

INNOVATIVE LASER WELDING SHIELDING LINE FOR SUBSEA POWER CABLES

AFWL110: Advancing Reliability and Efficiency in Renewable Energy Transmission

The demand for reliable subsea power cables in the renewable energy sector is increasing significantly. *THE* has developed a forming and welding process for cables with an outer diameter of up to 110 mm, perfectly meeting the demanding requirements of subsea environments. This process provides robust shielding and ensures cable integrity and longevity. As an experienced laser integrator, *THE* has chosen laser welding technology for this application.

The technical advantages of an AFWL laser welding line compared to standard TIG/Plasma welding lines:

- Precision: Accurate and consistent welding without any wear parts
- Minimal Heat Impact: Reduces the risk of damage to cable insulation
- High Strength: Provides a robust and durable connection
- Economic: Low welding power thanks to narrow seam design and no protection gas needed
- Productive: High production speeds up to 25 m/min achievable and welding power synchronized with extrusion line speed
- Security: Fully integrated 2-channel eddy current test device exclusively developed by Fortec for *THE*
- Unique: All metal tape feeding, forming and welding devices from a single supplier and specially designed for the laser process



The AFWL is equipped with *THE*'s laser cross-welder SLT400, which enables continuous metal tape feeding for long cable lengths. These cross-welded connections behave like virgin tape and safely withstand all mechanical stresses, such as compacting or corrugating. Thanks to an integrated and motorized horizontal tape accumulator, coil changeover becomes an easy and safe operation for line operators. The AFWL processes all alloys that are weldable by laser, including aluminum, copper, and steel.

Technical data

- Cable OD from 30 mm to 110 mm
- Metal tape thickness from 0.20 mm to 1.20 mm (depending on alloy)
- Metal tape width from 90 mm to 350 mm
- Welding speed from 1 m/min to 25 m/min (depending on laser power and alloy)

