

Application example

Cutting sandwiches without squashing them

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

The industrial cutting of triangular sandwiches places heavy demands on the cutting technology. When the squares are cut into triangles, none of the layers must get squashed. What's more, the cut surface must look neat, the knife must remain as clean as possible and high cutting speeds must be achieved.

Solution

An ultrasonically vibrating knife reduces the friction between the product and the knife area. The ultrasonic knife takes the form of a 20kHz sonotrode with a sharp blade and slim cutting body. A PZT converter and MAG generator cause this to vibrate ultrasonically. The components are integrated into an automatic cutting system and operate continuously.

Configuration advantages

The significant reduction in friction during cutting means that the cutting force can also be reduced, resulting in a very neat cut surface. The ultrasonic vibrations constantly clean the cutting area of the sonotrode so that virtually no bits of sandwich can get stuck to it. The lower level of friction also increases the life of the blade considerably. The generator immediately detects when a knife sonotrode is faulty, causing the system to shut down.



The application was cut using 20kHz ultrasonic components (such as a knife sonotrode, a 1.2kW module, a MAG generator and a converter), which were integrated into a special system.