Reliability and efficiency in the optical cleanroom

Leadership in Filtration

MANN+HUMMEL

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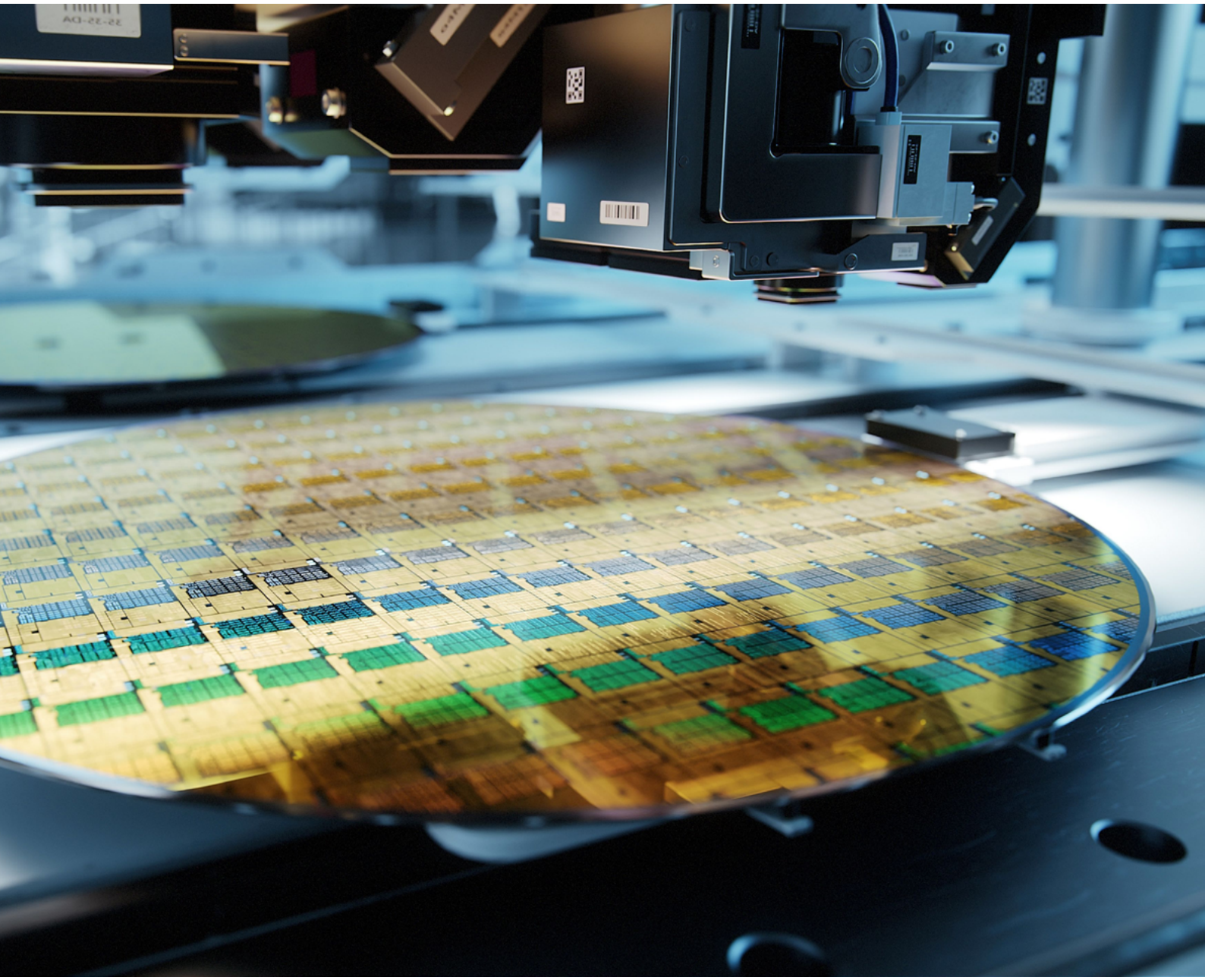
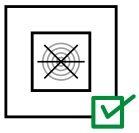
As technology becomes more advanced, reproducible and safe, production conditions are more important than ever.

