

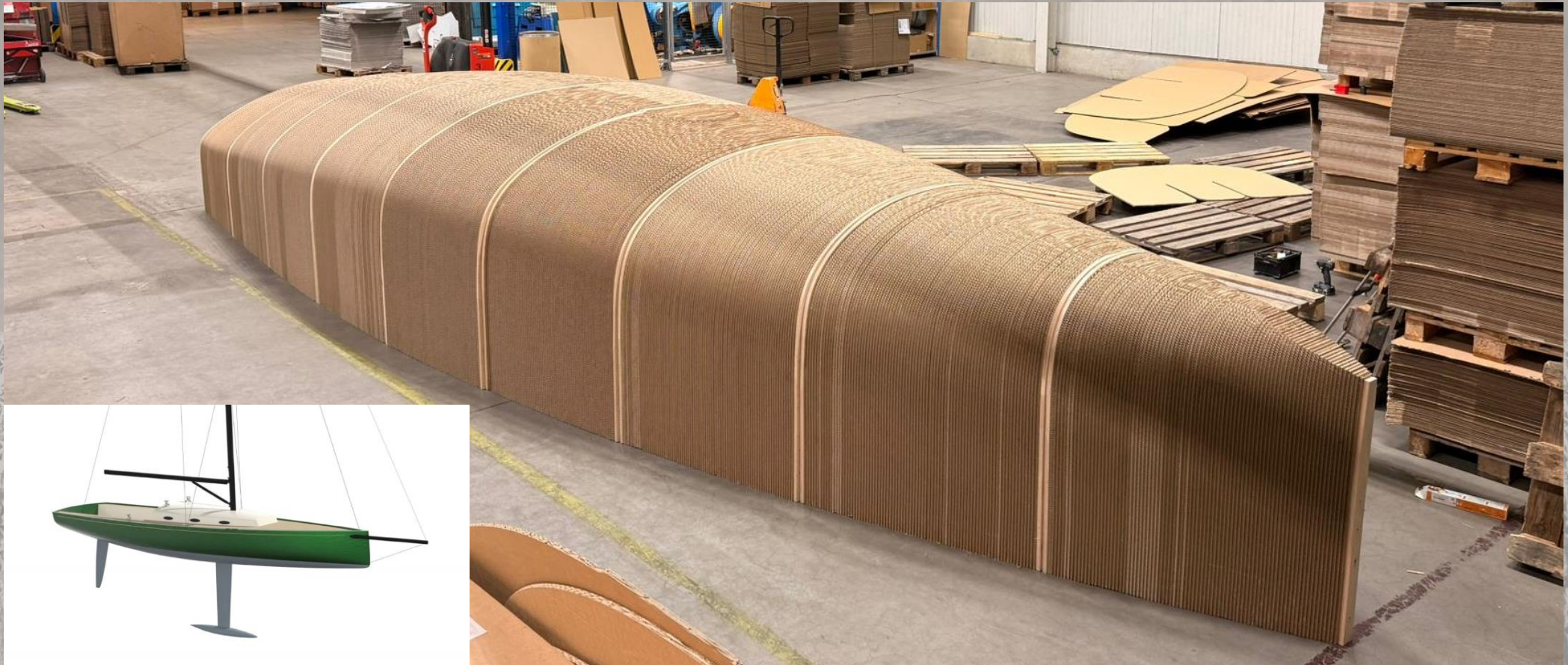
SUSTAINABLE FORMING TOOLS

ordinary cardboard reimaged

German Aerospace Center (DLR)
Institute of Lightweight Systems



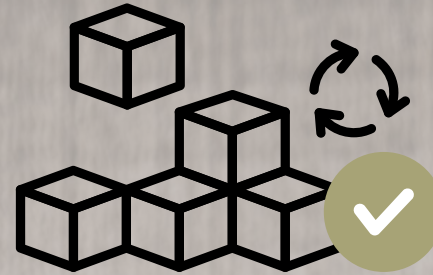
Changing the game: Forming tools made of corrugated cardboard



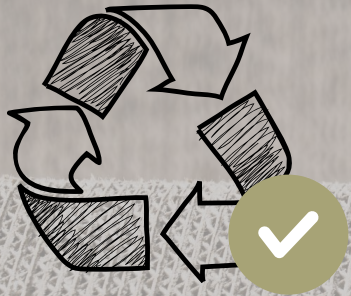
Why cardboard?



- Inexpensive raw materials
- Efficient use of materials
- Fewer work steps



- Modular design enables variants and simplifies transport



- Starting material already 85% recycled
- Corrugated cardboard 80% recyclable after use
- Green Deal & ESG compliant

