





Testing the use of a hook to position VCR joint on top most water line



Resting 'misalignment' on this line when not done up. Purchased shaft clamp (McMaster 9648T5) works well to keep the nut from falling too far, also works for u-bend on the second to bottom line. The clamp does not cause the line to catch when being exchanged.



Ratchet and 12-point secure crow's foot wrench can be used in this location for low clearance tightening operations.



If VCR gasket gets dropped for the top most water line, there is a high chance that it drops to this hard to reach location.



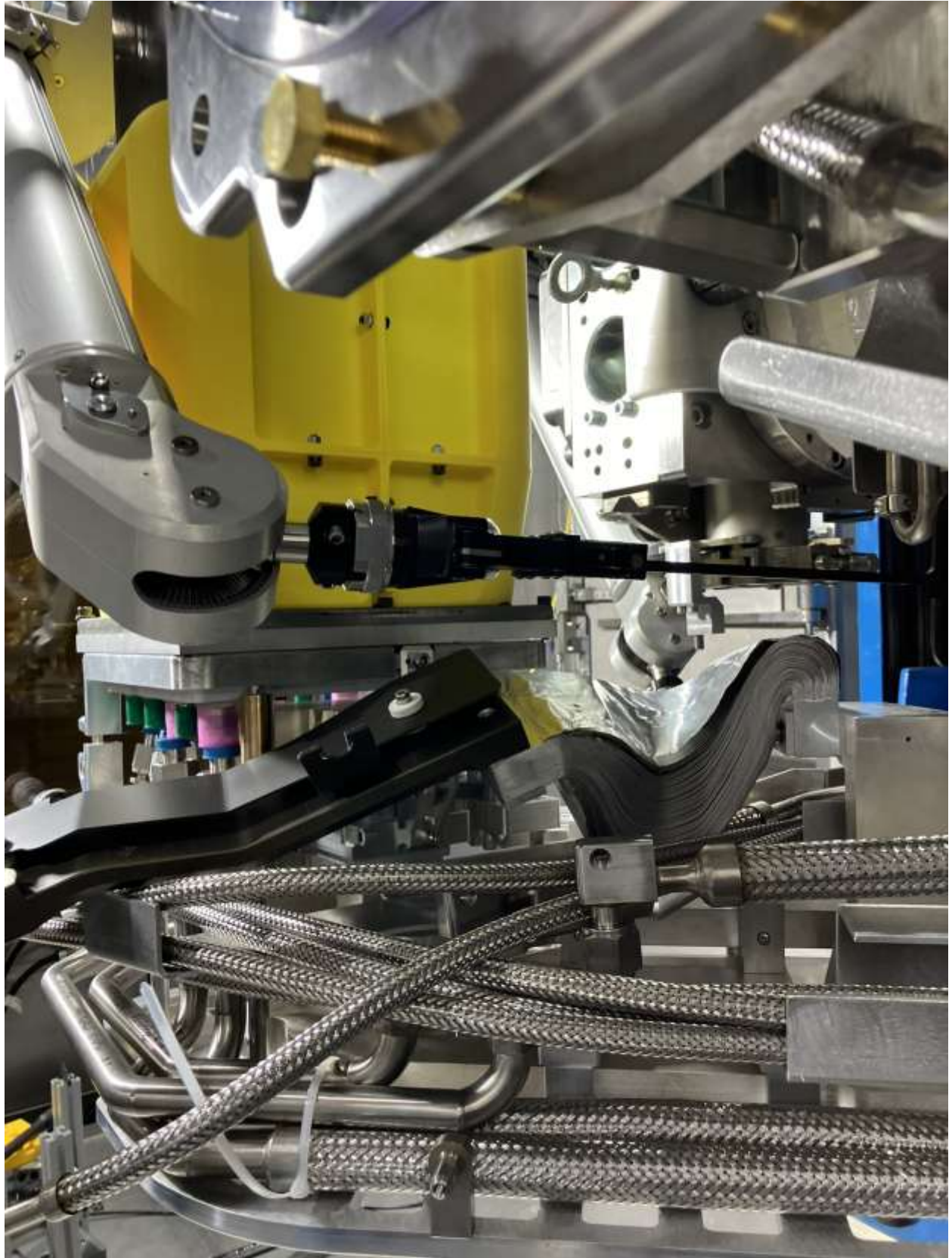


Illustration of how 'deep' the VCR joint on the top most water line is, as viewed from the hot cell window.





Female side of second lowest water line is hard lined so we don't need to worry about the clamp catching when performing a line exchange. Though, it may catch the bottom most water line when it is being exchanged.

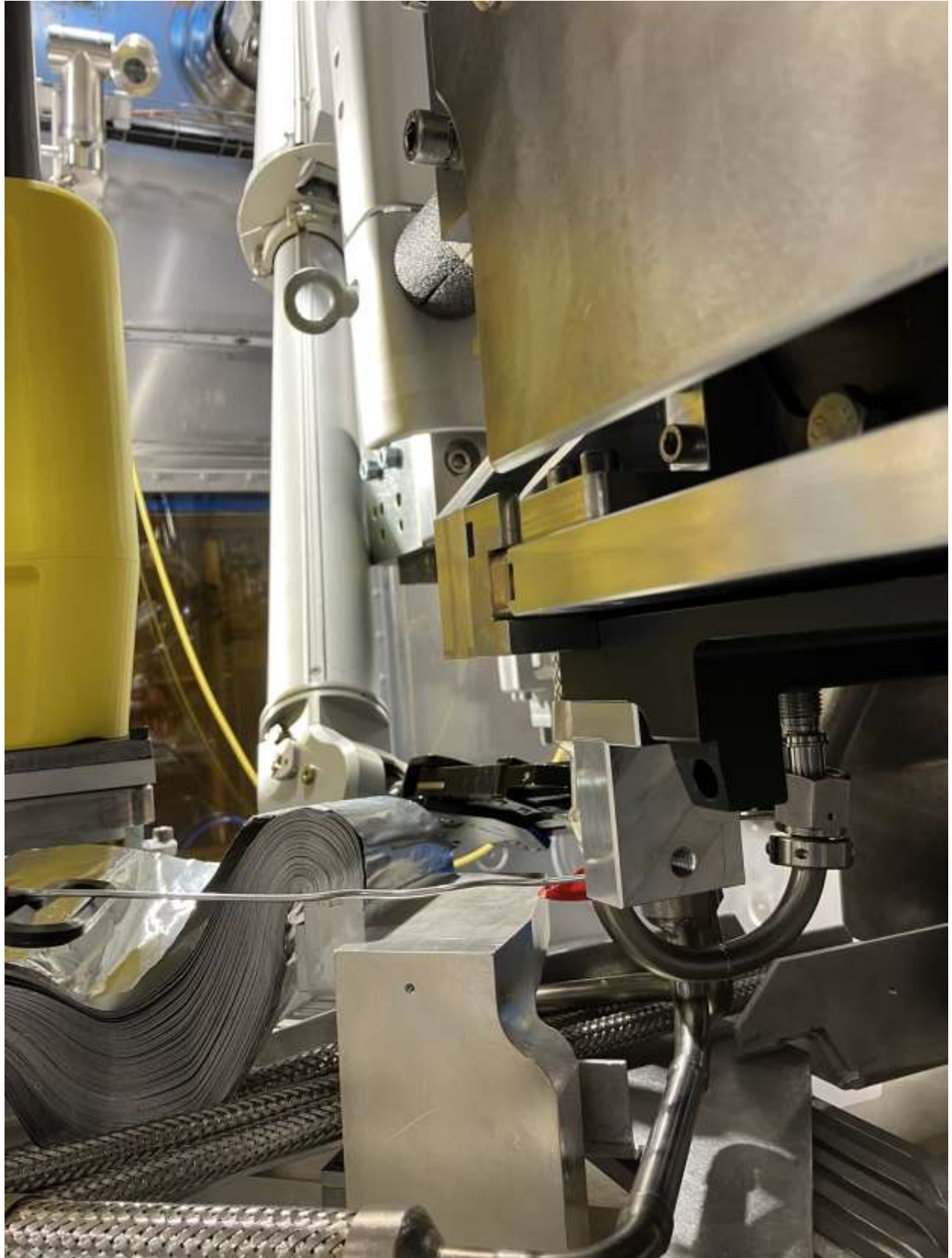






Using hook from one side to position the female VCR side.









