6th General Assembly Stakeholder Meeting

Brussels – Friday 17th June 2016



Photo: Andreas Duerst, STUDIO 301

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Structure

Part I

- EEW Group / EEW SPC
  - → Facts & Figures
  - → Business Areas
  - → MP Fabrication

Part II

- Future Aims
- R&D at EEW SPC

Part I

EEW Group



Photo: Andreas Duerst, STUDIO 301

Manufacturing Focus

EEW Group



Production of
long- & circ-SAW-welded,
thin- / thick-walled
steel pipes and pipe
components

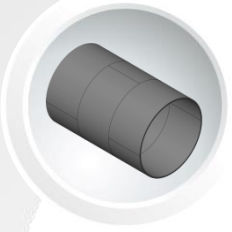
Plate



Rolling /
Bending



Can

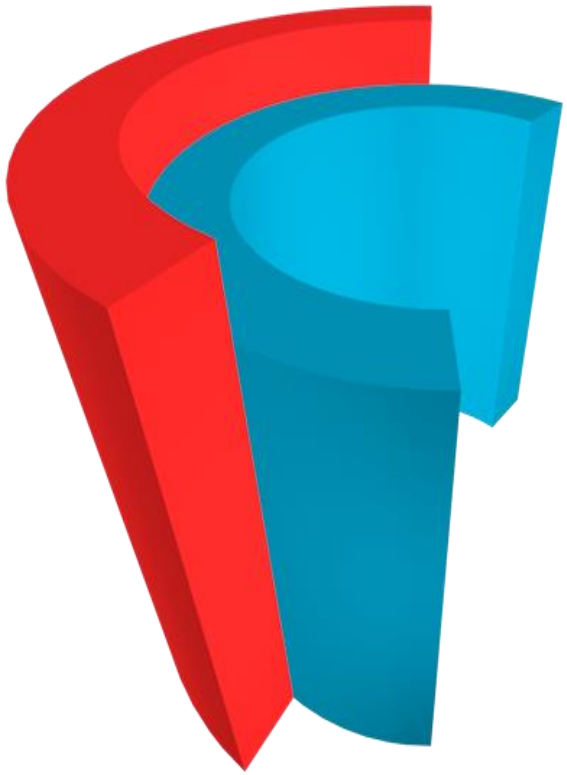


Section

Technical Capabilities

EEW Group

406 – 10.000 mm O.D. (16 – 394”)



8 - 300 mm W.T. (0,3 – 11,8”)

up to 120 m length
(4.724”)

up to 1.500 t piece weight

History

EEW Group

1936	Company Foundation
1974	Start SAW Pipe Production
2001	EEW Korea established
2008	EEW SPC established
2009	WELDEC established
2009	EEW Pickhan joins the Group
2010	EEW Malaysia established
2013	(EEW) Global Pipe Company established
2014	EEW Bergrohr joins the Group
2015	Joint Venture (EEW SPC / Bladt Ind.) Offshore Structures Britain Ltd. established
2015	EEW KHPC Korea established





