

## END EFFECTORS MADE OF CFRP

# LIGHTER. STRONGER. MORE PRECISE.

THE CFRP END EFFECTORS FROM MURTFELDT COMBINE **HIGH-PRECISION HANDLING** WITH **MAXIMUM LIGHTWEIGHT CONSTRUCTION** EXPERTISE – FOR USE IN AUTOMATED PRODUCTION ENVIRONMENTS IN THE SEMICONDUCTOR INDUSTRY.

## WHY CFRP? – YOUR ADVANTAGES AT A GLANCE



**Maximum performance** and strength with **minimum weight**



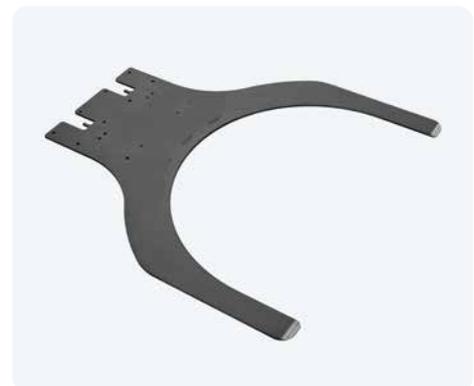
**Mechanical, thermal and chemical properties** can be precisely tailored to your application



**High-performance material for complex geometries** and demanding applications



**Long service life** – low-maintenance and stable processes even under extreme conditions



# Technology that moves – intelligent CFRP end effectors for precise processes

## End effectors made from CFRP

- + Innovative manufacturing process enables the finest **integrated vacuum channels for optimized handling of the wafers**
- + Low installation height thanks to high rigidity for **highest positioning accuracy and freedom of movement, even in confined spaces**
- + Low weight – **relieves robot axes, reduces energy consumption** and enables **shorter cycle times**
- + Excellent corrosion resistance - Ideal for aggressive media and long product life cycles

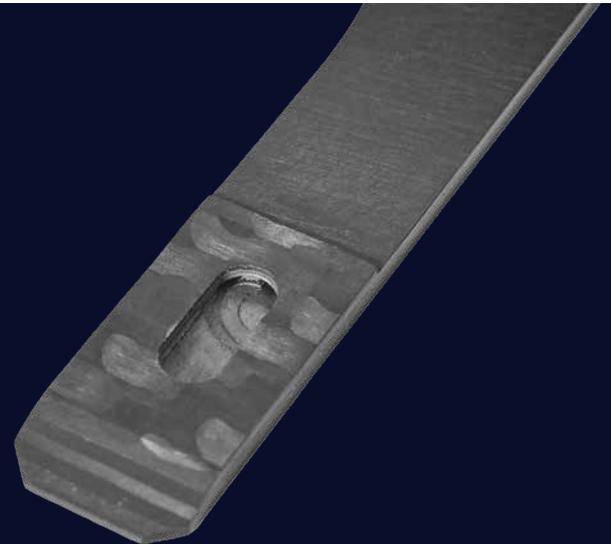
## Technical highlights – compact summary

- + **Material:** unidirectional carbon fiber (UD) + epoxy resin
- + **Temperature resistant:** approx. -50 °C to +200 °C (higher on request)
- + **Manufacturing tolerance:**  $\pm 0.02$  mm
- + **Flatness:** approx. 0.1 mm
- + **Material thickness:** realizable from 2.5 mm
- + **Rigidity:** young's modulus up to 350 GPa
- + **Density:** approx. 1.5 g/cm<sup>3</sup>

## Moving together

### EFFICIENT, COMMITTED AND SOLUTION-ORIENTED

- ✓ Expert advice – digital & on site
- ✓ Technical engineering at eye level
- ✓ Customized solutions for your requirements and ideas
- ✓ High precision & quality
- ✓ Speed & flexibility – even at short notice



## HIGH PERFORMANCE CAN BE SO EASY!

Let's talk about your application - quickly, without obligation and directly with our team of experts.



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