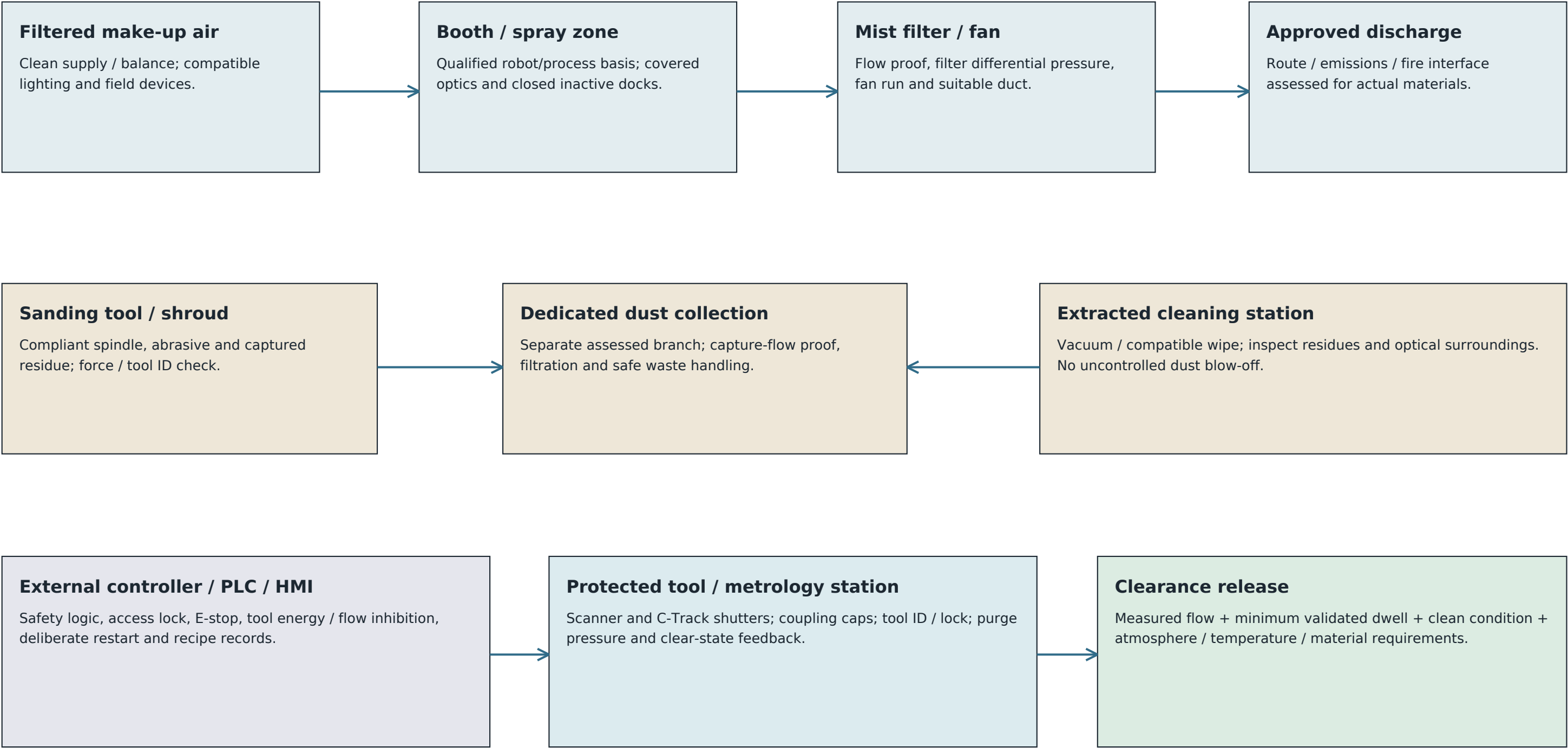
Filtered dry air at an OEM-approved condition. Monitor pressure/flow, cover-open/closed and tool lock. Optical purge/covers control contamination; the robot uses its separately specified ATEX-certified package.