EEW SPC in 2008 & 2016

EEW at a Glance



Photo: Andreas Duerst, STUDIO 301

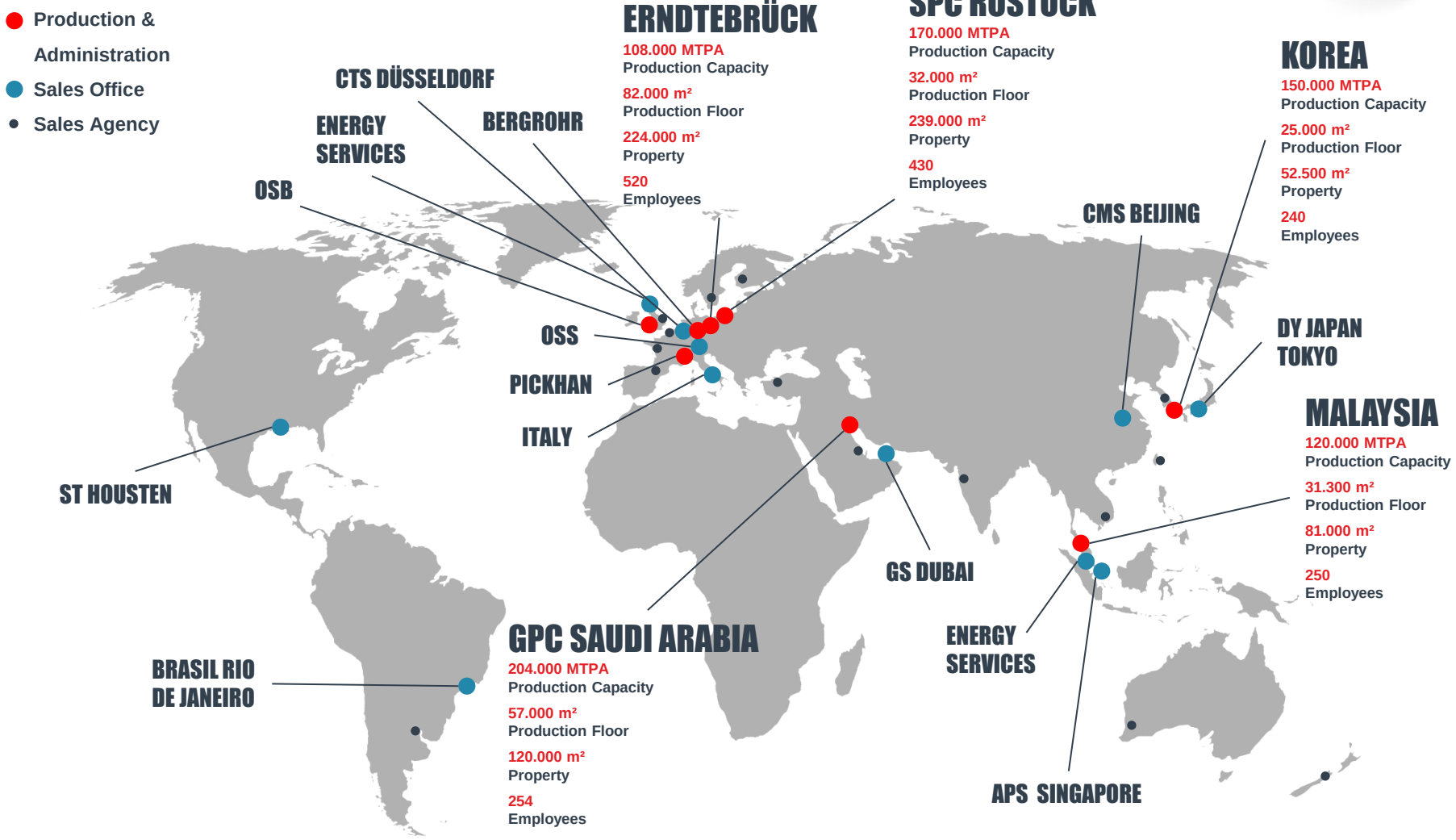
9 Mills

~ 2.000
Employees

~ 800.000
(~ 200.000 SPC)
MT Production Capacity

~ 600 Mio. €
Revenue
FY 2014/15

EEW Group Organisation



Business Areas

EEW Group

Structural



Oil/Gas



Process

Linepipe



Monopiles/Transition Pieces



Offshore Wind



Jacket Pipes/Piles

Locations for Offshore Wind

EEW Group

EEW SPC

Rostock



Monopiles/Piles

Erndte-brück



Jacket Pipes/Piles



Korea

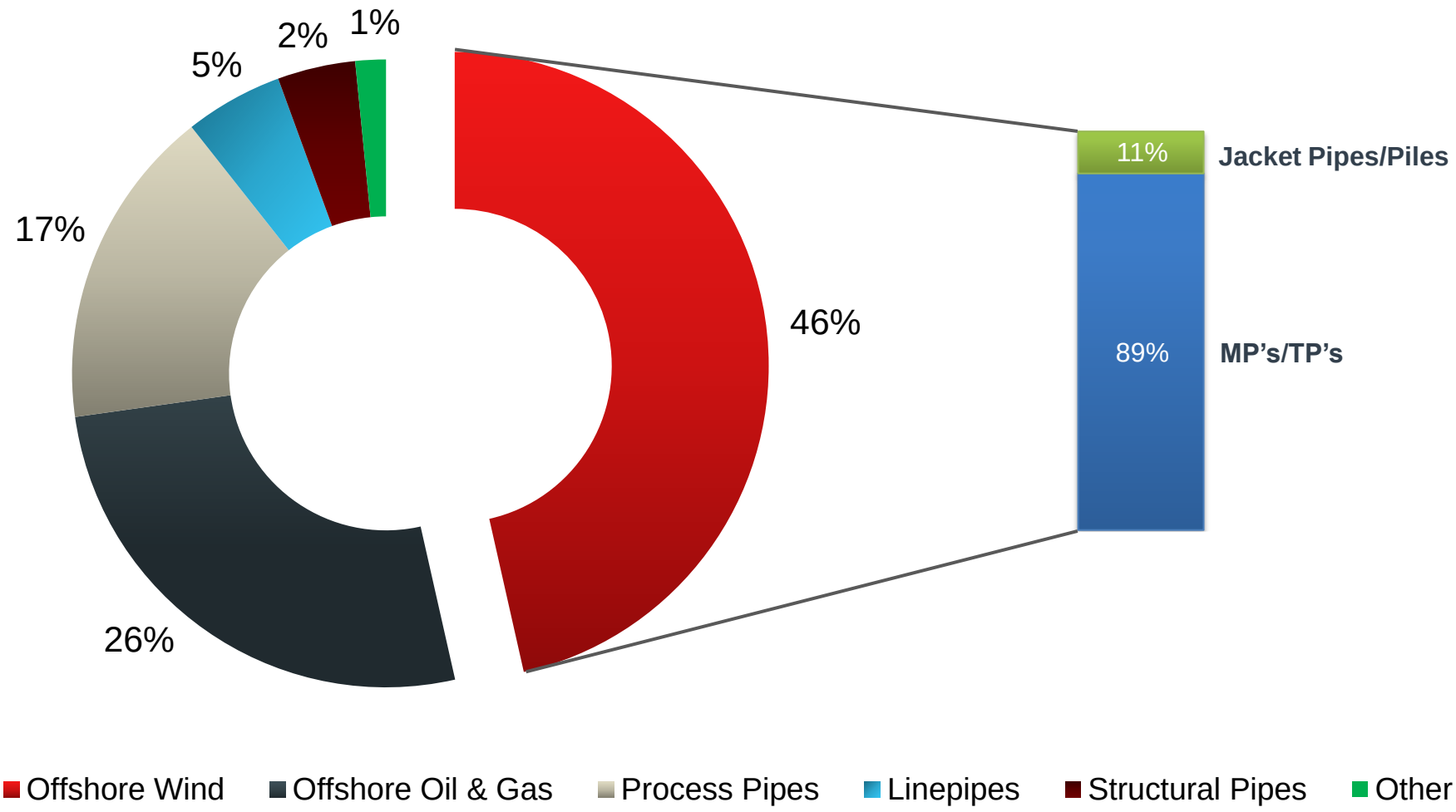
UK



Transition Pieces

Revenues by Industrial Sector

EEW Group



EEW SPC
Key Figures



Photo: Andreas Duerst, STUDIO 301

History

EEW SPC

Foundation of EEW OWC
2003

Building Permission
2005



