



UNIVERSITY OF LISBON
INTERDISCIPLINARY STUDIES
ON SUSTAINABLE ENVIRONMENT AND SEAS

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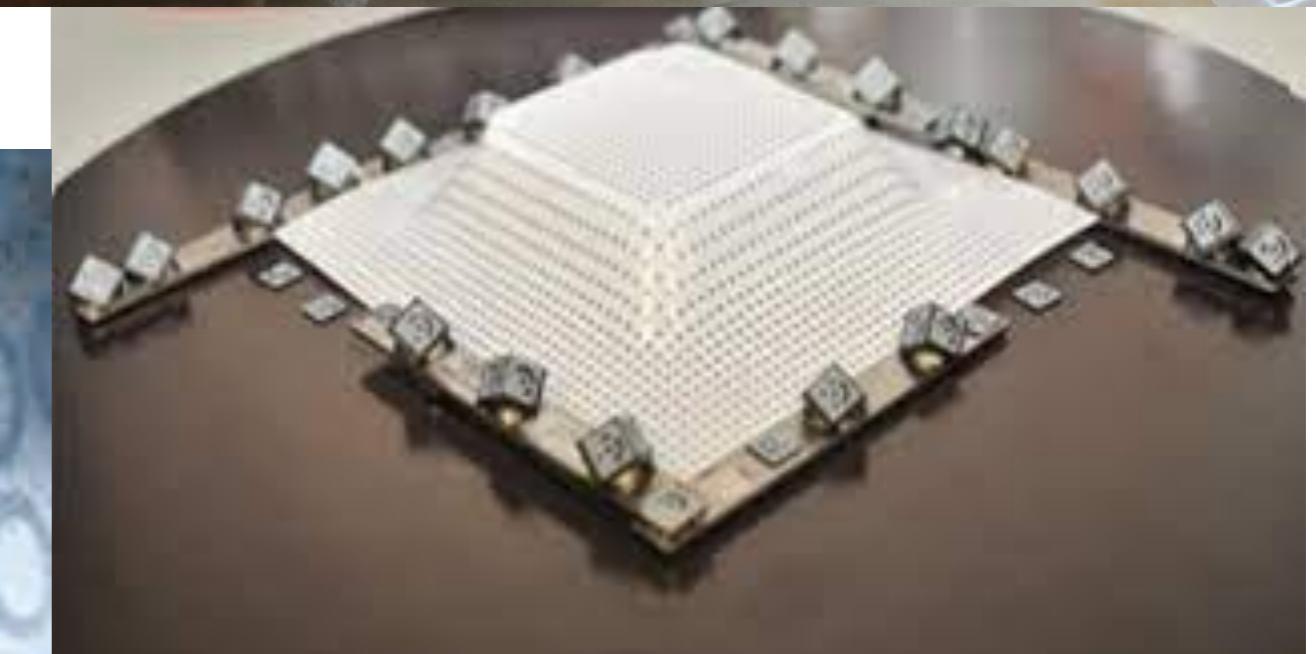
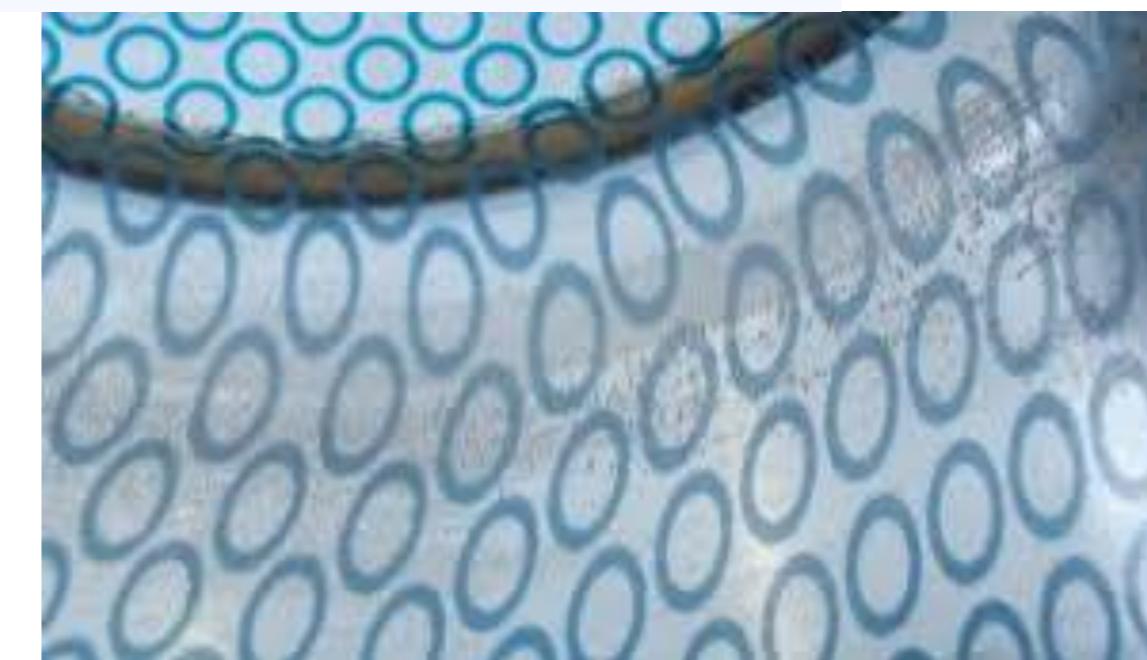
