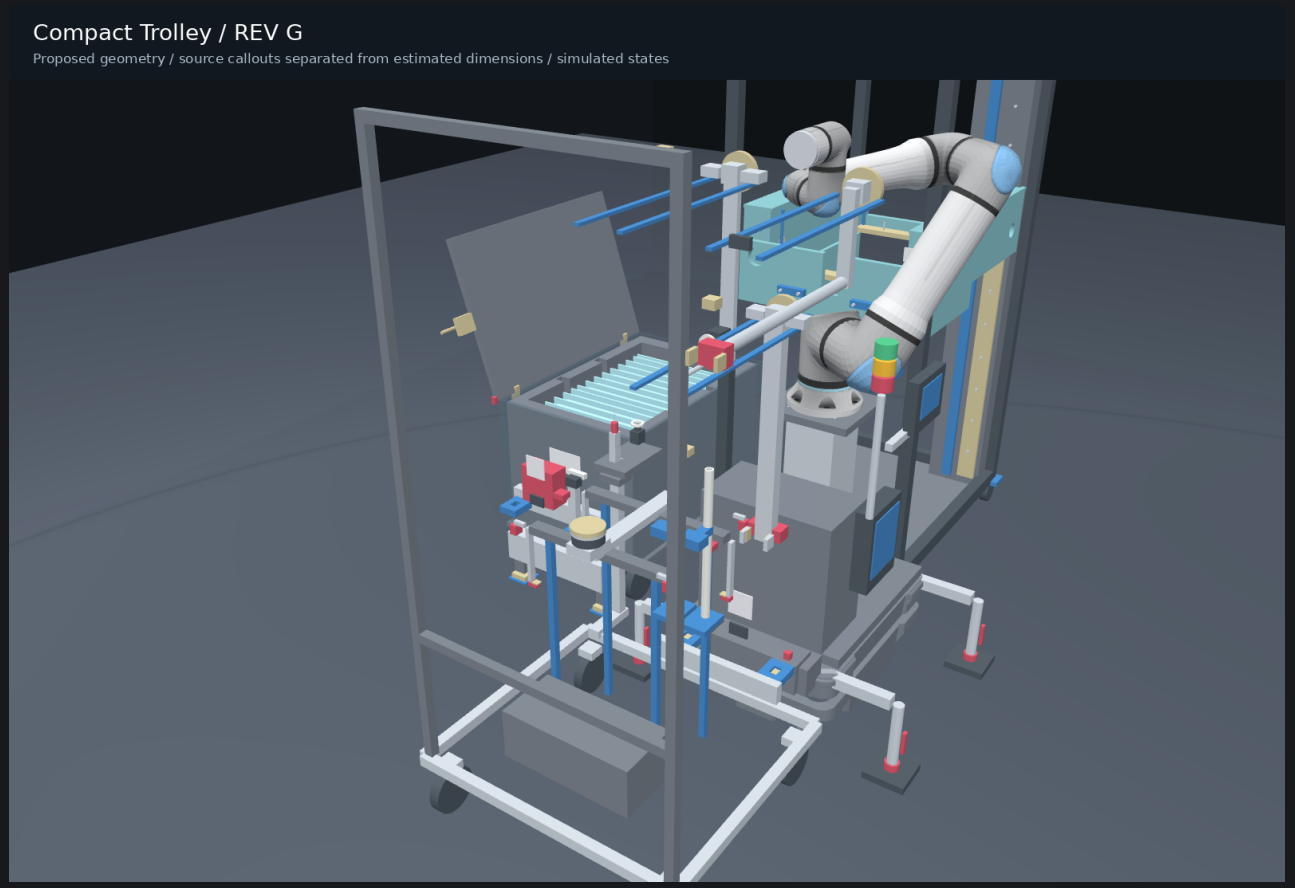