2006
Renaming to EEW SPC

Laying of Foundation Stone
2007





2008
Start of Production in Rostock

Start of Production in Lubmin
2009



History

EEW SPC



2010 / 2011
Complition of Hall 3



Area Expansion
2012





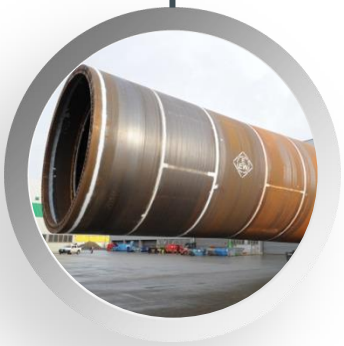
2013
New Office Building & New Fabrication Hall 5 for XL MP‘s



Foundation of OSB (JV EEW SPC/Bladt)
2014



2015
Start of Production at OSB



Worlds biggest MP
2016

History

EEW SPC

OWF
Veja Mate

Ø
7.8 m

Length
82.2 m

Wth
86 mm
(avg)

Weight
1.302 t



Worlds biggest MP
2016



Core Products

EEW SPC

Monopiles



Diameter: 1.5-7 m
Length: up to 120 m
Weight: up to 1000 t



XL-Monopiles (future)

Diameter: up to 10 m
Length: up to 120 m
Weight: up to 1500 t

Transition Pieces (incl. XL)