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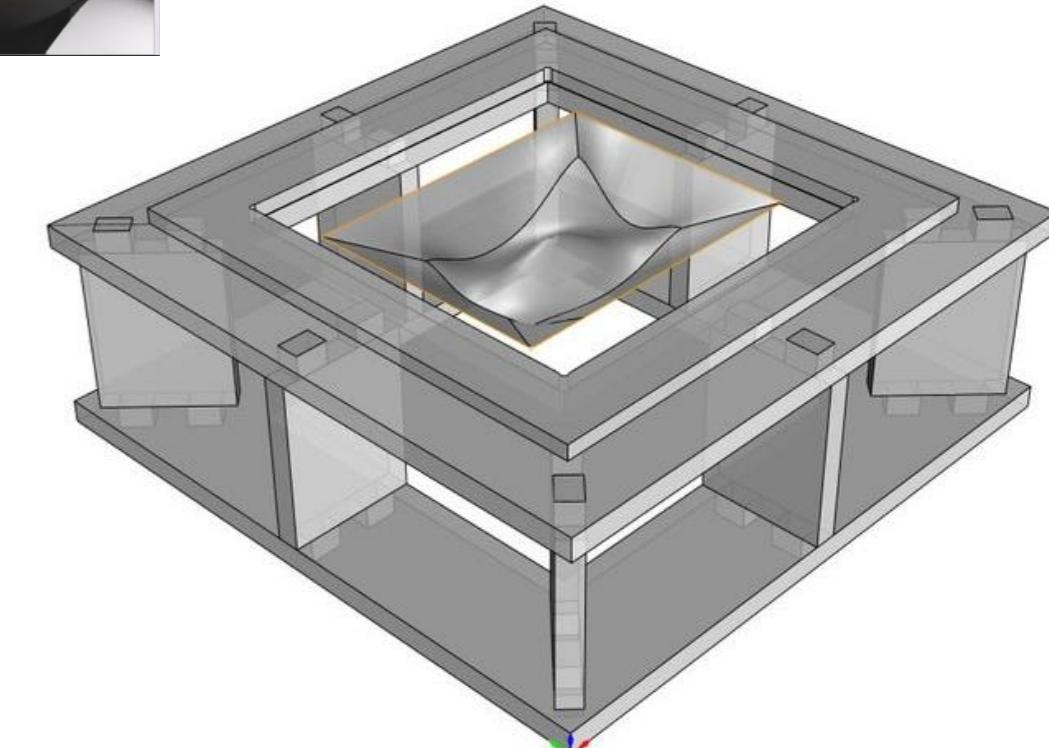
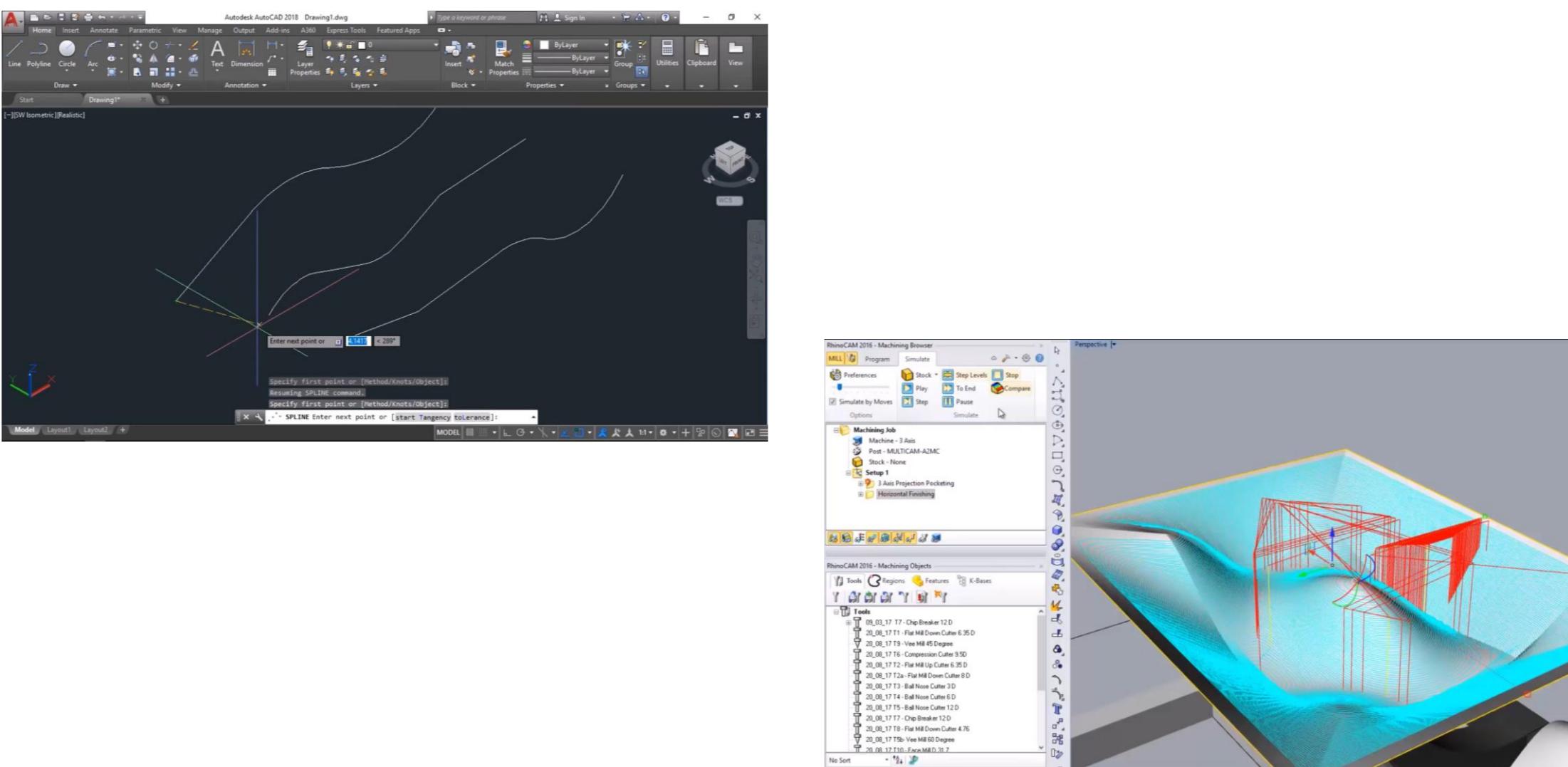
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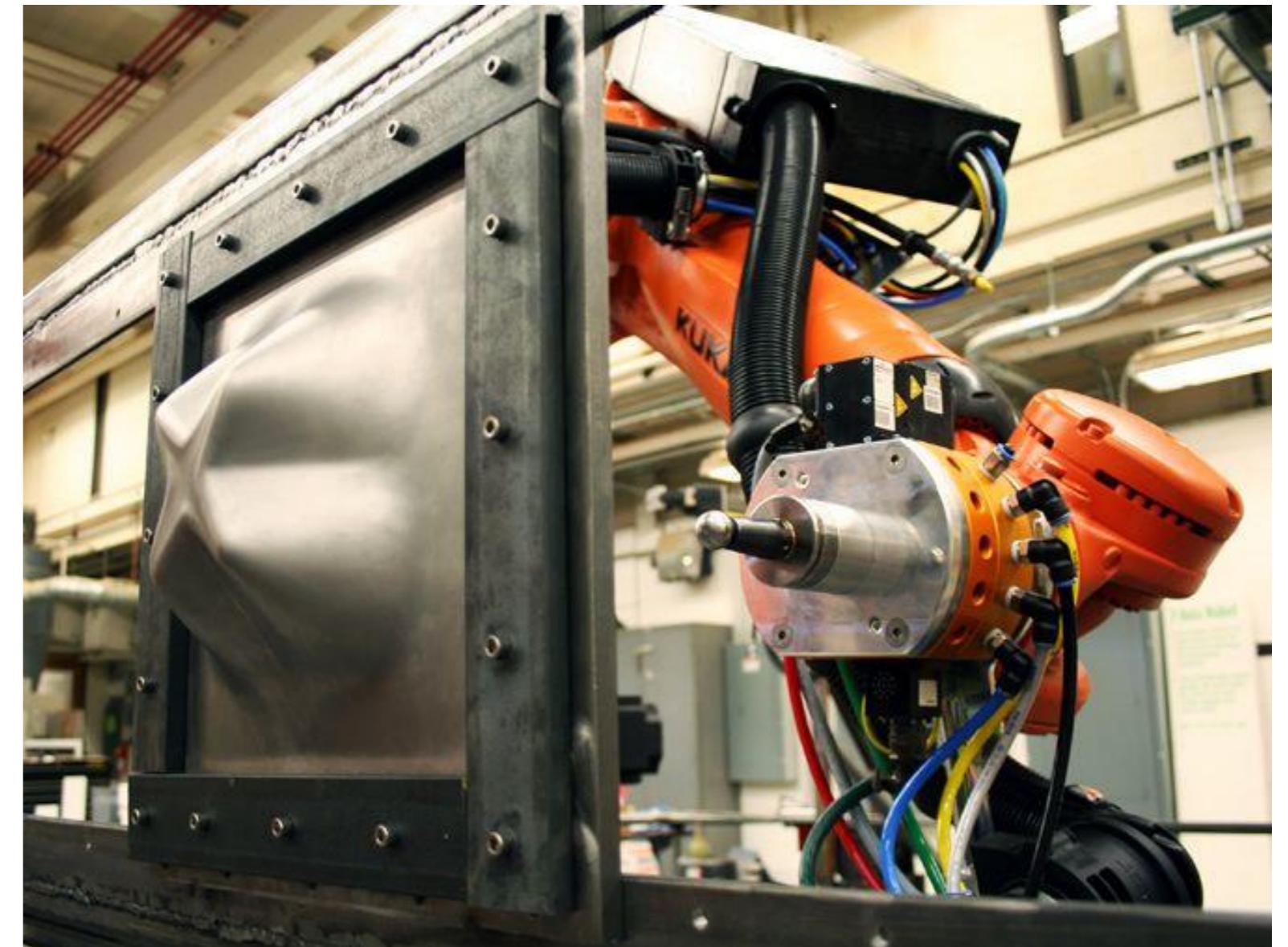