Services and process interlocks

Separate spray exhaust and sanding dust capture | controllers outside | no timer-only release



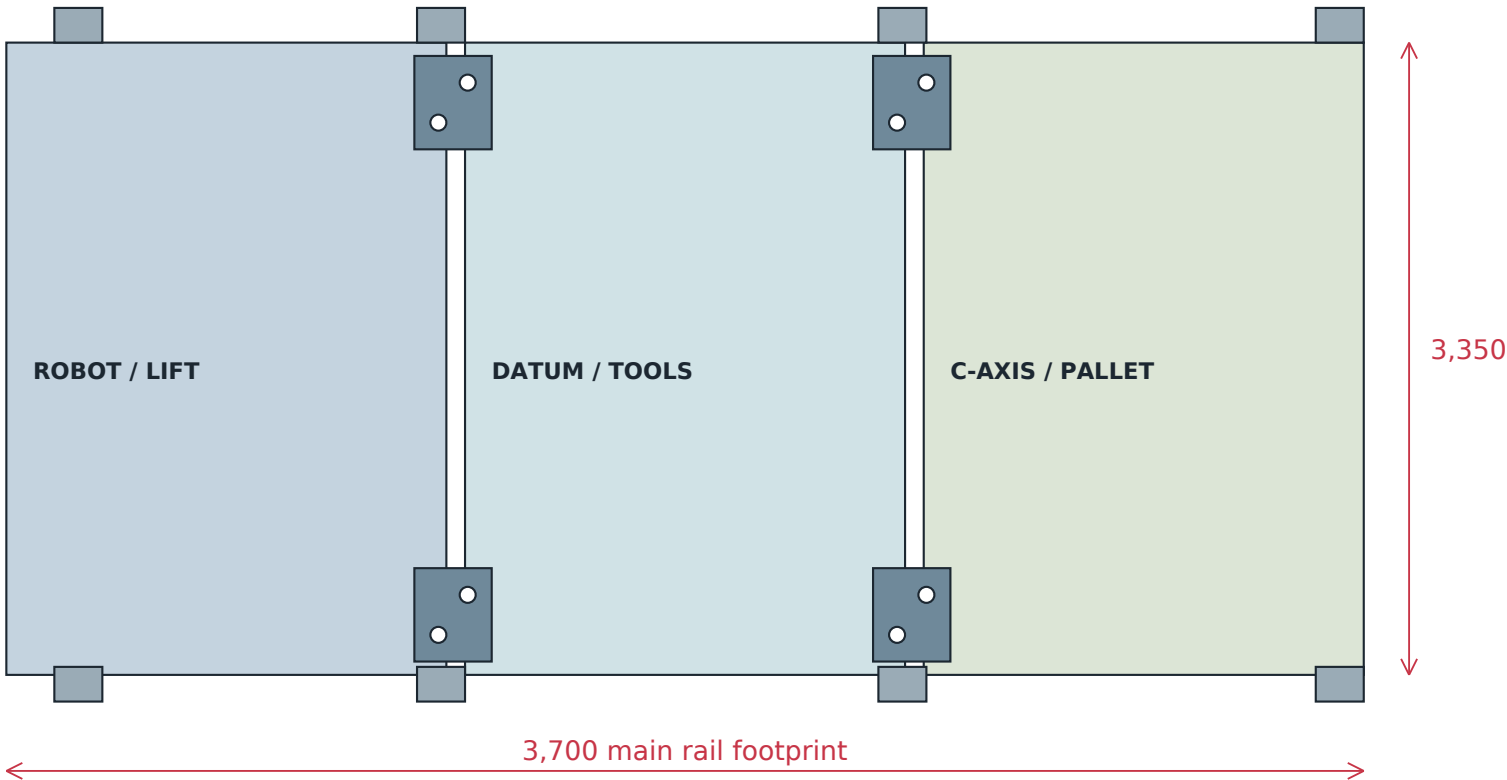
Do not connect solvent-laden spray exhaust to an ordinary sanding collector. Do not recirculate without an approved design. Service connectors are keyed, isolated and depressurised before module separation. Clean-air clearance does not substitute for coating cure.





Modular construction and design BOM

Connected base with machined interfaces | load calculations and supplier data required before fabrication



Frame detail intent

Candidate 80 x 160 aluminium main rails, 80 x 80 braces and machined steel robot/table reinforcement. Sizes are preliminary. Use supplier foundation loads to select plates, fasteners, ballast and feet.

Release by module

Separating a module changes its stability. Provide transport restraints and a defined lift procedure. Remove/disconnect services, support each module, unbolt and protect datum faces; re-level and recheck calibration after reassembly.