Managing Director, Cleanroom Specialists, Germany

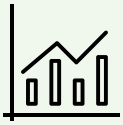


Ensuring cleanroom reliability and optimum production conditions

End customer
Manufacturer of highly-sensitive optical components for the semiconductor industry.



New system
50 Filter Fan Units (FFU) including Nanoclass Square Pro Membrane TC e-PTFE filters



Outcome
- High purity level guaranteed
- Risk of failure minimized
- Significant noise reduction of at least 3 dB(A)*
- Noticeable reduction in energy costs*

THE CUSTOMER

The customer for this project is well-known for supplying the complete package for cleanroom installations – with expertise in design, production and assembly, as well as consultancy. By taking individual requirements into account, the customer carries out both tailor-made and complete turnkey implementations.

The end customer for whom this project was realized is a key supplier of parts for satellites and launch vehicles, and machine components for the production of semiconductor wafers.

THE CHALLENGE

The newly-installed cleanroom will be used to produce machine components for a major provider in the optical and otpoelecotronic industry. The production environment, which is compliant to DIN EN ISO 14644-1 class ISO 6, permits a maximum particle concentration of 1,000 particles per cft. @ 0.5 µm particle size.

Only state-of-the-art Filter Fan Units are capable of reliably meeting these standards.

The customer also welcomed the opportunity to address both the energy consumption and noise emissions of the air delivery system.

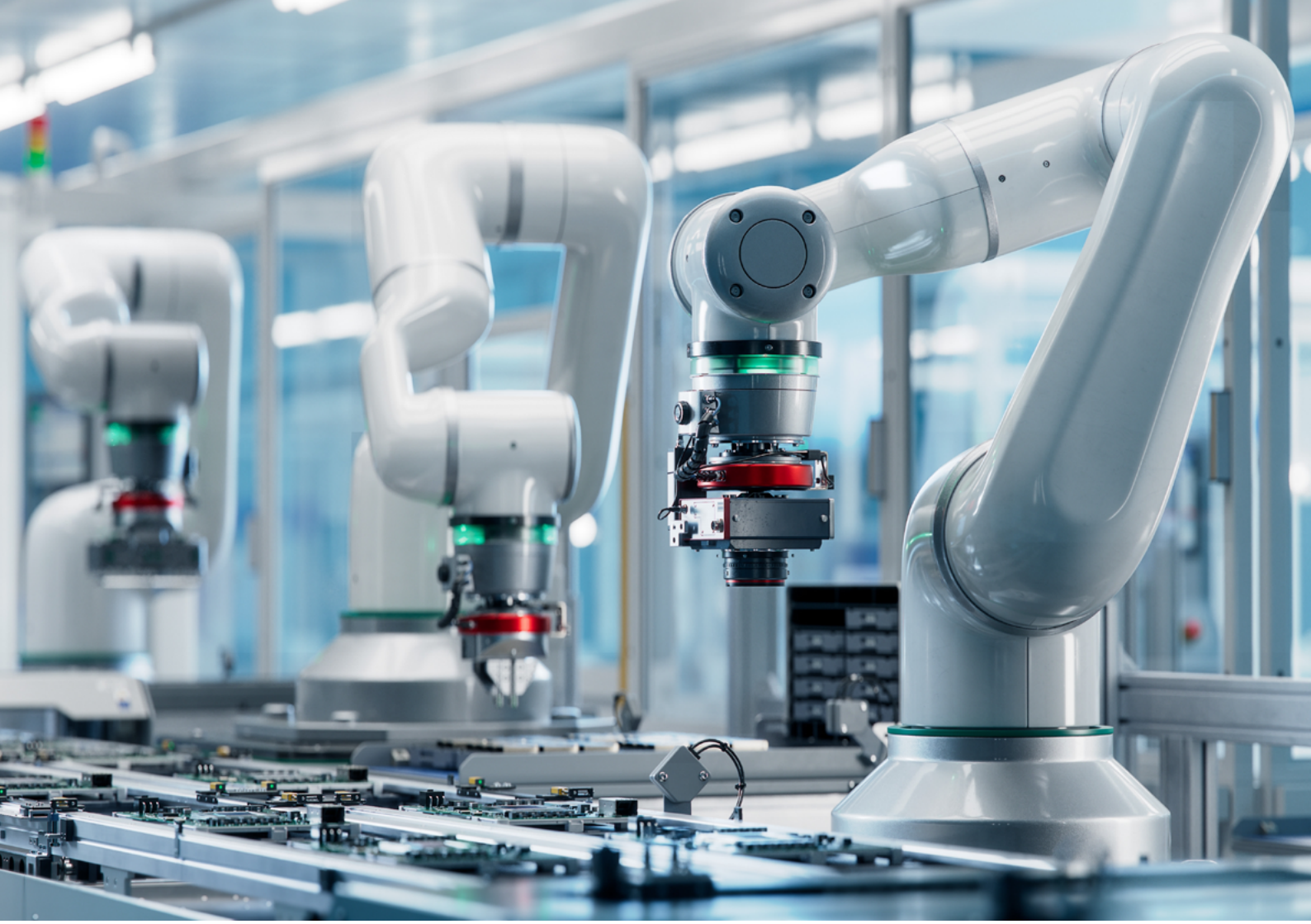
*Compared to market-standard FFU systems equipped with glass fiber media