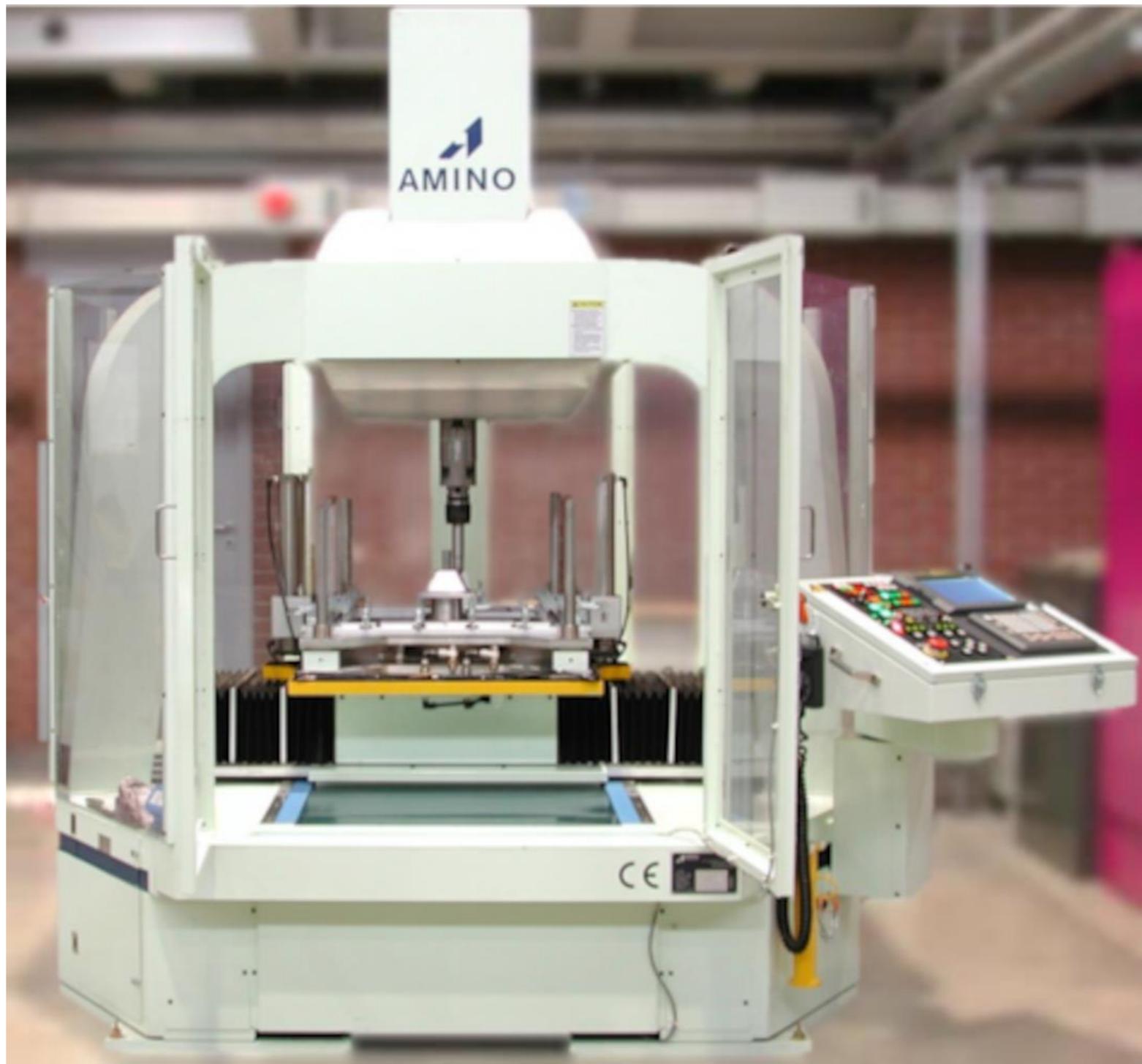


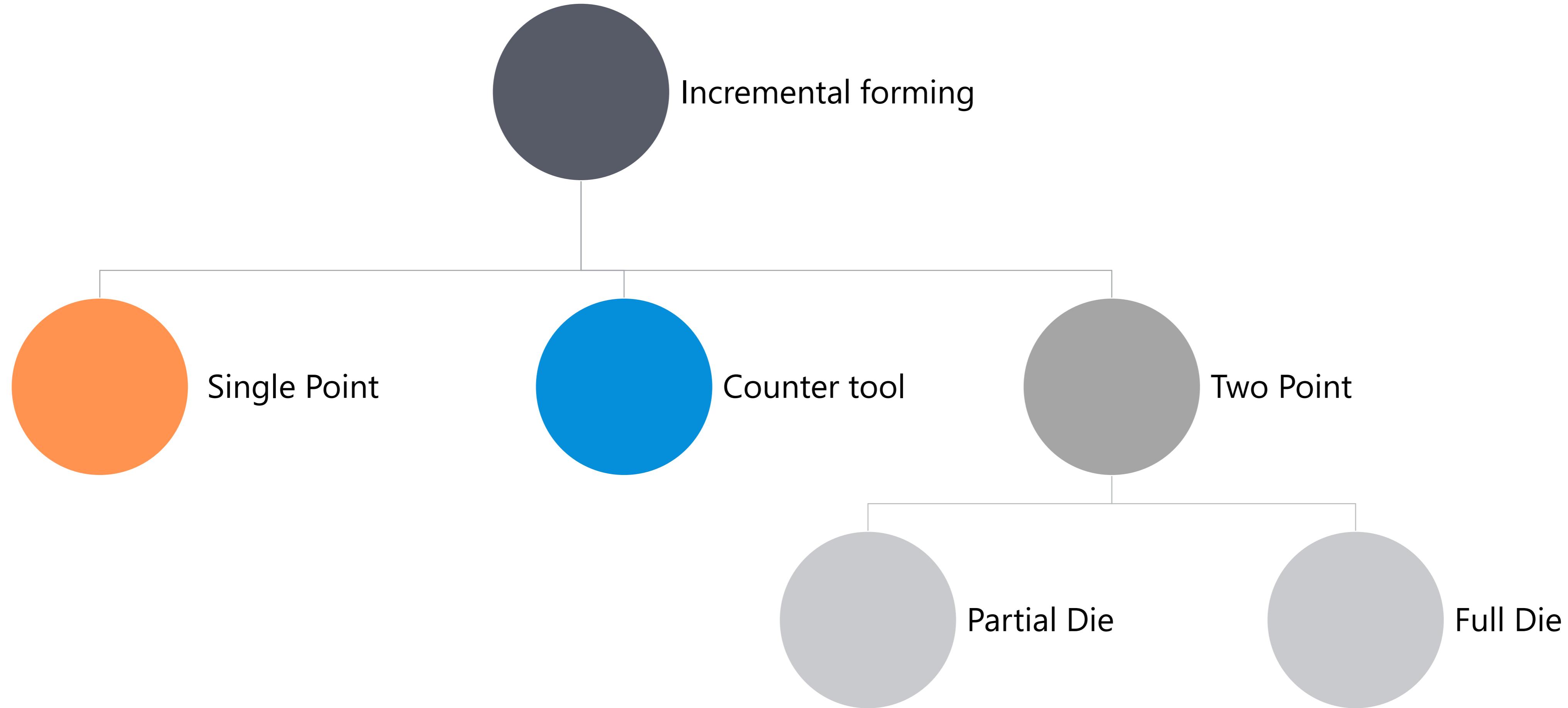
Incremental sheet-forming processes are characterized by progressively applying plastic deformation to materials, where the sheet