



Equipment designers face huge challenges to isolate and control vibrations. High-end mechatronics are used in many complex applications such as equipment for the semiconductor and pharmaceutical industry which are frequently operating in clean rooms. These applications have high demands with respect to reliability, yield, stability, and quality. Pollution, such as rubber out-gassing, cannot be tolerated in sterile or vacuum processes.



application area | high-end mechatronics

Industry requirements

The high-end industry demands are very challenging and often application and equipment specific. Parameters like stiffness, damping, operating temperatures, relative humidity, dimensions, and life time are very equipment depending. Damping and vibration isolating equipment ensuring optimized yield and product quality are designed, developed, and manufactured in close co-operation with high-tech innovative partners.

Damping parts for complex modules by MI Partners BV

Dr Ir Theo Ruijl from MI Partners BV contacted GMT Benelux BV to develop in close co-operation a newly designed damper used in the latest lithography machine types. The main challenge was the development of a new rubber compound with corresponding dynamic properties. This was picked up by the rubber technologist Dr M. Pickard and development department of GMT Gummi-Metall-Technik GmbH. After several tests GMT was able to manufacture rubber with the required properties. Next step was to manufacture the damper in such way that emanation gases will be sealed in. To cut a long story short; the newly designed dampers are manufactured in the aircraft facility in Bühl ensuring top quality. Every batch is verified with respect to the critical dynamic properties according to agreed specifications.

Supplier or partner?

In high-end projects GMT acts as partner. By truly understanding end-user applications and specifications, by sharing knowledge, risks and skills GMT shows their dedication as partner in the supply chain. This brings responsibility in the field of products, quality, intellectual property, and business continuity. At GMT Benelux BV we understand this and are acting accordingly.

Phases of joint development process

1 Initiation phase

- High-level specifications (own frequencies, PSD analysis, vibration analysis)
- Understanding your requirements
- Mutual agreement on process

2 Development phase

- Set up project team
- Verify and further quantify specifications
- Verification of technical capabilities
- FEM analysis
- Small-scale development (rubber compound, design)
- Evaluation
- Feedback loops
- Prototyping

3 Initial production and validation phase

- Mould design
- Small serie production
- In house laboratory testing
- Field-testing and trouble shooting
- Feedback loops
- Project end

4 Commercial phase

- Product is available for future demands

High-tech cleanroom damper:
result of a joint development process.



"GMT acts as a partner. They truly add expertise and apply knowledge and skills to the partnership. They are able to interact directly with compound and development experts. Together we have proven to realize cutting edge vibration control solutions for very demanding high-end applications." Dr Ir Theo Ruijl (MI Partners)