THE SOLUTION

With the help of clear specification and extensive consultations, the MANN+HUMMEL team recommended fitting several of our Nanoclass FFU Select units, equipped with Nanoclass Square Pro Membrane TC e-PTFE HEPA H14 filters.

Thanks to our in-house simulation capabilities and acoustics laboratory, the Nanoclass FFU Select was optimized to provide the required air velocities and distributions. The improved air routing and integrated sound absorbers contributed to a low sound output and energy consumption during operation.

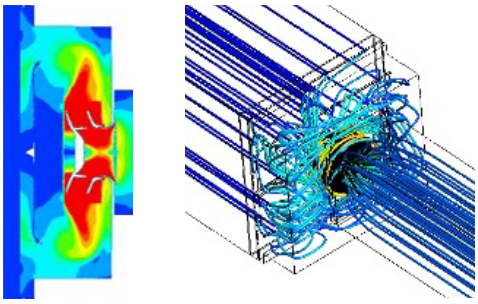
When it came to the integrated filter components, we drew on our knowledge from over 60 years in cleanroom air filtration and selected HEPA filters made of ePTFE instead of glass fiber media. The nanofiber technology generates a much lower pressure loss which in turn reduces the energy consumption significantly and offers superior noise characteristics.



THE RESULT

The Nanoclass FFU Select units equipped with ePTFE HEPA filter elements delivered reliable protection for the cleanroom, and ensured that compliance with EN ISO 14644 was maintained.