is clamped rigidly around its edges but is unsupported underneath and formed by a round-ended forming tool, which describes the contour of the desired geometry.

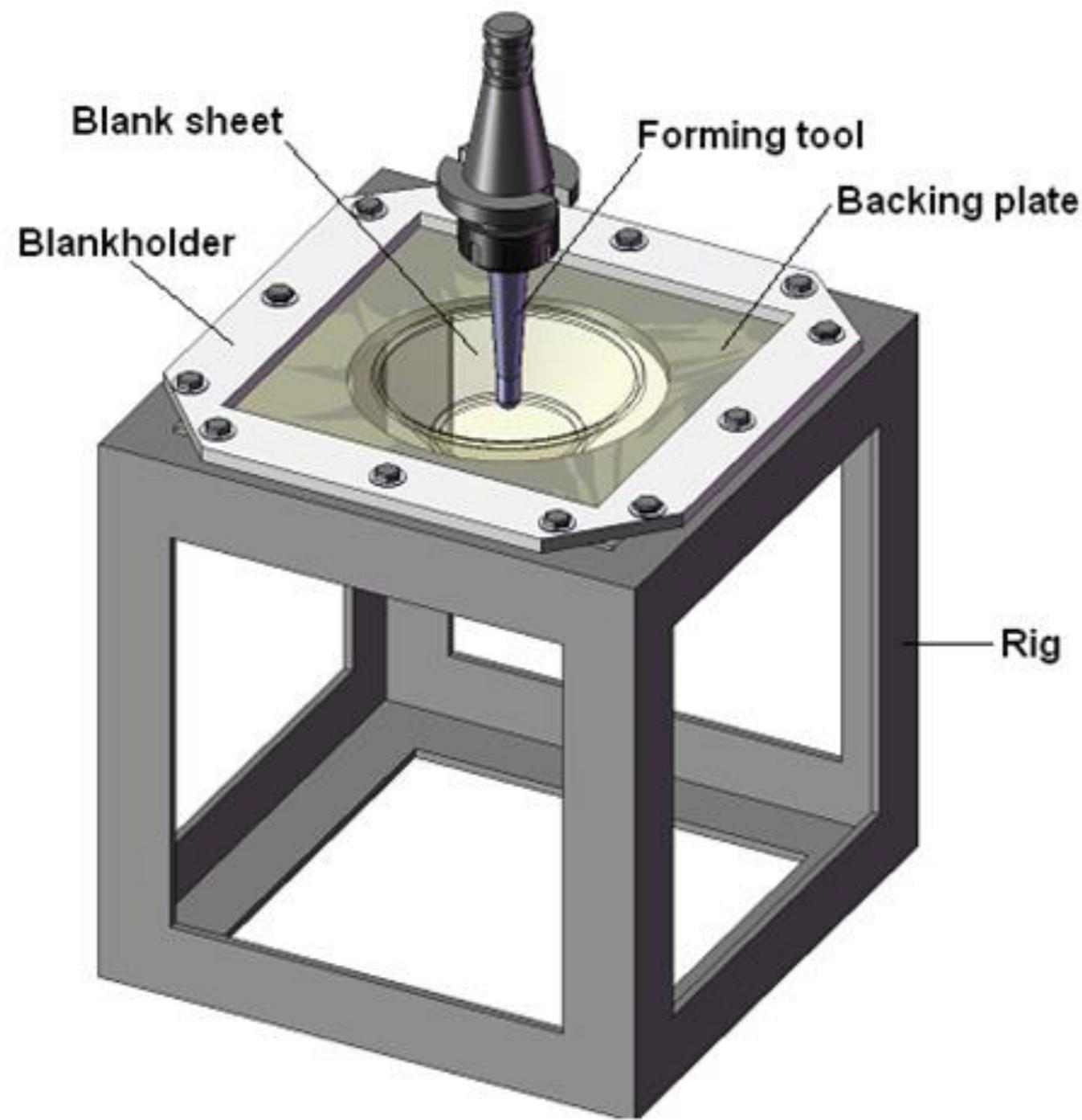


1. CAD model