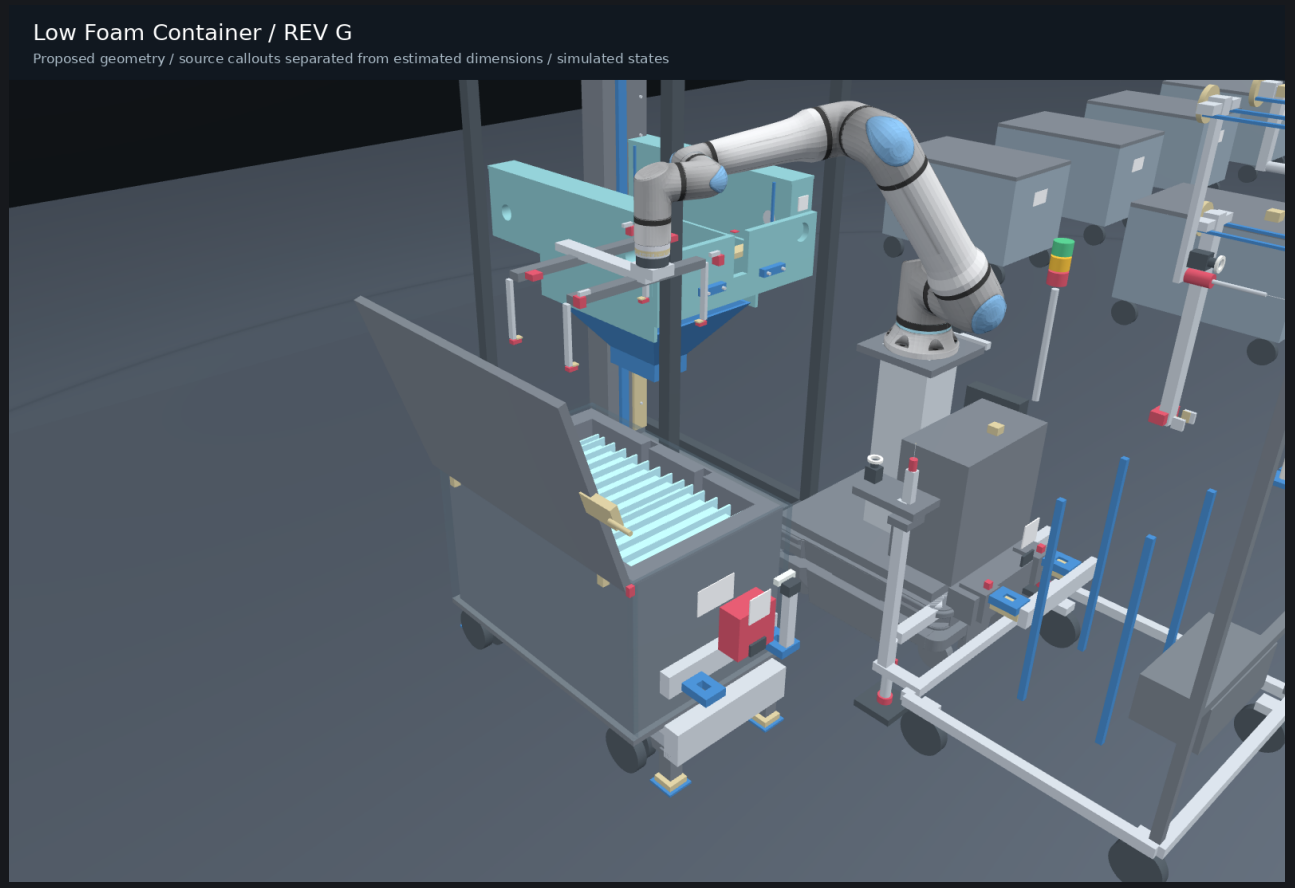
Quartz chamber installation



