



New welding process for
underwater repair on
offshore steel structures:

DUW-FSW =
DeepUnderWater-
FrictionStirWelding

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Underwater welding

State of the art:

- UW-manual welding (so-called MMA welding)
- UW electrodes only allowed up to 20m water depth
- UW metal welding with solid or cored wire, with and without shielding gas, is always the subject of research projects, but has so far not been successful in practice

Underwater welding

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The new underwater welding process is called:

DUW-FSW

and means:

DeepUnderWater-FrictionStirWelding

So the UW friction stir welding in water depths
greater than 20m to at least 50m

No divers required!

DUW-FSW-Technology

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Advantages:

- No welding consumables
- Without shielding gas
- Pinhole closing
- Environmentally friendly
- Welding in at least 50 m water depth
- No divers required
- Mechanized or automated welding using a mobile device, also possible with ROV

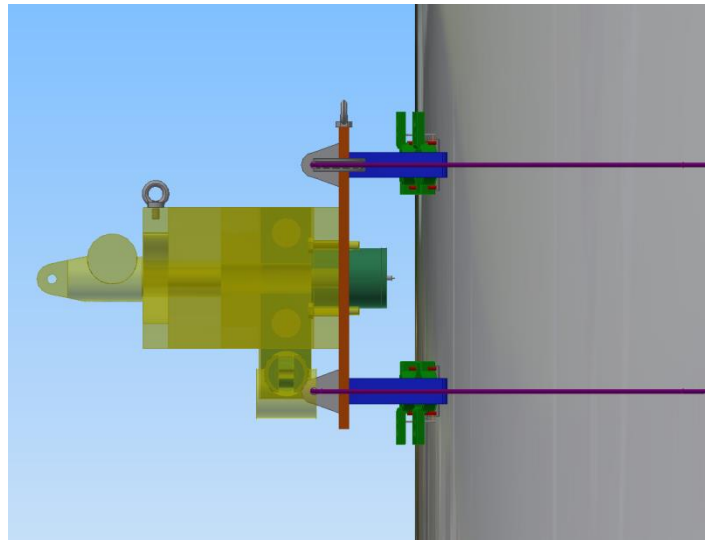
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Application:

- for underwater repair of a crack in a steel structure, e.g. offshore wind turbine, oil or gas pipelines etc.
- Example:



Source IMG Rostock

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The technical details of the DUW-FSW process were developed as part of the sme-innovative research project or collaborative project:

"Development of a portable, partially automated underwater repair system for offshore systems (underwater repair)"

Funded by the Federal Ministry of Education and Research.

Project finished: December 31, 2018

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Project idea:

Gunnar Retzlaff – engineering office

Project partner:

- Ingenieurtechnik und Maschinenbau GmbH Rostock
- Baltic-Taucherei- und Bergungsbetrieb Rostock GmbH
- Paatz-Viernau GmbH
- TU Ilmenau

Contact

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We point out that we are not allowed to publish technical details.

Interested parties please contact:

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Thank you for your attention!