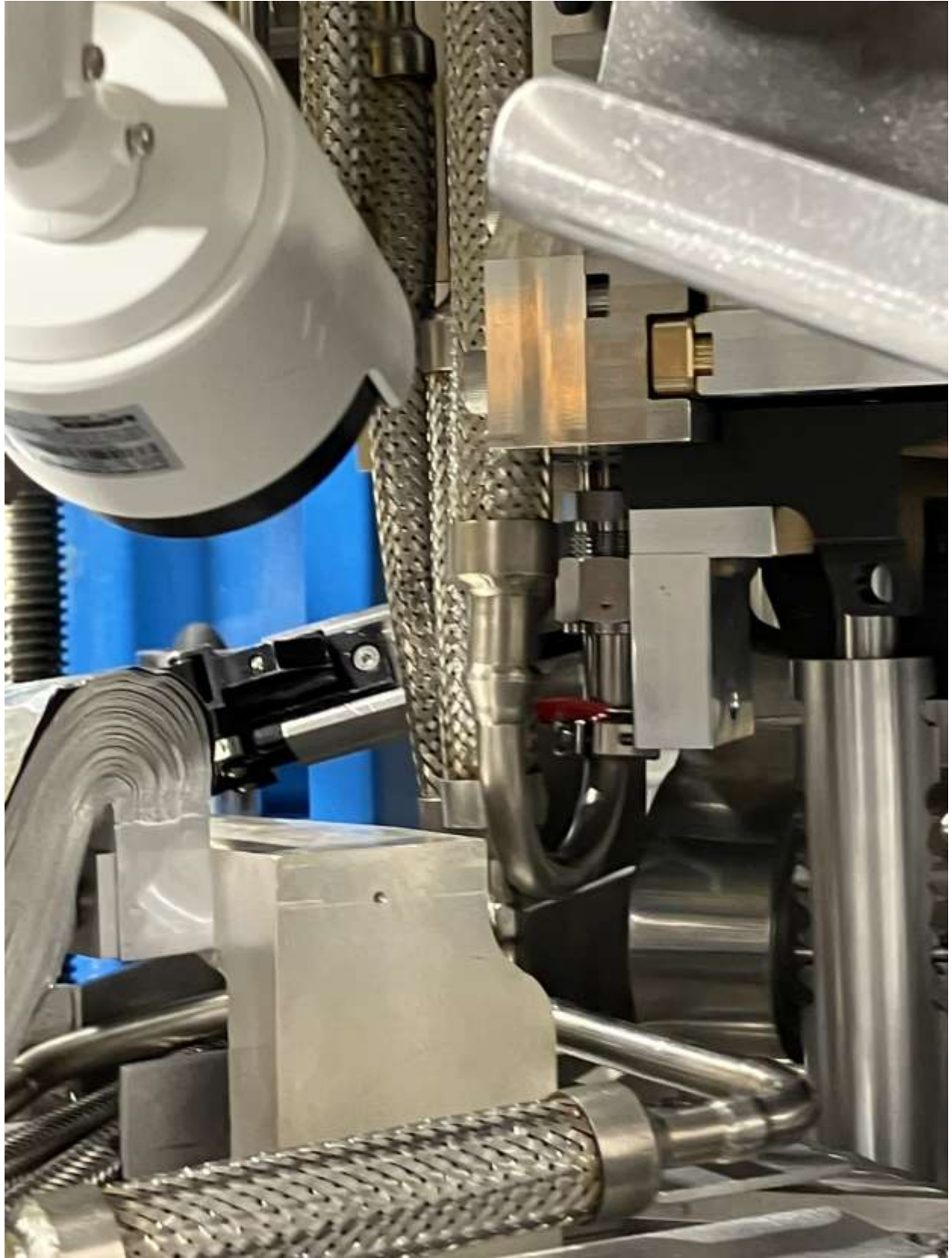
Changing position of hook access.





Cramped space when trying to re-start the nut with the starter tool.