- UR30 on MiR250, with a compact interchangeable tool trolley.
- Camera and probing locate the chamber and machine.
- A dedicated gripper handles the fragile quartz under force monitoring.

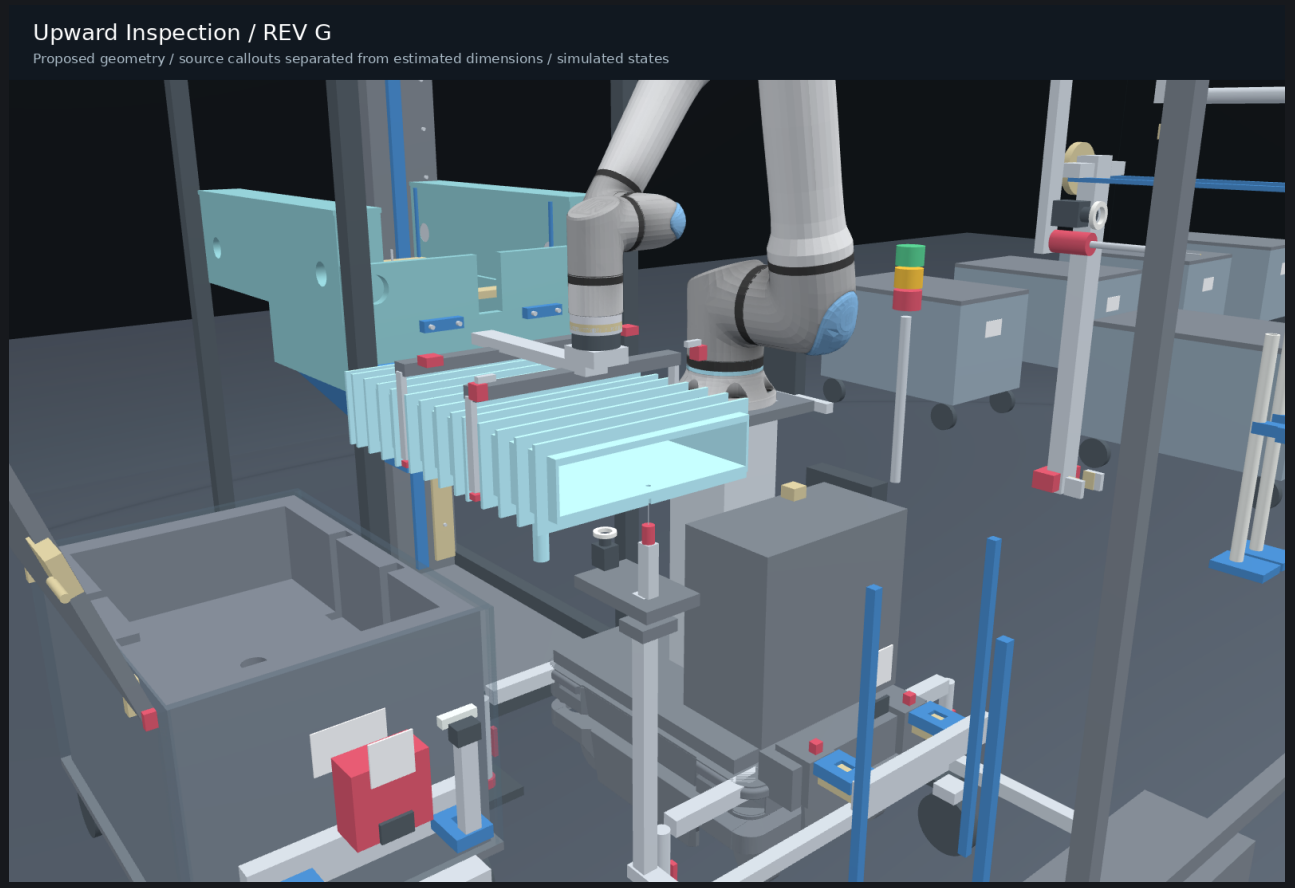
Proposed concept. Final geometry, payload and integrated ISO 7 compliance require confirmation.

