

AMB 2026 preview information. Stuttgart. 15th to 19th September 2026

VACUUM CLAMPING OF FREE-FORM COMPONENTS

On stand B30 in hall 1 at AMB 2026, the Roemheld group will demonstrate its versatile clamping system, FSS, for rapidly securing free-form components prior to machining. It is designed to reduce setup times and maximise machining centre utilisation in high-mix, low-volume manufacturing environments, which are becoming increasingly prevalent.

The innovative workholding solution, which includes its own PC/PLC control box, adapts quickly to a new profile shape, without requiring time-consuming fixture changes. The system allows virtually any workpiece to be held quickly, reliably and firmly, without deforming it or inducing clamping stresses. In particular, lightweight and thin-wall components made of plastic or aluminium up to 15 metres in length can be clamped precisely and without the need for a nesting mould or other fixture.

Ideal for use in aerospace, automotive, marine and rail manufacturing, the FSS has a positioning accuracy of ± 0.05 mm, with a repeatability of ± 0.02 mm. Actuators, each with an axially adjustable piston rod that can extend up to one metre and then be electro-pneumatically locked in place, adapt to the geometry of the workpiece, after which it is secured on the underside by vacuum cups on the top of the rods.

Modular and scalable, the FSS system can employ any number of actuators to form a support matrix to suit the shape and size of the part. Designed for robust industrial use and rated at IP67 to withstand coolant ingress, it delivers high retention forces in a compact footprint, avoiding

vibration during heavy cutting operations, improving surface finish and increasing tool life.

The array of support rods and vacuum pads is connected via the dedicated Roemheld control box to the machine tool's CNC system over a high-speed Profinet link. When switching from one batch run to another, the next program automatically commands each actuator to adjust its height and lock into place, enabling software-driven, unattended changeovers.

In the UK and Irish markets, custom integration support is available for both manually loaded setups and automated robotic cells through subsidiary company Roemheld (UK), Cramlington, Northumberland.

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Photograph attached:

A thin-wall, free-form component clamped in a Roemheld FSS workholding system, ready for 4-axis machining.

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