2. CAM tool trajectories
3. Clamping
4. Forming
5. Final object

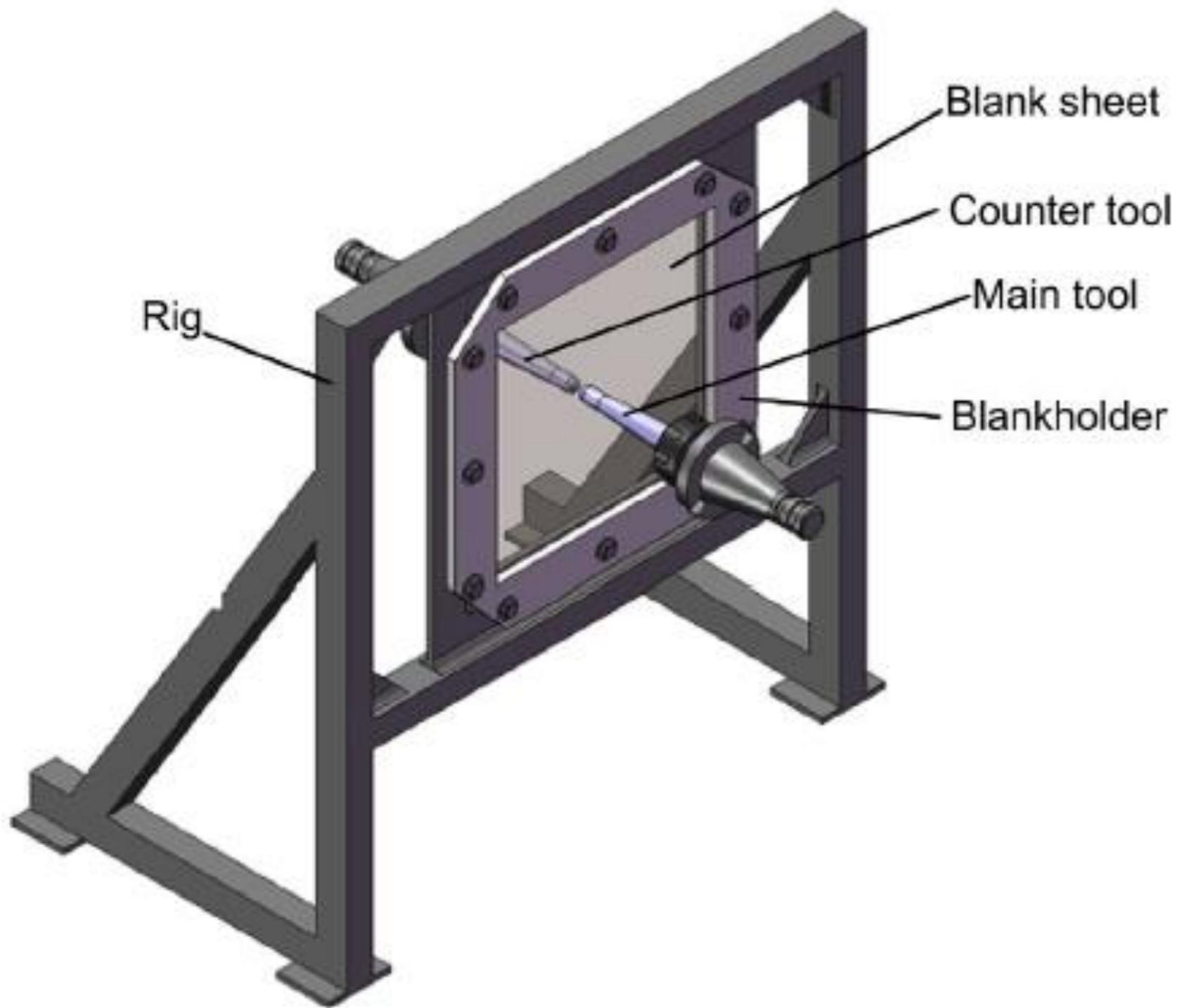


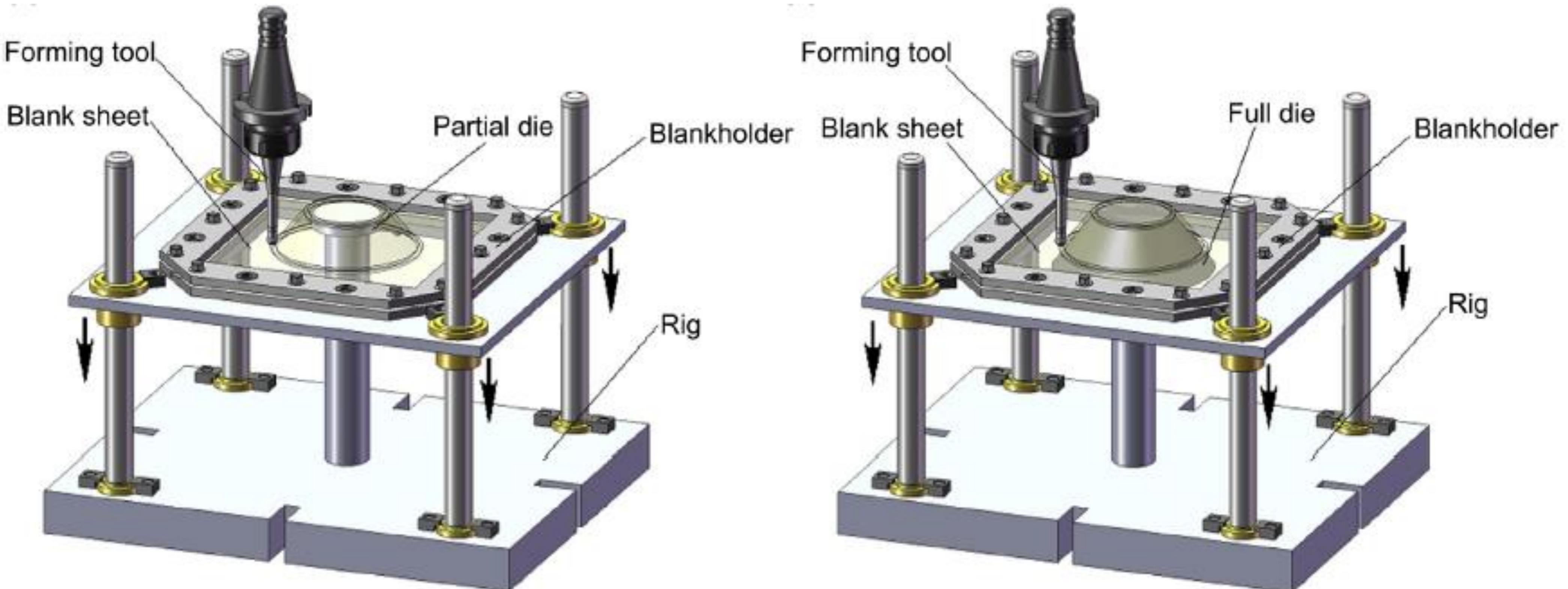












Advantages

- **Low cost (tool and part)**
- **Dieless process**
- **Universal tool**
- **High Flexibility**
- **High customization**

Disadvantages

- **Springback**
- **Low precision**
- **Low productivity**
- **Limited to thin sheets**

The background of the image is an underwater scene. A large green sea turtle is swimming in the foreground, looking towards the left. In the water above it, there is a significant amount of plastic waste, including a large plastic bag and several plastic bottles of various colors (blue, green, yellow). The water is a deep blue, and the surface is visible in the background where it meets a sky filled with white clouds.

Ulisses

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