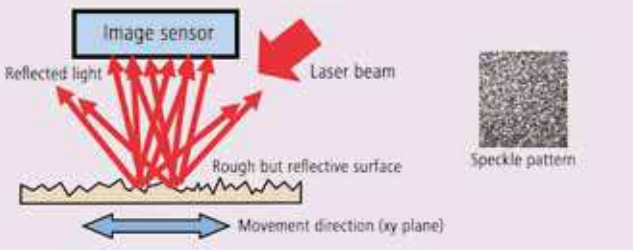
Image Correlation and the MICSYS Two-Dimensional Encoder

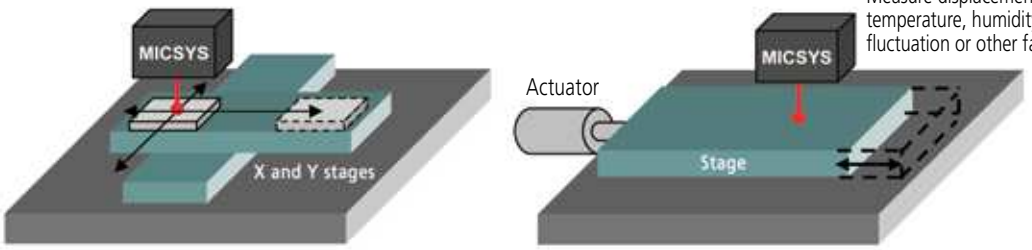
Principle of measurement

When a rough-surfaced object is irradiated with a laser beam, reflected coherent light scattering from the surface creates visible interference in the form of a speckle pattern. As the object moves in the XY plane, the speckle pattern also moves in response. Displacement of the object can be calculated by comparing, through image correlation, the speckle images obtained before and after movement, and this is the principle used in the highly accurate MICSYS measuring system.



Applications

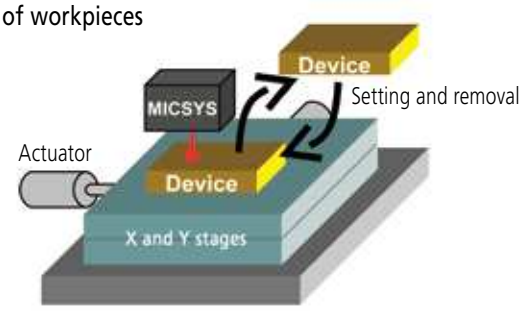
1. Evaluation of stages used in manufacturing equipment and inspection systems



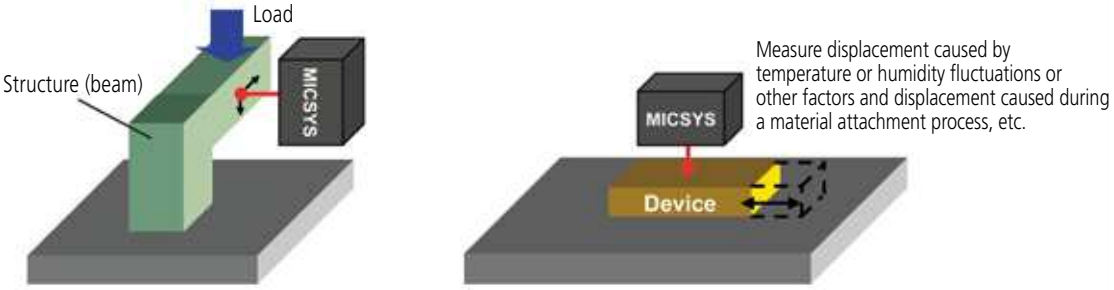
a) Evaluation of positional repeatability

b) Evaluation of standstill stability and drift

2. Highly accurate positioning of workpieces



3. Measurement of minute displacement



a) Measurement of minute displacement of a structure

b) Measurement of minute displacement of a workpiece

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