



FLUOROCARBON

CASE STUDY

PRECISION COMPONENTS FOR SEMICONDUCTOR WAFER CARRIER TRAYS

THE SOLUTION

To meet our customers' demanding requirements, we engineered a precise solution using high-performance materials including:

Fluorinoid® FL200 and **Fluorinoid® FL305**.

These materials were chosen for their excellent chemical resistance, high-temperature stability, and superior mechanical properties.

They offer unmatched resistance to harsh acids and high temperatures, making them ideal for semiconductor manufacturing environments.

The components were manufactured with high precision and extremely narrow tolerances to ensure a perfect fit within the wafer carrier trays, minimising movement and potential damage to wafers.

Our fluoropolymer-based components significantly reduced component wear and extended the service life of the wafer carriers, enhancing operational efficiency for our customer.

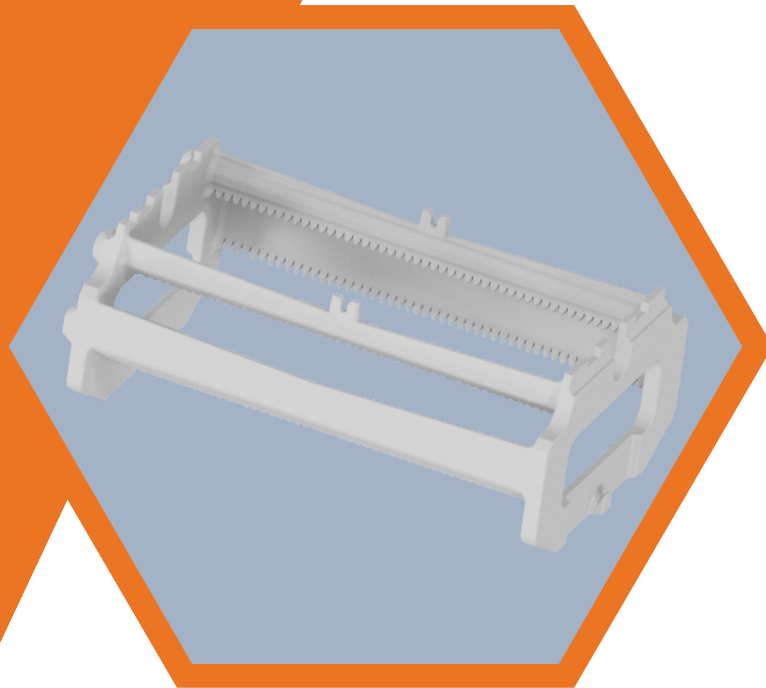
The materials used comply with industry standards for semiconductor manufacturing and are suitable for ultra-clean environments.

THE CHALLENGE

Our customer, an industry leader of advanced wet processing systems for semiconductor applications, needed durable, high-performance components for their wafer carrier trays.

These trays are exposed to extreme chemical and thermal environments during semiconductor fabrication processes.

They required reliable clip assemblies and support rods for the trays that could endure aggressive acids, high temperatures, and mechanical stress, all while maintaining the safety and integrity of delicate wafers.



THE OUTCOME

The solution provided improved performance and reliability in the wafer handling systems, and due to the durability of the fluoropolymer components, the need for frequent replacements was minimised.

The precision-engineered components ensured the smooth handling of wafers, reducing potential yield losses.

Our customer acknowledged the improved performance and longevity of their wafer carrier trays, leading to a **long term partnership**.

By leveraging our expertise in high-performance fluoropolymers, we provided a robust solution that enhanced the efficiency and reliability of their semiconductor manufacturing processes.

Our collaboration underscores the importance of advanced material selection and precision engineering in delivering superior solutions for the **Semiconductor industry**.



WHY FLUOROCARBON

In semiconductor manufacturing, performance is defined by precision, purity, and reliability under extreme conditions. At Fluorocarbon, we combine advanced material science with precision engineering to deliver solutions that meet these exacting standards.

For this application, our expertise in high-performance fluoropolymers enabled us to engineer robust clip assemblies and support rods capable of withstanding aggressive chemical exposure, elevated temperatures, and continuous mechanical stress.

Our ability to manufacture components to extremely tight tolerances ensured a precise fit within wafer carrier trays, minimising movement and reducing the risk of wafer damage or yield loss. The result was a significant improvement in component longevity, reduced maintenance requirements, and enhanced operational efficiency.

Crucially, our solutions are designed for ultra-clean semiconductor environments, meeting stringent industry standards while delivering consistent, repeatable performance.

By partnering closely with our customer, we delivered not just components, but a reliable, long-term solution that improved system performance and strengthened supply chain confidence.

With Fluorocarbon, semiconductor manufacturers gain a partner who understands the critical balance between material performance, precision engineering, and process reliability—helping to optimise yield, reduce downtime, and future-proof operations.