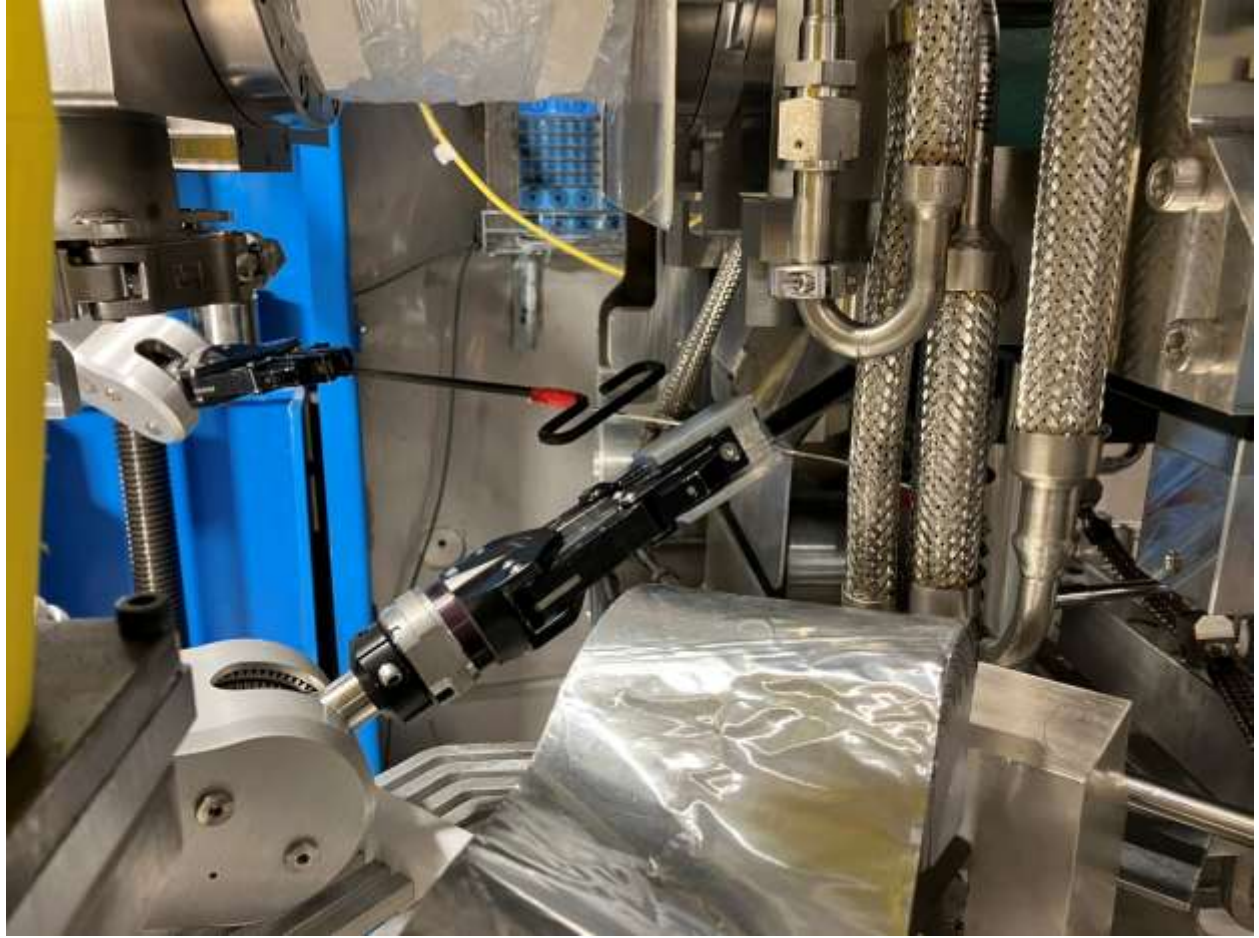






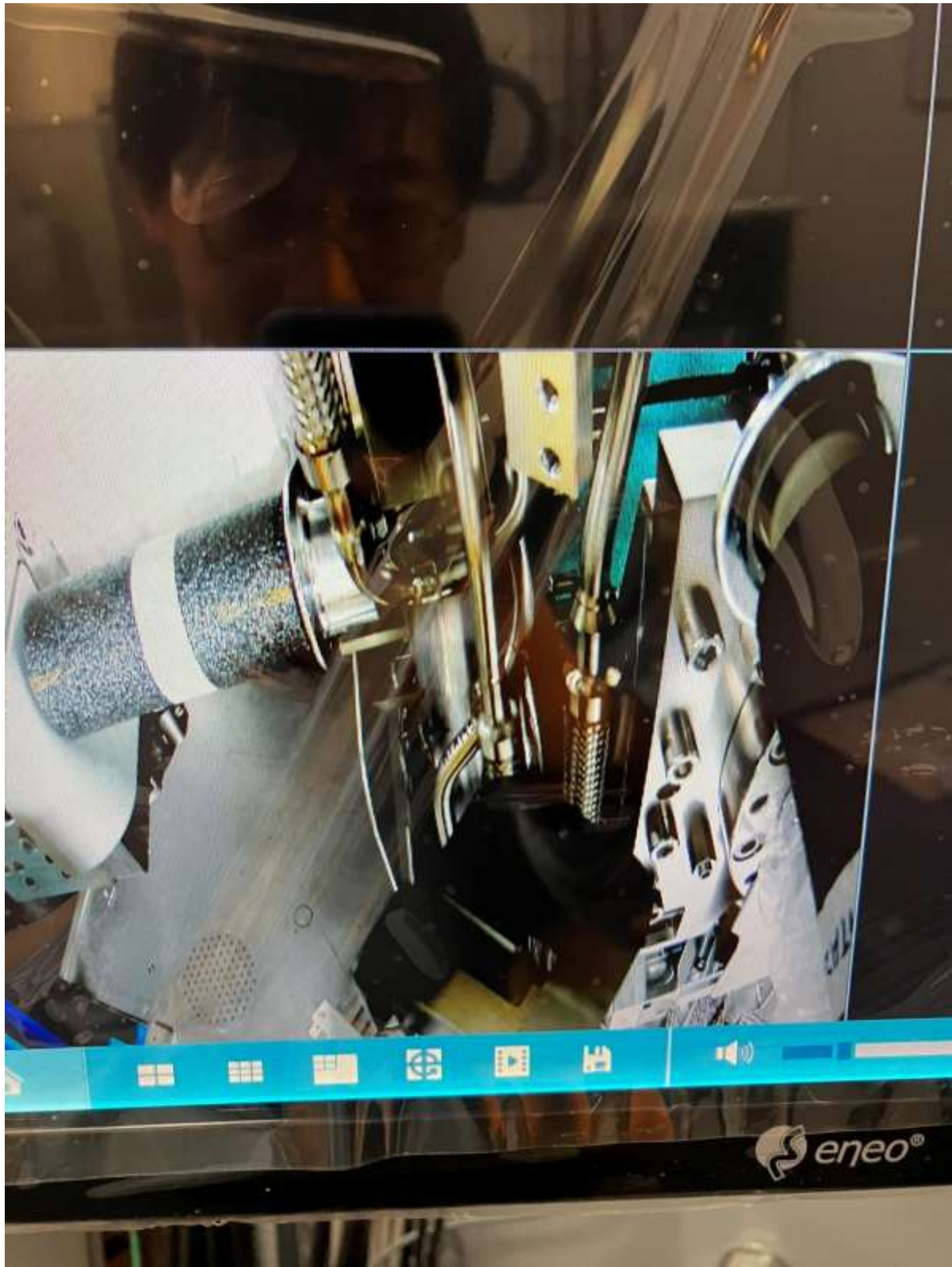
Nut successfully restarted.







'makeshift' tool tray setup to return the busbar, camera battery died but busbar was successfully returned



Sample pick and place camera view for busbar return.