DESIGN BOM - supply boundary follows quotation

01	Common base modules / splices	1 assembly
02	PoWa robot + pedestal/lift interface	1
03	Vertical table / brake / guard	1
04	Cylinder fixture pallet	1
05	Open-cover support cassette	1
06	Covered tool station / 4 bays	1
07	Scanner bay and C-Track shutter	1 each
08	Metrology datum mast / targets	1 set
09	Spray material / flush interface	1 set
10	Separate dust / cleaning interface	1 set
11	Covered cable / hose trunks	1 set
12	External control / guards / lights	1 set
13	Handling grips / eyes / fork pockets	per pallet

POC uses temporary robot/metrology access and adapted plant. The final production supply is separate. Blast-ready means reserved interface, not supplied or qualified blasting equipment.

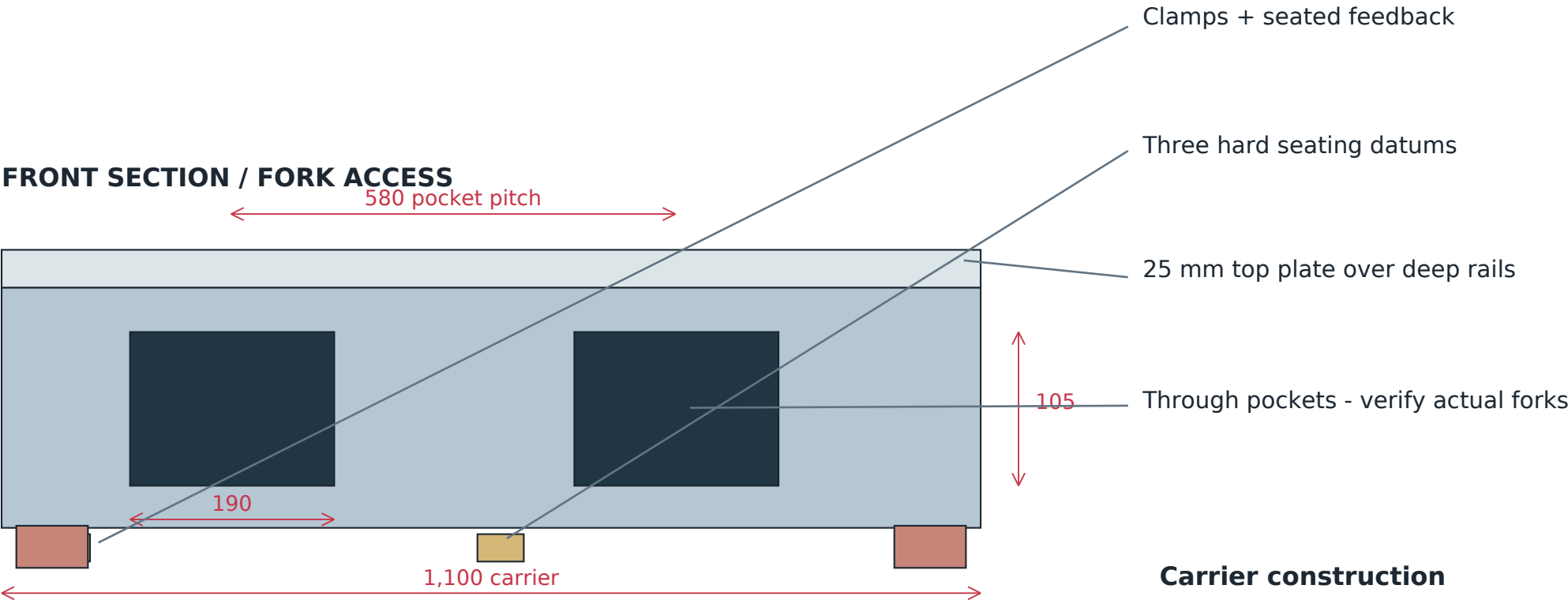
Projection convention: third-angle for paired orthographic views. CAD geometry and dimensions not explicitly sourced from SOW are concept values. This pack is for design review only.





Carrier docking - detail interface sheet

Concept section / plan | aluminium carrier | replaceable steel datum and drive inserts



FRONT SECTION / FORK ACCESS

Clamps + seated feedback

Three hard seating datums

25 mm top plate over deep rails

Through pockets - verify actual forks

Carrier construction

25 mm candidate aluminium top plate; deep bolted rails; replaceable steel datum inserts; retained fasteners. Closed skin/core and approved contact zones define the internal fixture.