Locate, change tools and pick



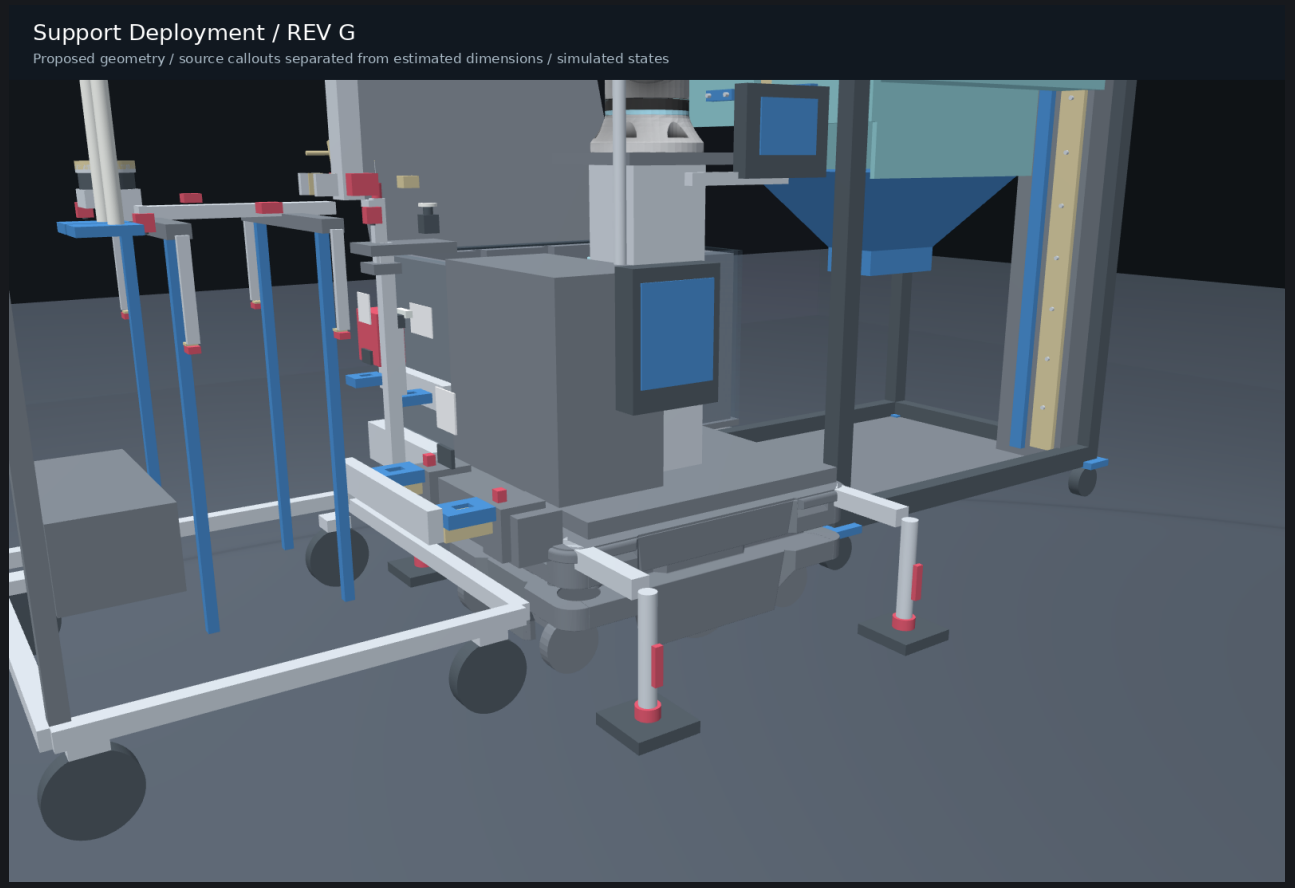
- Locate the container on floor supports; open and retain the lid.
- T1 camera + probe: check chamber datums, machine pins and tool nest.
- Change to T2; verify tool identity and lock.
- Grip at the fin slots; lift slowly. Stop if the quartz sticks to the foam.

Measure and install



- Robot moves the chamber over the fixed upward camera and probe.
- Check three holes and the seating plane after pickup.
- Align three holes to three machine pins; enter level and lower slowly.
- Monitor contact force; confirm seating before releasing.