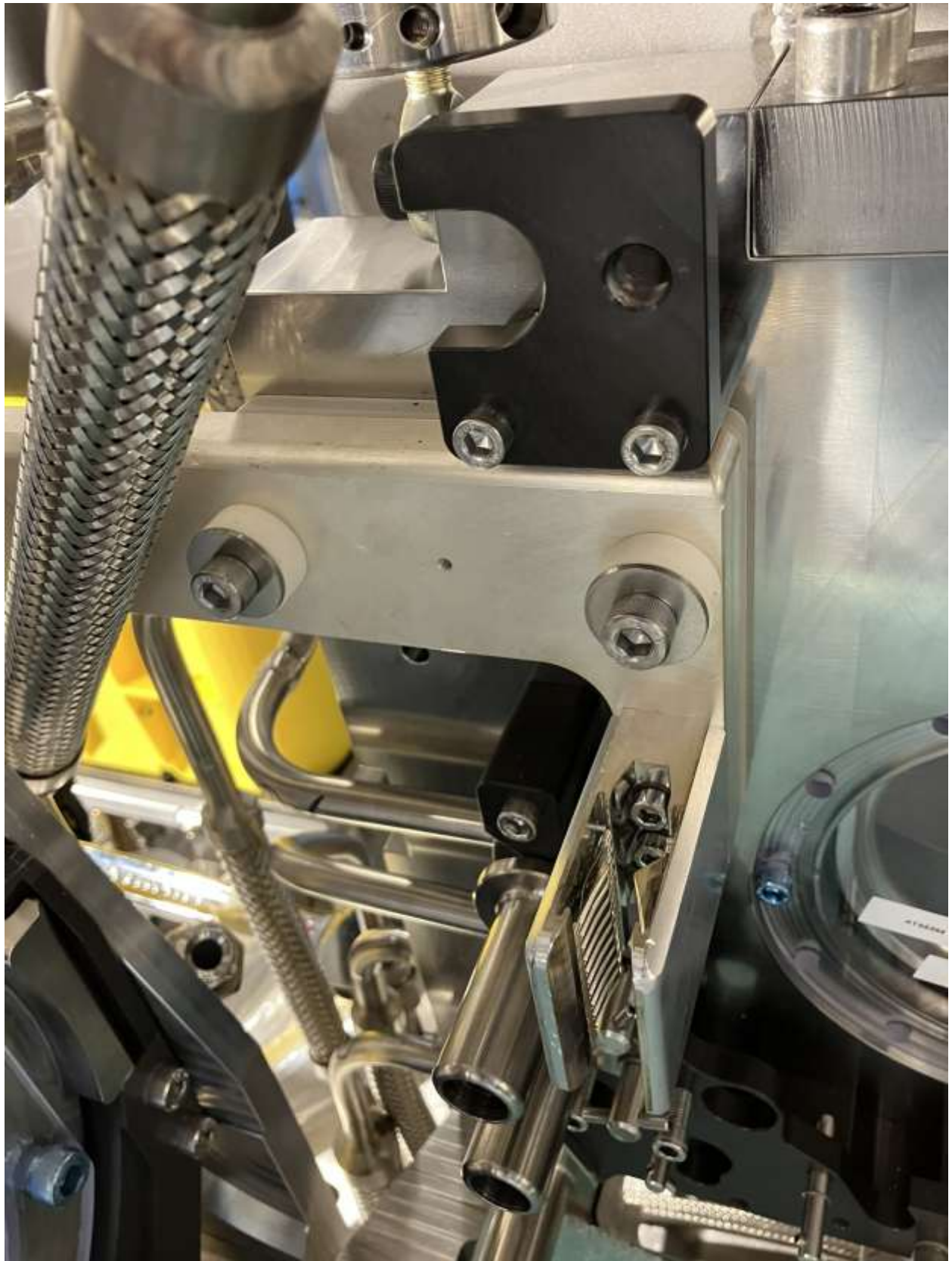


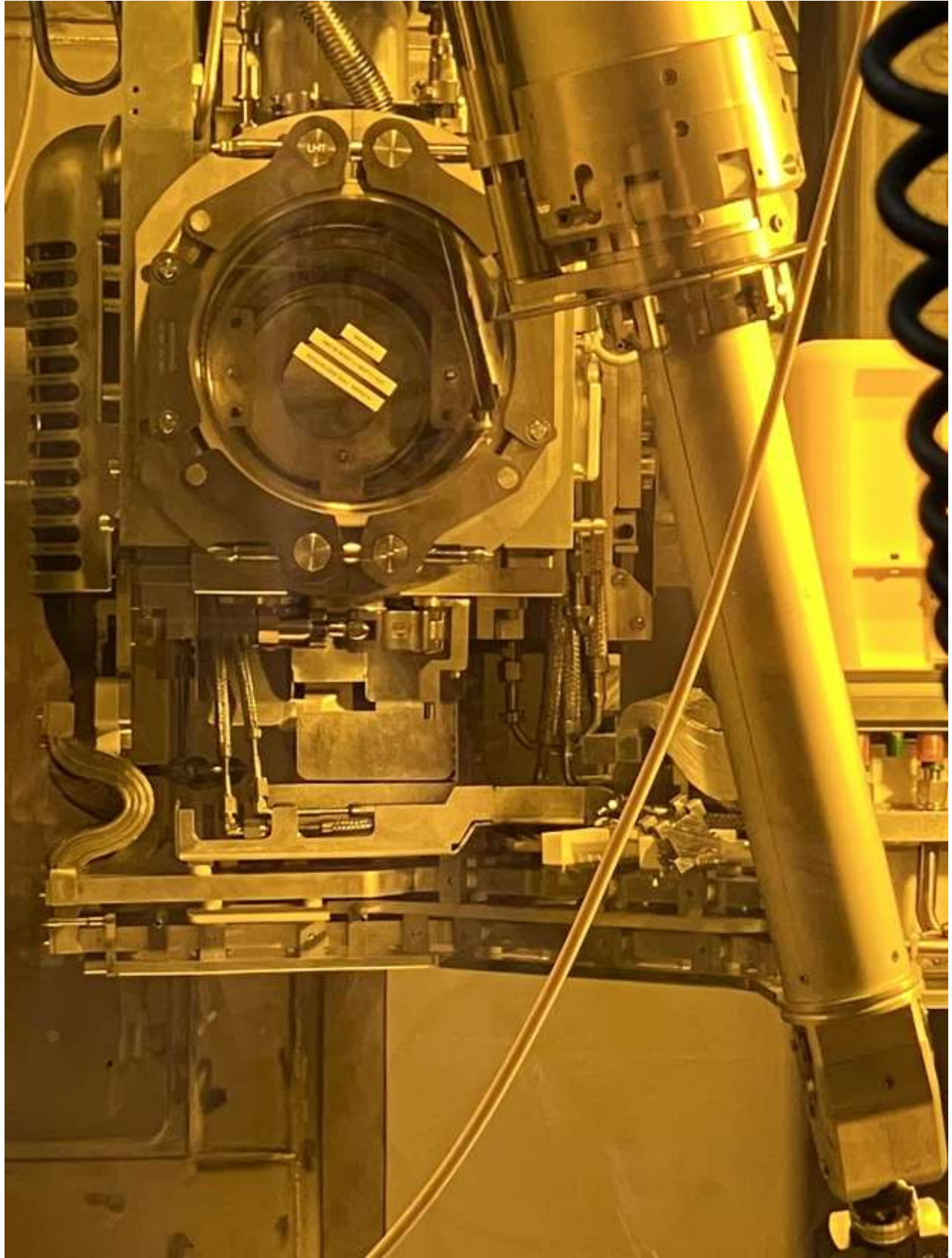




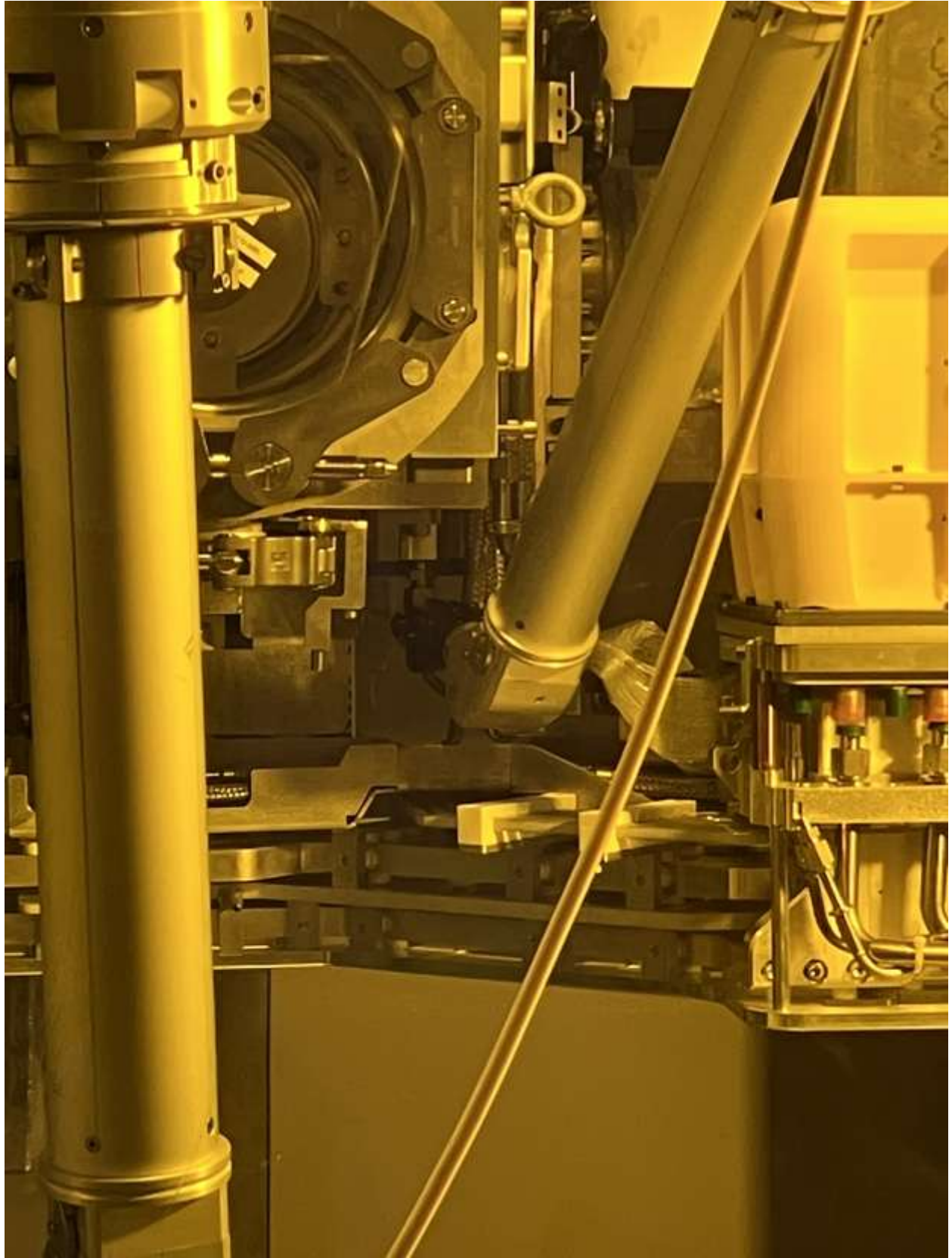


Top most VCR line could be removed and returned with the busbar out, while clamp is still on.