Handling interfaces

Fold-flat long grips, removable T-handle socket and four rated lifting-eye interfaces. Show the SWL only after frame/fork/lift engineering and proof. The workpiece crown remains clear.

Repeatable docking

Use three support seats, round/diamond location and an independent drive key. Locating pins establish position; torque and axial retention are carried by designed mechanical interfaces.

Handling sequence

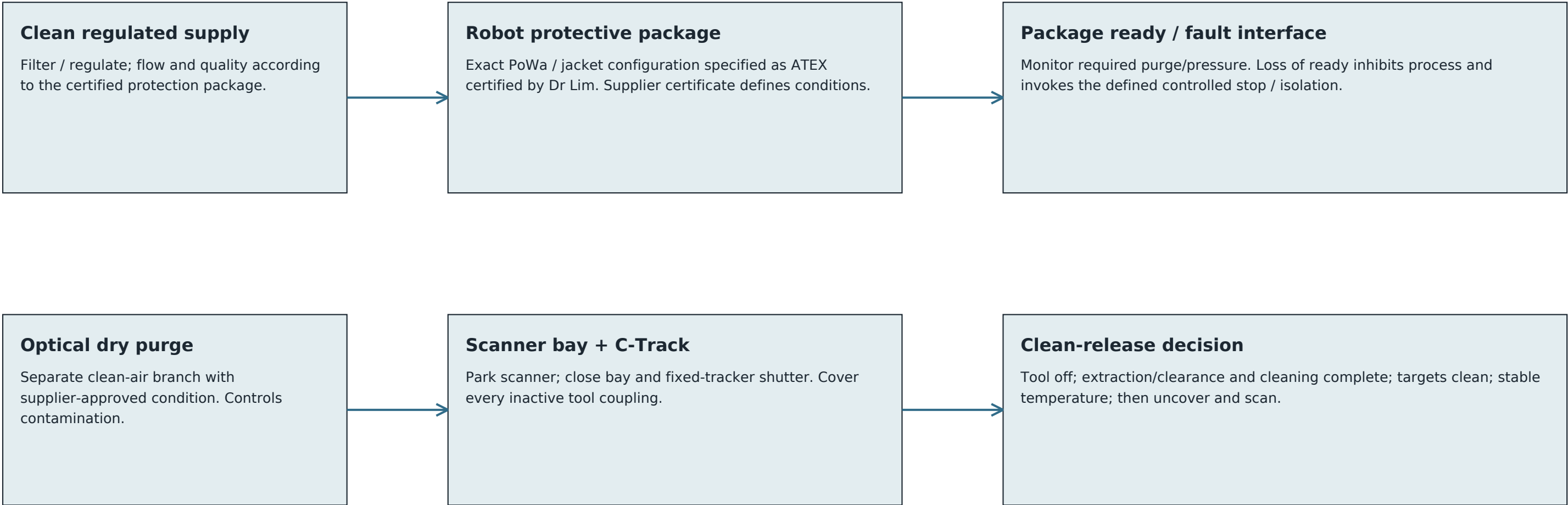
Stacker supports the carrier; lower onto datums; prove seating, clamp, ID and bonding; lower forks clear and reverse. Reverse only at safe stop after re-supporting the load.





Protection package and optical isolation

Specified ATEX robot package | certificate-specific installation | separate optical cleanliness circuit



Two different functions

Robot ATEX protection follows the specified certified package. Scanner/C-Track covers and dry purge protect the optical equipment from overspray and sanding residue; they do not substitute for the robot package.

Supplier release dossier

Record supplier, exact robot/cover codes, certificate number and schedules, covered gas/dust scope, temperature and installation conditions, purge supply, loss-of-pressure response and permitted service connections.

