

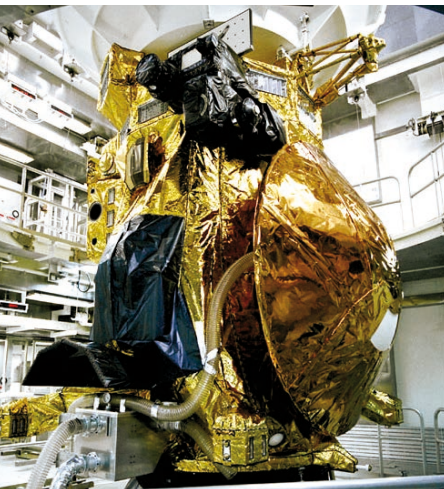
# APPLICATIONS



## Automotive

To stay competitive, today's car manufacturers need to produce new or improved models much faster than before. The trend towards mass customization forces engineers to design and develop a large number of vehicle variants while at the same time meeting demands for improved quality, durability, occupant safety, ride comfort and fuel efficiency. m+p international has built strong, longstanding relationships with the automotive industry and its suppliers. We support engineering teams in the following areas:

- Vibration testing on shakers
- Road load simulation
- Dynamic measurements and vibration analysis
- Modal analysis and impact testing
- Rotating machinery diagnostics
- Acoustic analysis and sound quality
- Hand-arm and whole body vibrations
- Strain measurements
- Experimental stress analysis
- High-frequency vibration test stands using electrodynamic or piezoelectric shakers
- Customized solutions and test stands



## Aerospace

The high-tech aerospace industry is faced with the challenge of ever-shortening design and development times for products that must be safe, enduring, comfortable and economical and meet stringent environmental demands. Testing is an essential part of the development stage: spacecraft, aircraft wing or satellite tests must be completed successfully and the data stored securely for future use. m+p international has worked closely for many years with aerospace engineering companies throughout the world to assure the highest quality for their products. Our advanced solutions include:

- Dynamic testing and vibration analysis
- Vibration testing on shakers, force limited vibration testing
- Structural and modal testing
- Rotating machinery diagnostics
- Strain measurements
- Experimental stress analysis
- Acoustic analysis
- Ground vibration testing
- Acoustic control in a reverberant chamber
- Customized solutions and test stands



## Defence

Defence research and design teams develop systems and components which must be extremely reliable, safe, highly accurate and easy to operate. For armoured vehicles, for example, the performance and quality are crucial, but ride comfort is also an important factor. In some cases the materials to be tested are highly dangerous.

m+p international provides high-quality, state-of-the-art vibration control, noise and vibration measurement and analysis systems for military equipment, where the instrumentation and vehicles often operate under extreme conditions. Tests are performed on individual components and, in the final development stage, on the whole system. We help companies to get this right first time. For special requirements, customized solutions can be provided.

## Electronics

The electronics sector continues to grow rapidly and influences our daily lives to a degree unthinkable just a decade ago. It is vital for manufacturers of devices such as smartphones, laptops, tablets, cameras, navigation systems, etc. to develop state-of-the-art, trendy products more and more rapidly.

As electronics products become increasingly more powerful and complex, the functionality must be thoroughly tested before product launch. m+p international matches today's needs for reliable testing in a very limited timeframe by supplying high-performance and user-friendly test and analysis equipment for:

- Vibration testing on a shaker
- Shock and drop testing
- Dynamic testing
- Acoustic analysis and sound quality



Photo courtesy of Fujitsu, Germany

## Energy & Process

m+p international has developed sophisticated, high-precision dynamic measurement products for the energy sector including renewable energy, nuclear and turbomachinery. For wind turbine testing, m+p international provides highly accurate, integrated test, analysis, data storage and reporting capabilities for every stage from design and development to manufacturing and operating. m+p's products help to optimize efficiency and energy output and to minimize expensive downtime and repairs during operation. For monitoring product quality or real-time process monitoring, we supply full-featured, easy-to-operate data acquisition products that deliver precise, repeatable results. Our measurement technology ensures reliable results in the following areas:

- Continuous data acquisition and signal analysis
- Noise and vibration analysis
- Structural testing and modal analysis
- Performance and functional testing
- Multi-axis strain and stress analysis
- Real-time process monitoring
- Vibration testing on a shaker
- Customized solutions and test stands



## Test Houses

Independent test laboratories have to offer a wide range of test functionality in order to satisfy the requirements of many end-user industries, each with their own standards and test specifications. Their customers also demand the highest levels of test safety and reliability to protect their valuable products under test. To provide an efficient service it is also important that once tests are complete, reports can be quickly generated to provide proof of testing and any other data required. m+p international is able to offer all these capabilities and has become the industry standard for the world's best known test houses. Our activities include:

- Environmental simulation using vibration and shock testing
- Multichannel FFT data acquisition
- Structural testing and modal analysis
- Rotating machinery diagnostics
- Noise analysis



Photo courtesy of Stirling Dynamics, United Kingdom

## Universities and Research

Universities worldwide benefit from m+p international's innovative test and measurement technology. Our high-quality products for structural dynamics testing, vibration testing and data acquisition are used by leading university engineering and research departments. We have successfully collaborated on many academic projects. Customers appreciate the ease of use, the flexibility of the systems and the integration of existing resources.