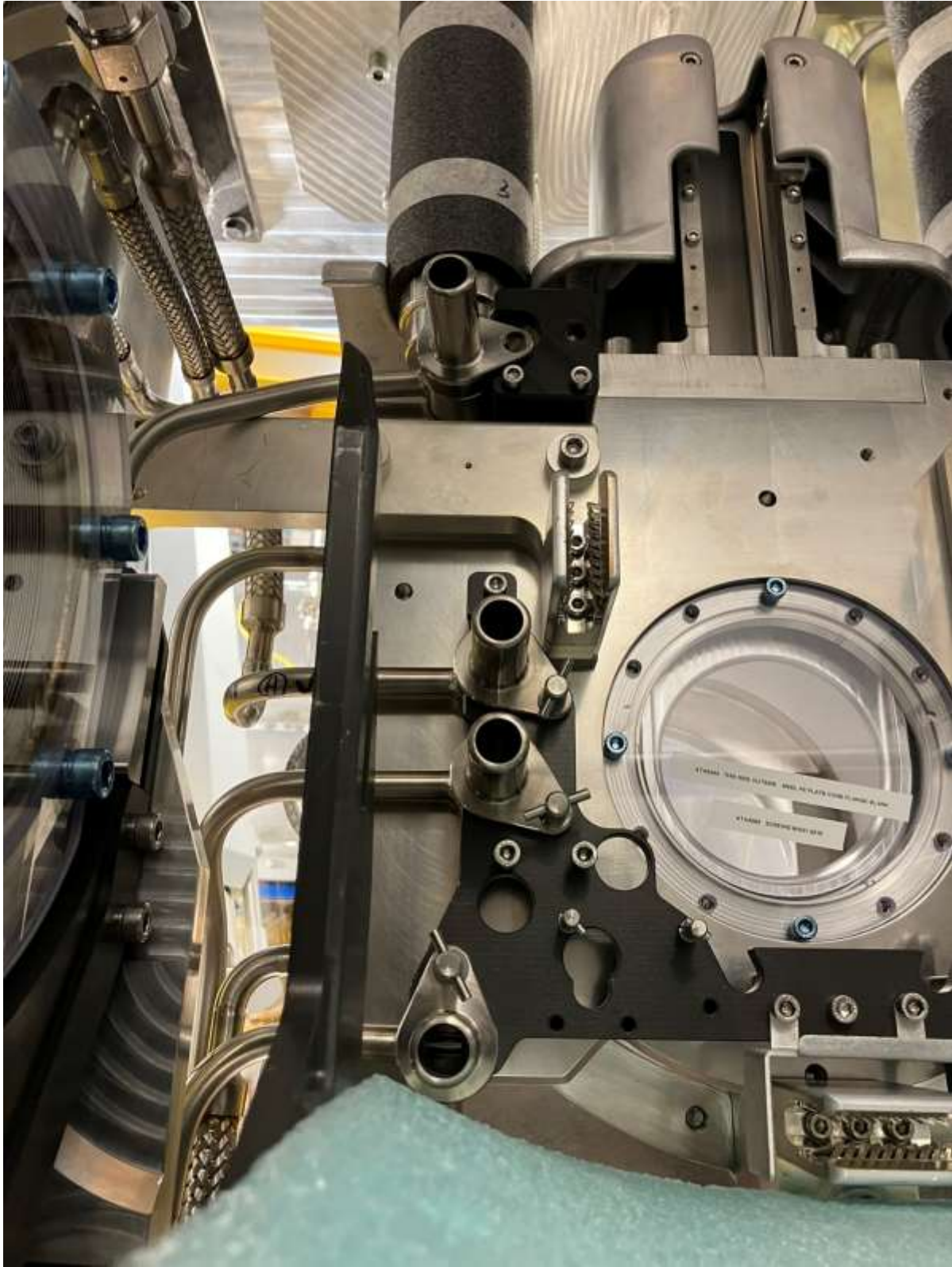




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By pushing the flexible line out of the way (pin still attached at dynamic PEEK seal face), we have enough access to insert a VCR gasket to the fixed male VCR.



Pin should stay on the top most VCR line during gasket insertion and re-establishing the VCR joint.

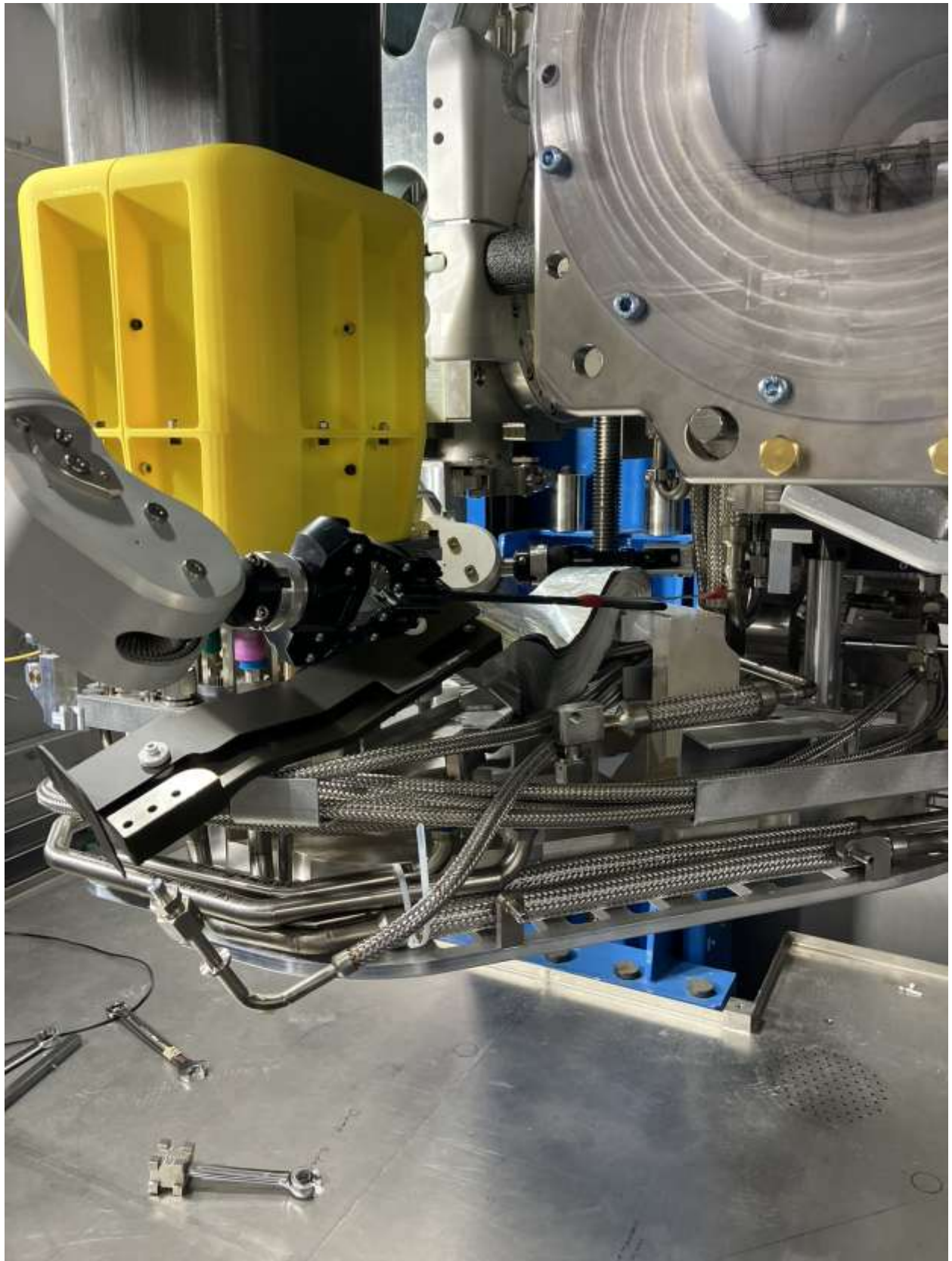


Reach of existing sheet metal barely enough to reach top most water line's VCR joint.

