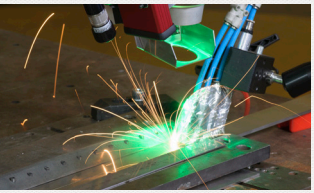
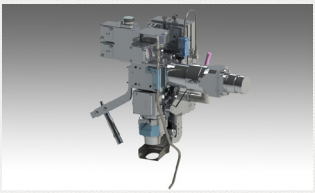
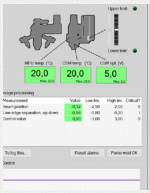
RADICLE

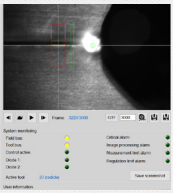
For more information:
www.radiclelaser.eu

A NEW LASER WELDING MONITORING AND ADAPTIVE CONTROL ARCHITECTURE INTEGRATING MULTI-SENSOR DATA TO DELIVER HIGH-QUALITY WELDED JOINTS









THE RADICLE PROJECT IS A STEP TOWARDS INDUSTRY 4.0:

Modular system allowing users to configure the system to their specific applications:

- Photodiodes (off-axis and co-axial)
- Seam tracking camera
- Co-axial process zone imaging camera
- Keyhole depth monitoring sensor
- Microphone for acoustic emission analysis

Welding process windows for a number of ferrous and non-ferrous materials and joint configurations, supported by welding data from industrial case studies;

Welding data handling and analysis routines to extract valuable information from the welding process monitoring sensors;

Development of the architecture for a multi-sensor adaptive control system for laser welding including a machine learning algorithm able to:

- interpret raw sensor data and associated welding quality parameters
- generate the process window heatmap from the sensor data

The RADICLE project has received funding from the European Union's Horizon 2020 Programme for research, technological development and demonstration under grant agreement no. H2020-FoF-2014-636932 — RADICLE.

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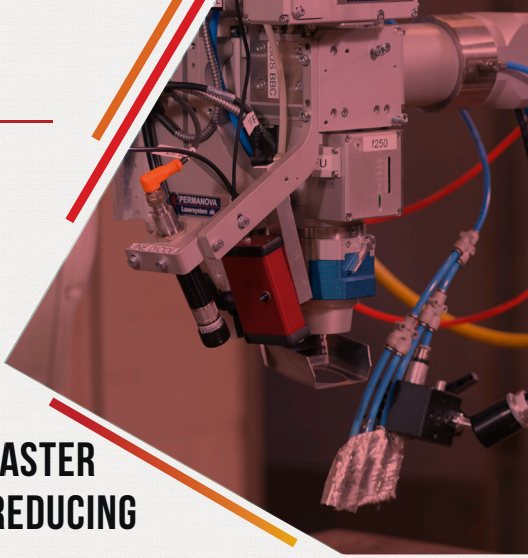


THE RADICLE PROJECT WILL HELP COMPANIES ACROSS DIFFERENT INDUSTRY SECTORS PRODUCE LASER WELDED COMPONENTS SMARTER, FASTER AND TO HIGHER QUALITY, REDUCING INSPECTION COST:

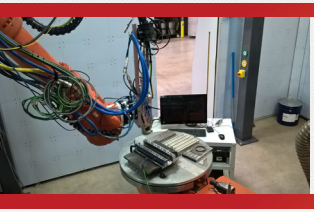
TRANSPORT

OIL&GAS

MEDICAL

AEROSPACE

POWER GENERATION



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Project consortium:

mtc Manufacturing Technology Centre · TWI · EWF · Rolls-Royce · GKN · Laser Optical Engineering Ltd pioneering laser technology · PERMANOVA Lasersystem ab · CRF CENTRO RICERCHE FIAT · GE · VTT · BIT ADDICT