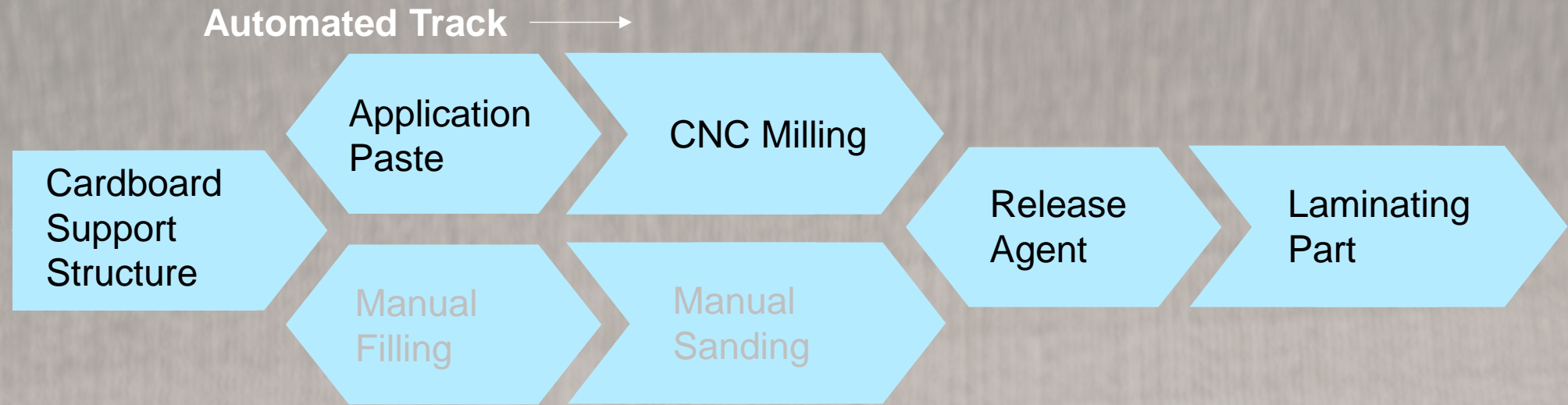


- Despite cost pressures, total value added within Germany



- Low thermal mass saves time in the autoclave/oven and in subsequent steps

The Technology



Manual Track →

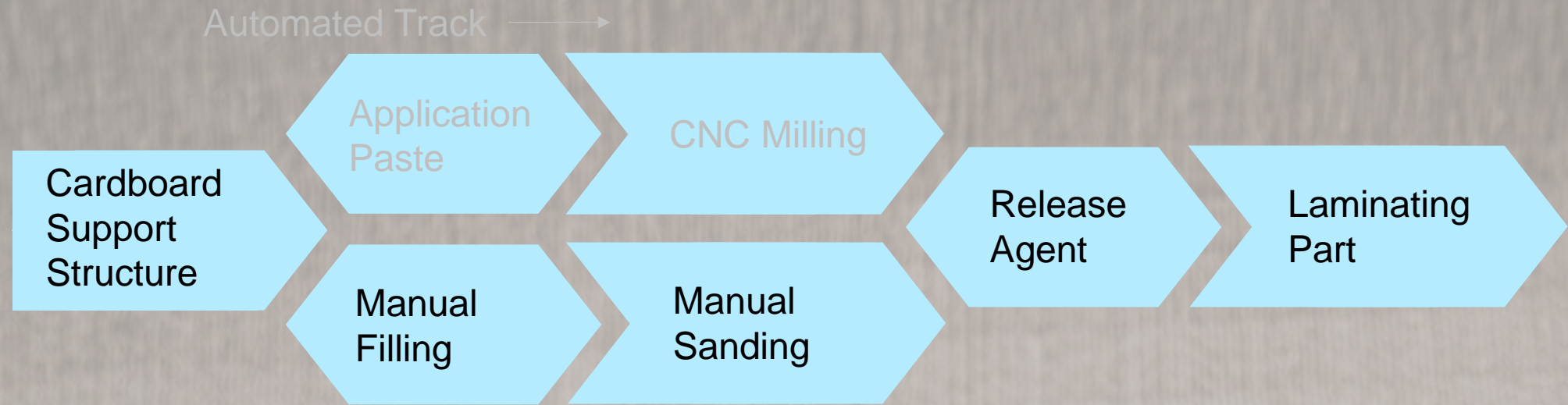


Testimonial Automated Track: Sailing Yacht BM31

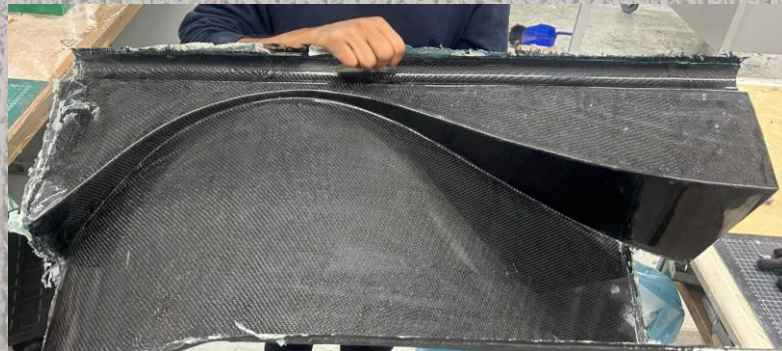
Knierim Yachtbau (Kiel)
building a BM31 sporty /
classic daysailing yacht in
small-batch production



The Technology



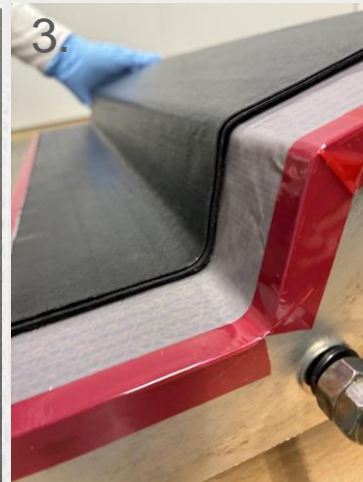
Manual Track →



Testimonial without coating: Preforming

Preforming Process (Project UpWing / FLB Flaperon)

1. Cardboard mold with end plates as support structure, (aluminum in this case)
2. Application of release film
3. Preforming by molding the individual layers / layer packages
4. Further processing of the preform into the final component



Wrap up

Not commercially available yet, but **looking for pilot users.**

→ If you are interested, please do not hesitate to contact us!



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