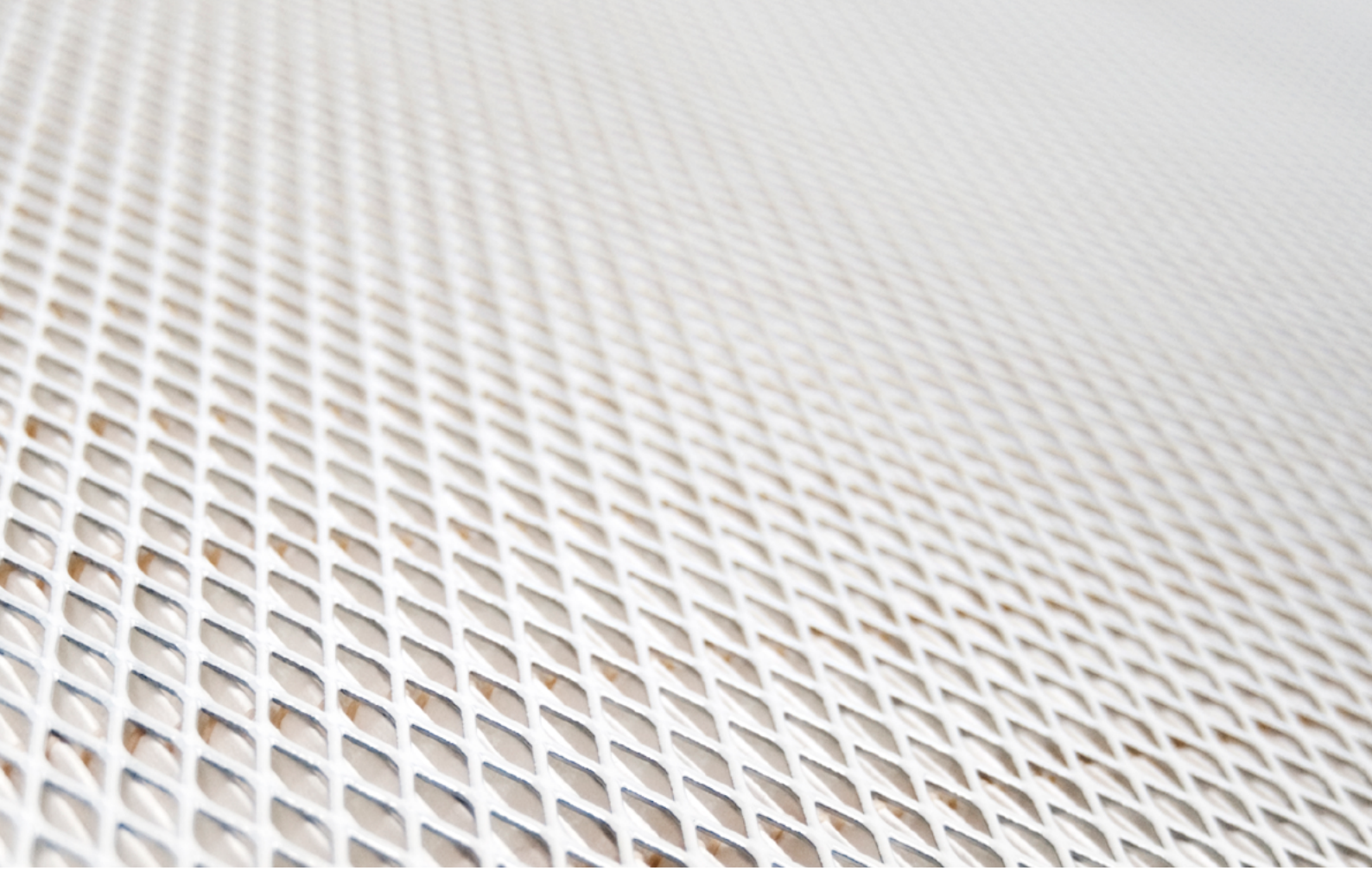
Best of all, the FFUs achieved this while also providing a noticeable drop in energy consumption and a 3 db(A) reduction in sound intensity – a significant fall compared to noise levels in the cleanroom prior to installation.



Our in-house simulation and acoustics capabilities enabled us to develop a solution that minimized energy demand and sound output.

Designed, built, delivered as one

MANN+HUMMEL is one of the few FFU manufacturers to also produce our own filters – at our specialized production plant in Austria. Our HEPA filters are market-leading in many areas, thanks to over 60-years experience making filters for cleanrooms and operating theaters. This means that our Filter Fan Units, which are constructed in Germany, are built to work seamlessly – something especially important in environments where reliability is paramount. It also means that our customers' purchasing and stock control requirments are less, and ordering replacement filters is a simpler process too.



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Good cooperation between partners and the reliability of the system are crucial to any cleanroom project.

Managing Director,
Cleanroom Specialists, Germany

Learn more about our air filtration solutions on our website

MANN+HUMMEL AIR FILTRATION →

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