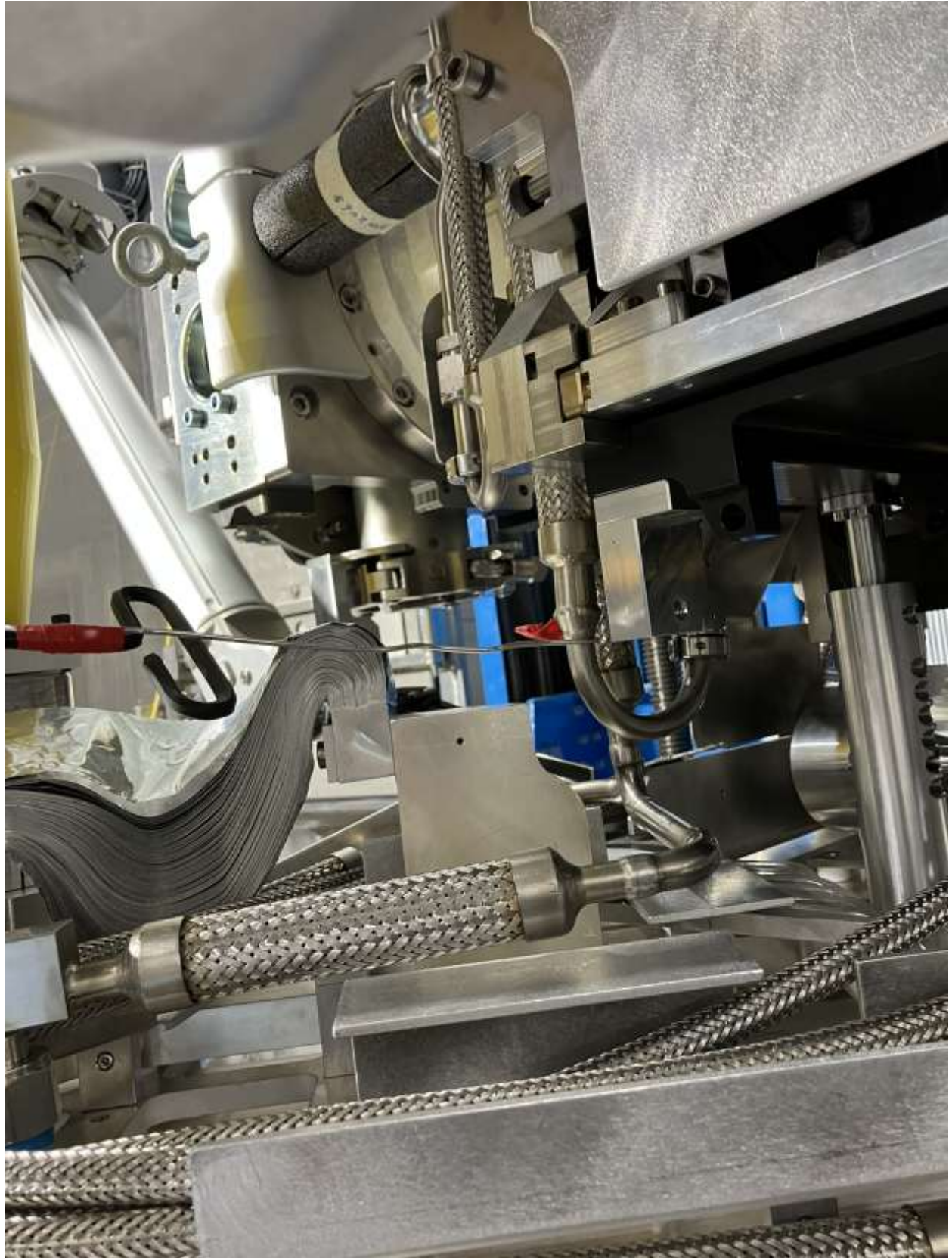


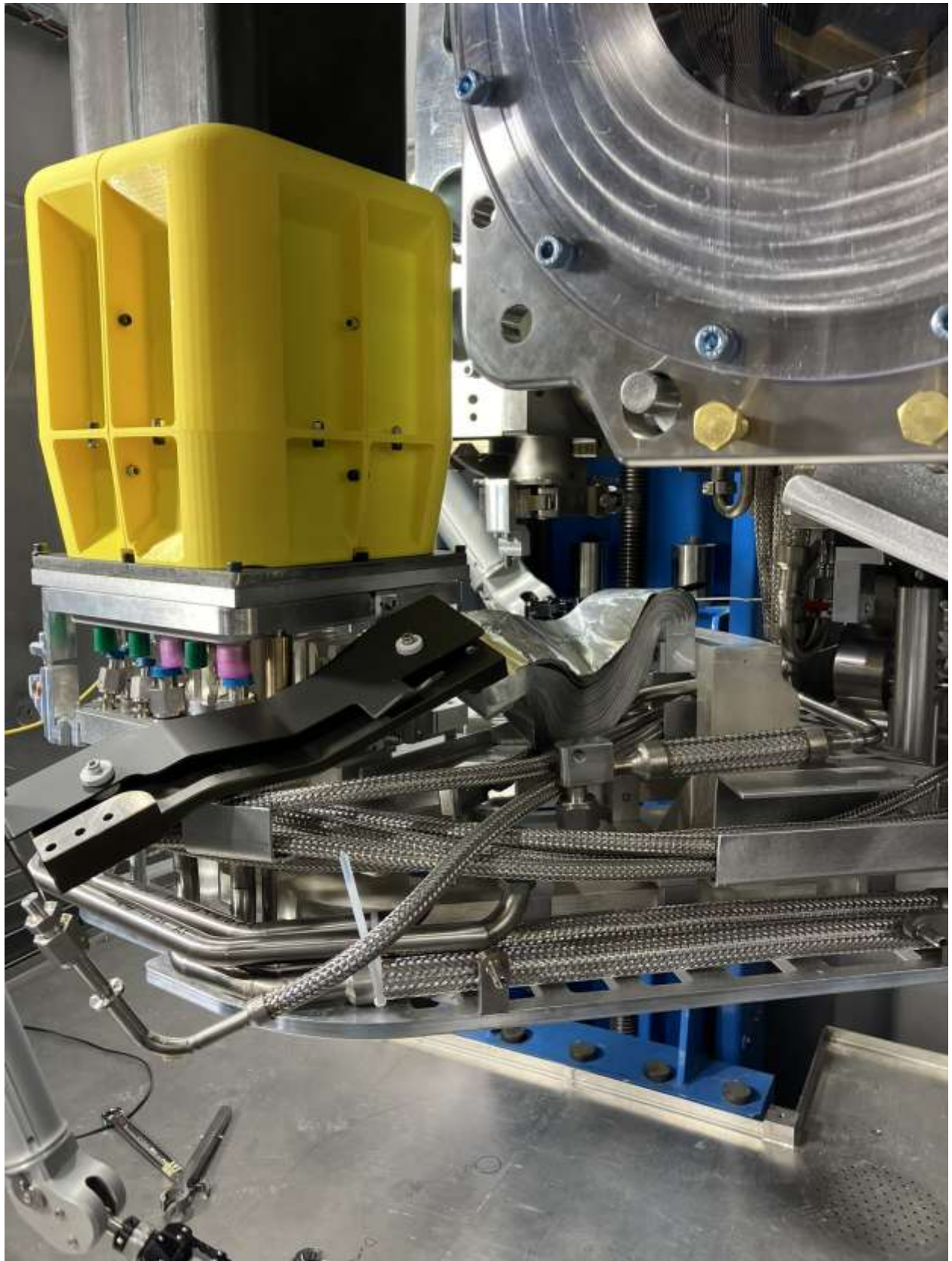
Standard T-handle tool not sufficient to access VCR joint on top most water line for positioning (butts up against HVFT).

