

Application example

Welding of geocells

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



Task

Polyethylene strips have to be ultrasonically welded together to make geocells. The strips are 3 to 4 m in length and have a height of 300 mm. Geocells are a type of flexible matting made from HDPE strips, which are welded together to form a honeycomb structure. Geocells provide effective solutions for countering soil erosion or instability as well as drainage problems.

Solution

The task was solved with a 20kHz USP3000 welding system for a manual workstation and several USV3000 actuator units for a fully automated production line. In both cases, use was made of the following components:

- A MAG generator and 4.8 kW converter
- Titanium sonotrode with a length of 305 mm

The modular components can be integrated into production lines without any difficulty. State-of-the-art bus systems enable welding parameters to be adapted and results to be read out in real time.

Configuration advantages

The use of a 305 mm wide sonotrode makes it possible to weld together geocell strips with a height of 300 mm. Compared to conventional geocell production, which involves strips with a height of 100 to 200 mm, this results in time savings of 150 to 200 per cent. Another advantage is the flexibility that manufacturers get from being able to produce the geocells in advance and then quickly cut them down to the required height when an order is received.



The application was solved using several 20kHz USV3000 actuator component sets and 4.8kW MAG generators, which were integrated into a special system.