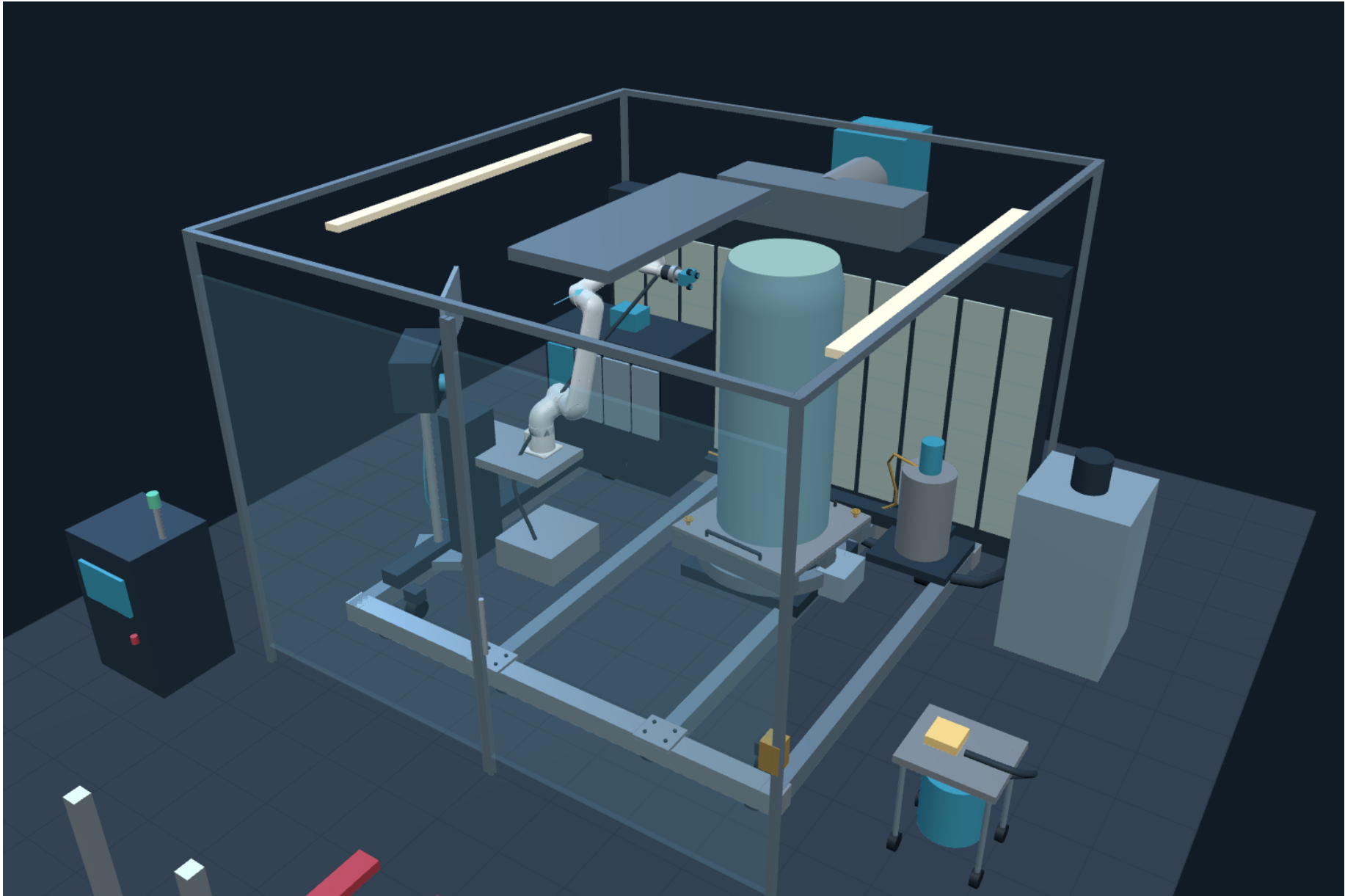
Certificate availability is user-confirmed for the selected package. No certificate number or marking is invented in this design review. Match the purchased assembly and installation to the supplier documentation.





General arrangement - connected process modules

Isometric assembly view | component register | POC/final common interfaces



ASSEMBLY REGISTER

- 01 PoWa + ATEX protection package
- 02 Robot mount / final lift study
- 03 Vertical C-axis turntable
- 04 Removable aluminium carrier
- 05 Internal pads / lower retention
- 06 Four covered tool docks
- 07 MetraSCAN dry compartment
- 08 Fixed C-Track + shutter
- 09 Agitated coating feed / flush
- 10 Paint filter / duct / exhaust
- 11 Dedicated dust collection
- 12 Extracted cleaning trolley
- 13 Common bolted rail structure
- 14 Operating feet / relocation wheels
- 15 External HMI / controls
- 16 Right access door / interlock

Module interfaces: mechanical datum/splice; labelled service disconnects; bonding; tool ID/lock; safety and process I/O. POC uses temporary equipment and fixed pedestal; final layout studies the taller part with up to 900 mm robot lift.

See D01-D08 for dimensions, carrier details, service branches and release checks. Exact native-part geometry and structural / lifting release remain engineering inputs.