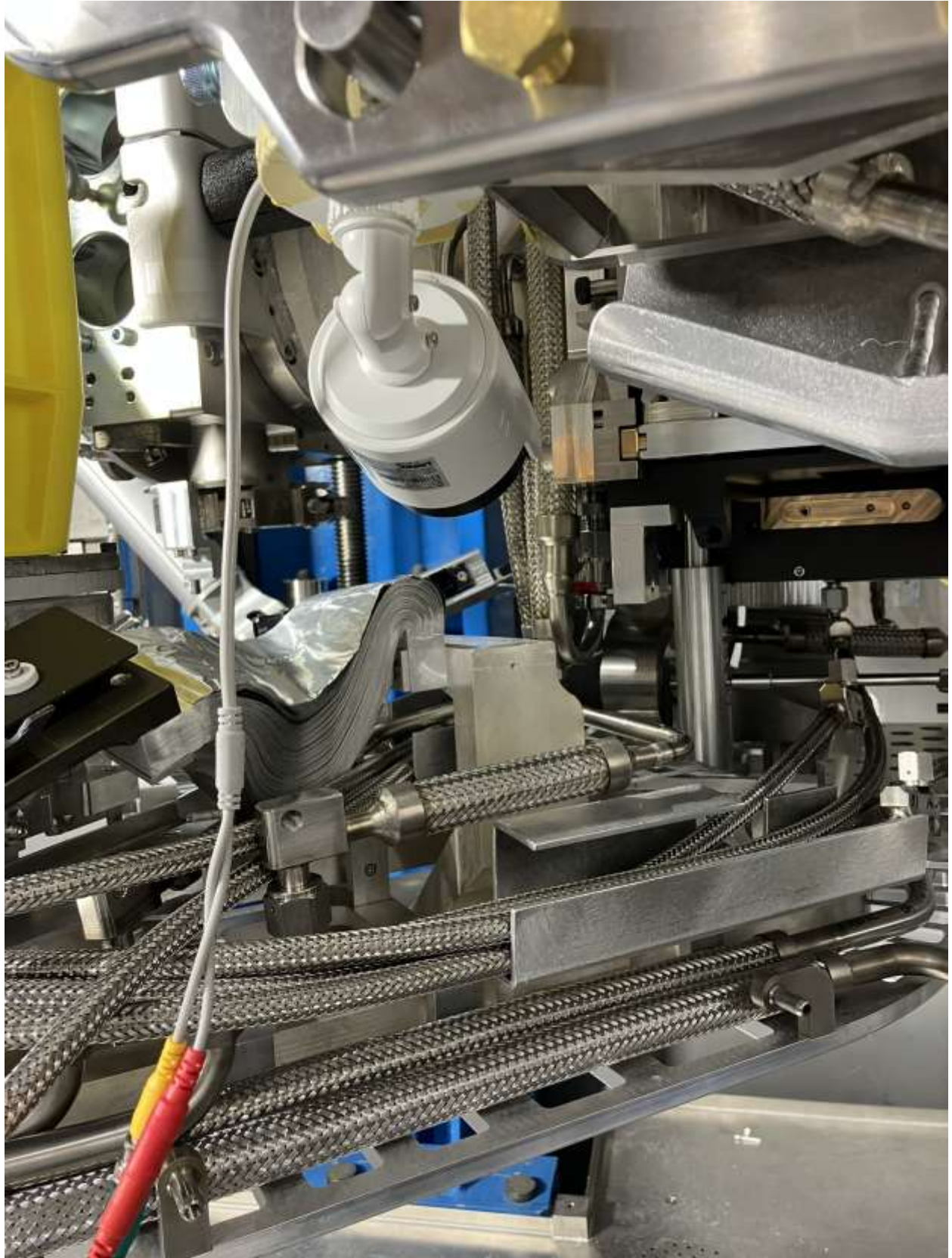
























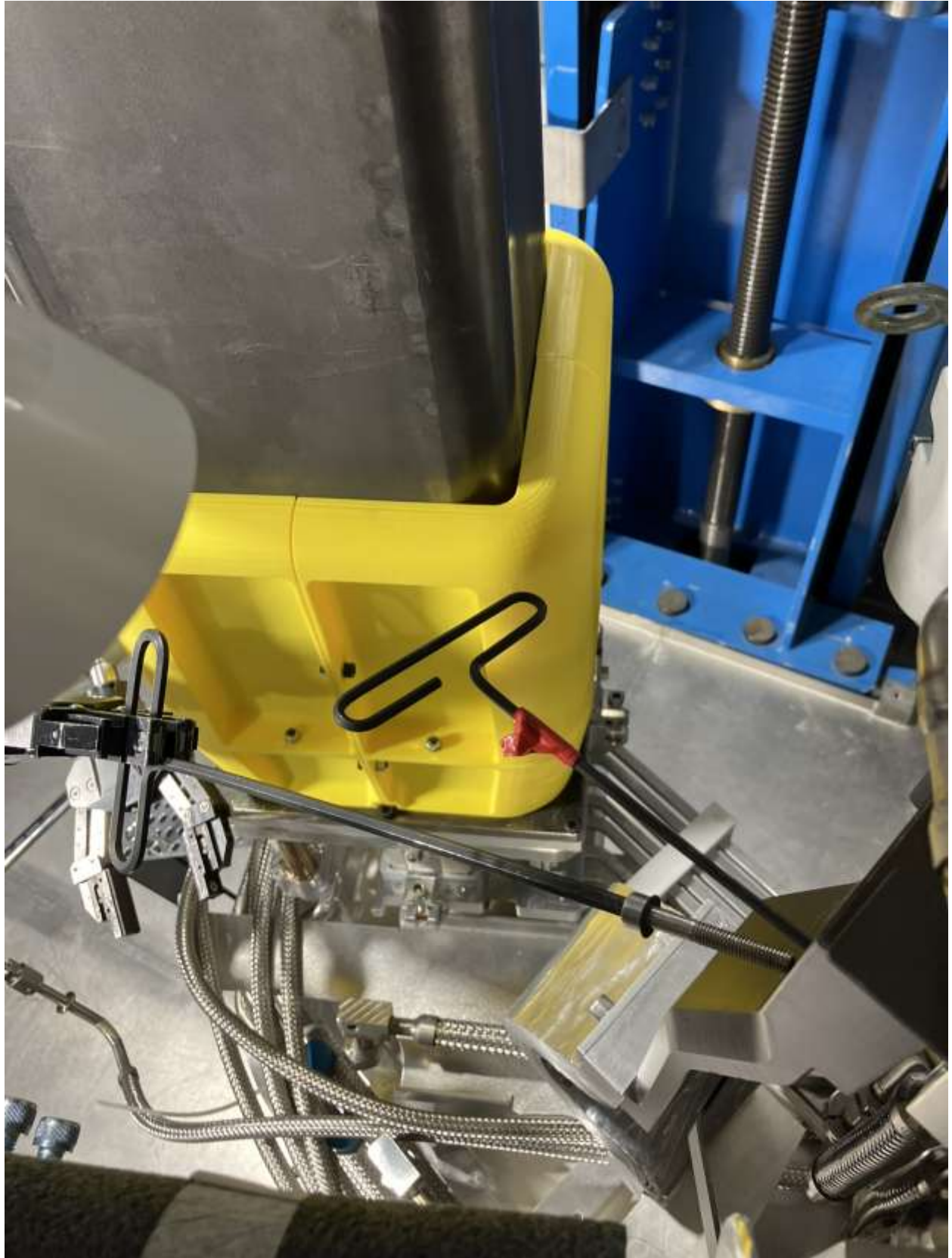
A ceramic screw broke from a dropped wrench when we first undid the top most water line's VCR joint.

