



## World first: Mobile repair factory for hybrid machining

The innovative Saxon machine manufacturer Metrom has developed the world's first mobile repair factory for hybrid machining (Fig. 1). This technology, which is housed in containers, enables additive and subtractive manufacturing processes to be carried out in a single set-up. This means that repairs and spare parts production can be carried out directly on site in power plants, chemical plants, in shipbuilding, in port logistics or in remote mines. This significantly reduces costly downtimes.



*Figure 1 Mobile machine in open container*

The heart of the mobile repair factory is the Metrom Pentapod machine. Based on Metrom's patented parallel kinematics, this unique technology concept combines the precision and rigidity of stationary machine tools with the freedom of movement of a robot. This invention, which led to the founding of the company in the early 2000s, gives Metrom a unique position on the market.

In this concept, the component is the linchpin. While in conventional machine tools the workpiece is brought into the correct position, in Metrom systems the tools move around the component. These Pentapod machines are flexibly configurable and can mill, weld and produce metal or plastic parts using 3D printing. The combination of subtractive and additive processes enables hybrid machining. This is used, for example, in Rheinmetall's mobile Smart Factory for the production of spare parts and meeting the demand for battle damage repair components on site in the field (Fig. 2).



*Figure 2 Mobile Smart Factory*



*Metrom's mobile systems offer even more flexibility by bringing the machine to the workpiece instead of the other way around. This enables maintenance and repair work to be carried out on turbines (Fig. 3), generators and other large systems on site.*



*Figure 3 Modification of a gas turbine at the customer's plant on site*

*The possible applications of Metrom machines are as diverse as their configurations. They are used in the automotive industry, in mold making, in energy and construction technology and in many other sectors (Fig. 4).*



*Figure 4 Milling out jammed boom bolts on a mobile concrete pump*

**Contact:**

Marcus Witt

METROM Mechatronische Maschinen GmbH

Schönaicher Straße 6

09232 Hartmannsdorf

GERMANY

phone +49 3722 59 863 -12

marcus.witt@metrom.com