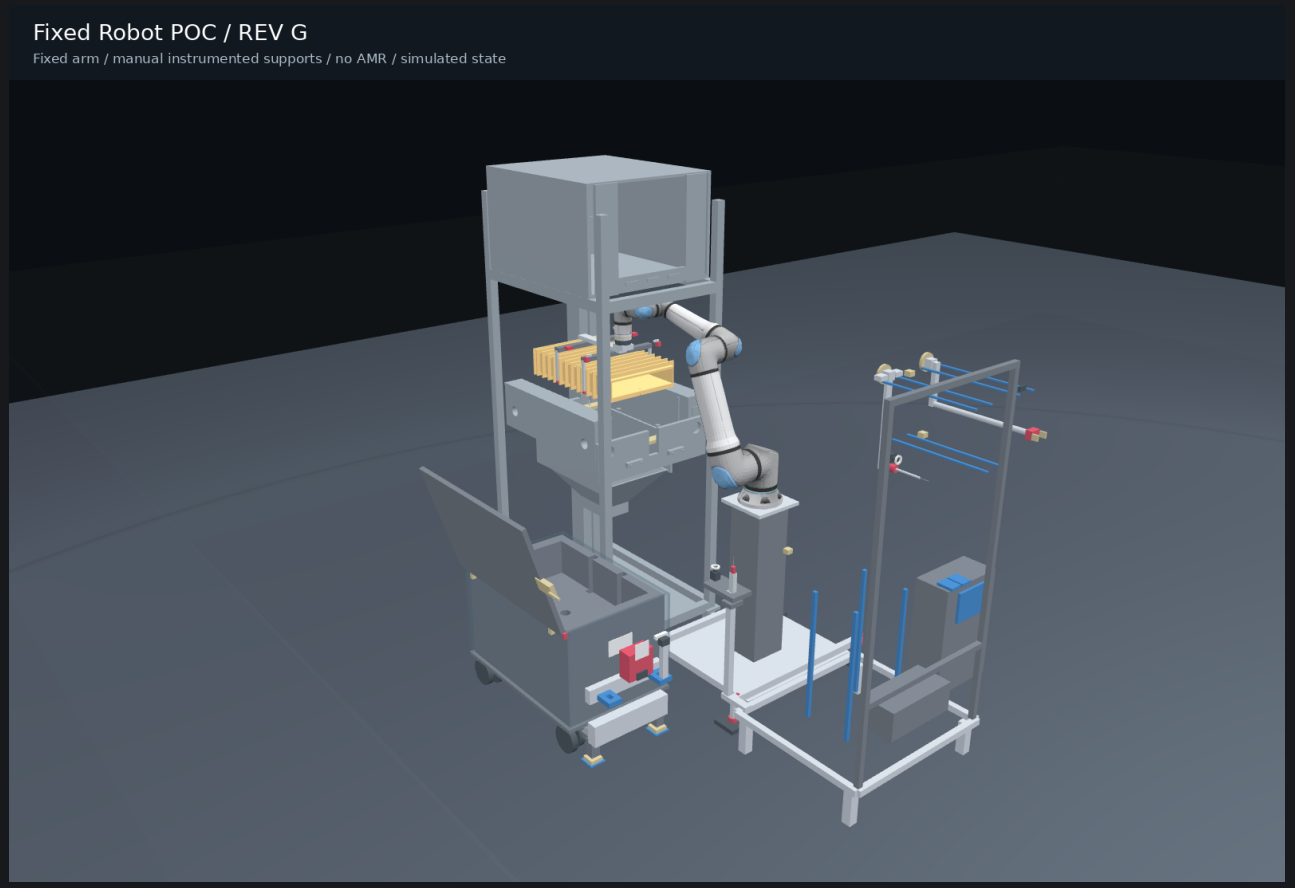
Control, stability and records



- Deploy supports; verify contact, load, tilt and sensor health.
- Overload, excessive overhang or invalid readings trigger HOLD.
- HMI shows confirmed tool, process step and fault reason; PLC coordinates devices.
- Separate safety control. Record images, measurements and faults; restart deliberately.

Unequal foot loads can be normal. Operating limits must include all supports and stopping loads.

Fixed-robot proof of concept



- Fixed UR30; machine-shaped dummy and printed chamber. No AMR.
- Exchange camera/probe and gripper; measure pins and seating surfaces.
- Repeat pick, alignment and placement through machine clearances.
- Instrumented feet: test stability alarms, force stops and recovery.

Printed parts test the method and clearances; real quartz trials are needed to set handling limits.

Optional functions and next step

- Box carrier: identify one box, transport it and transfer its weight to stands.
- Inspection trolley: camera, probe and laser for dimensions and defect checks.
- Optional robot lid opener and removable guiding fixtures.
- Next: agree POC trials; confirm CAD, fits, mass, force limits and cleanroom requirements.

Concept geometry includes estimates; MiR250 uses a community reference model. Final OEM CAD required.