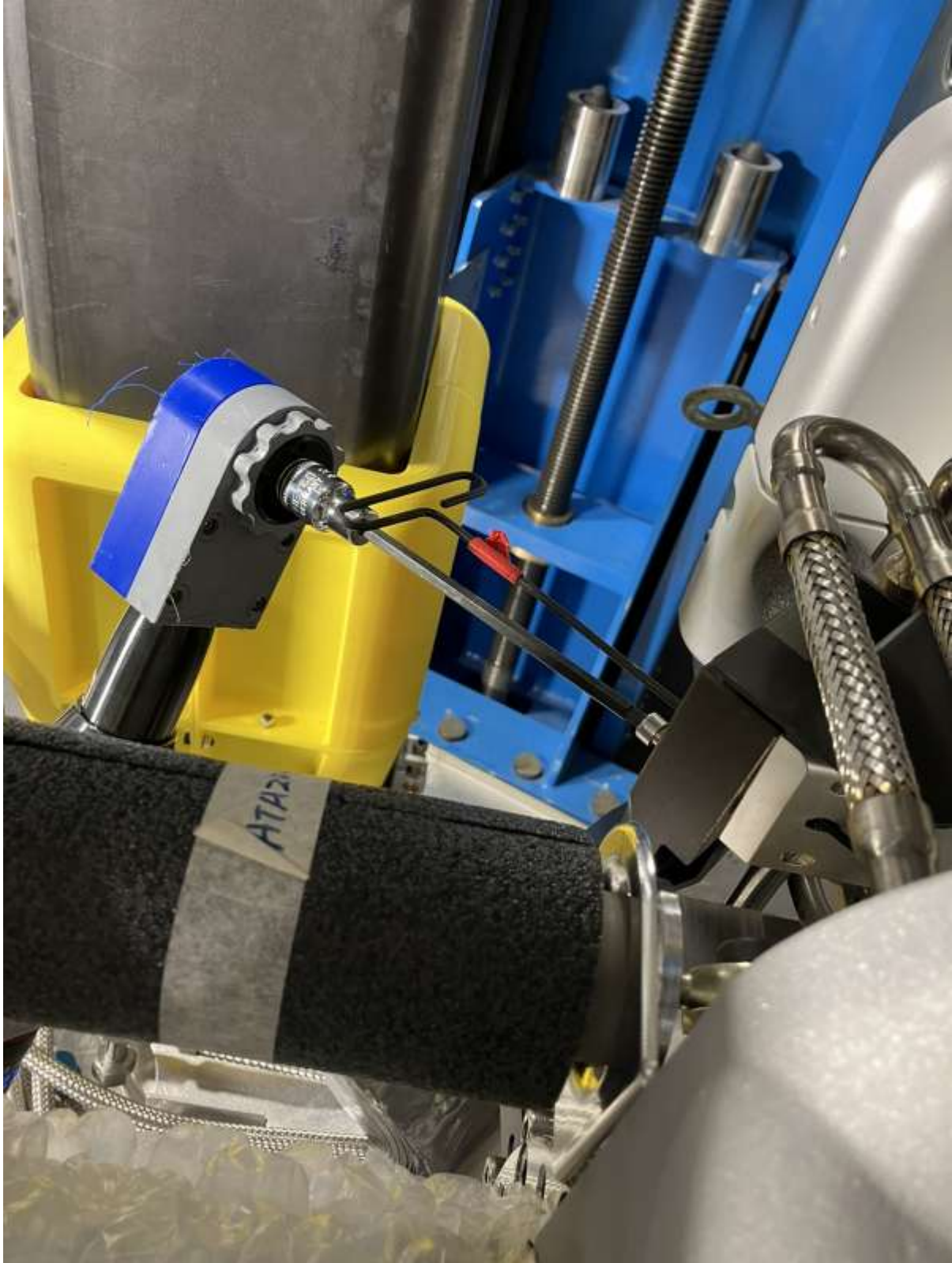




'Pinning' a screw hole on busbar.

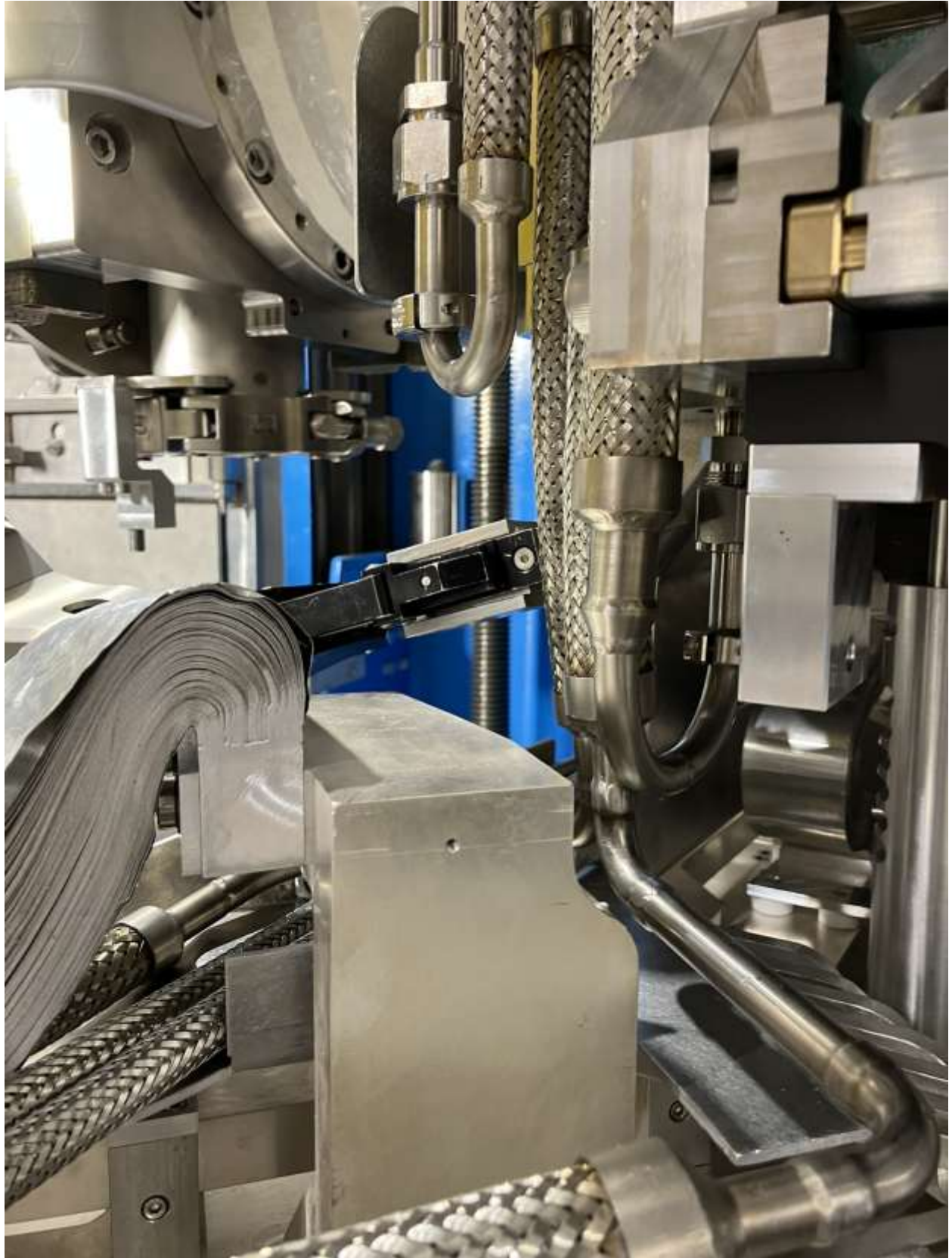






Driving screw to torque tool and extra length socket key.























Some interference possible between full size wrench and male side of VCR joint on second to bottom water line.