Diameter: up to 7.5 m
Length: up to 25 m
Weight: up to 500 t



Pin Piles for Jackets

Diameter: > 1.5 m
Length: up to 120 m

Part II

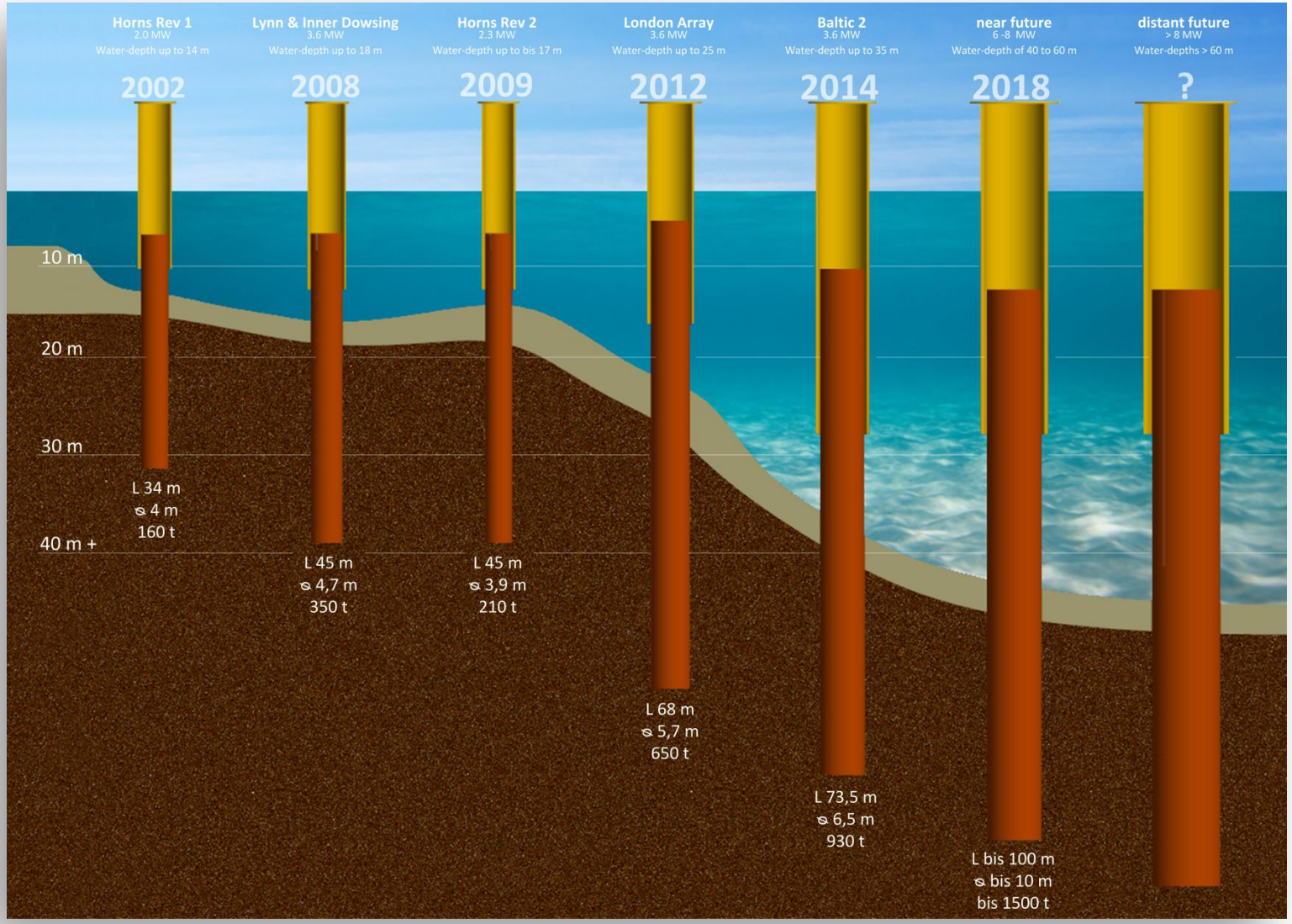
EEW SPC
-
future aims
& R&D



Photo: Andreas Duerst, STUDIO 301

EEW SPC

Future aims



EEW SPC

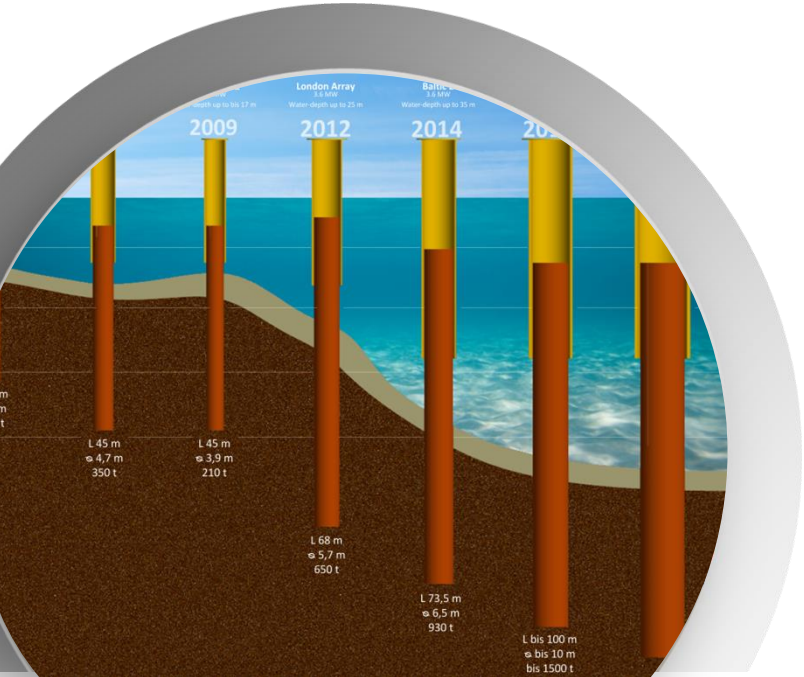
Future aims

EEW SPC - performance

Production time for one MP: ~ 21 days
Tonnage per month: ~ 15.000 t

→

Production time for one XL-MP: ~ 30 days
Tonnage per month: ~ 19.500 t



Weld length per MP (Wth 86 mm in avg)	Ø 7.0 m	Ø 10.0 m
LW	120 m	150
CW	300 m	400
in total	420 m	550 m

+ 30%

EEW SPC

Future aims

EEW SPC - performance

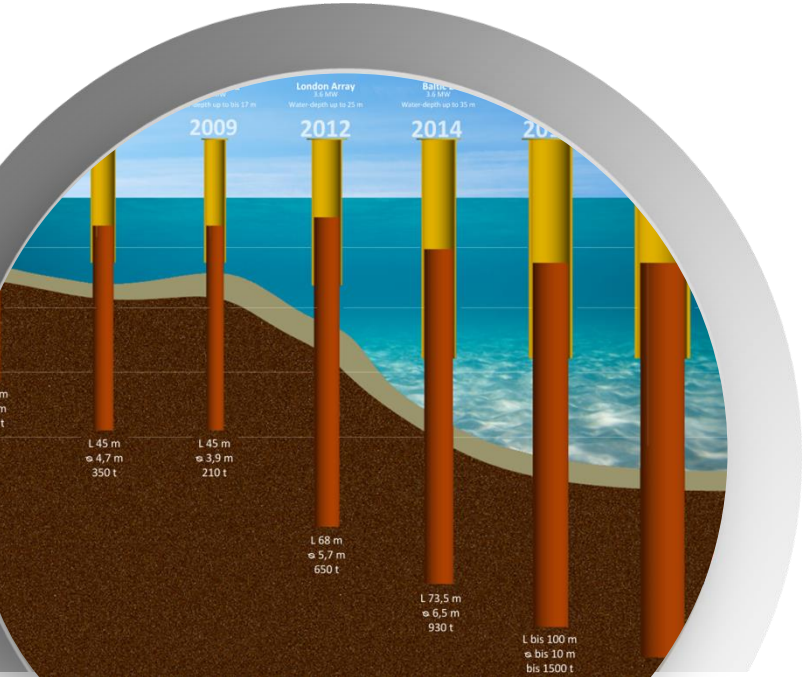
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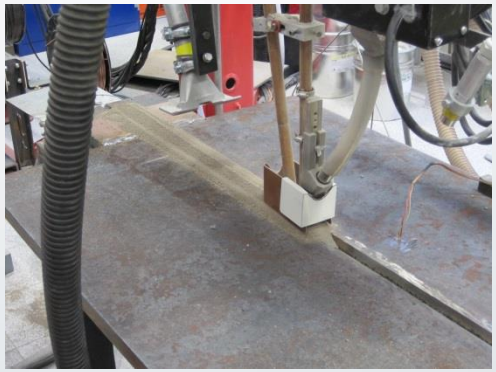
Tonnage per month: ~ 19.500 t



New requirements on our technology to reduce production time

EEW SPC – past R&D Projects

Welding of high-strength steels for the Offshore Market
2008/2009



- Tandem-Twin arrangement on S690 QL 1

Task

Developing methods for the economical production of thick-walled pipes made of high-strength steels with low temperature properties

Project network

- Fraunhofer Institute as a cooperation partner

Results

- parameterization of the multi-wire SAW-process for a stable weld bead configuration
- good mechanical properties of the weld metal

EEW SPC – past R&D Projects

Analysis of cold-cracking within high-strength steels
2014



Fig.: implant test bench

Task

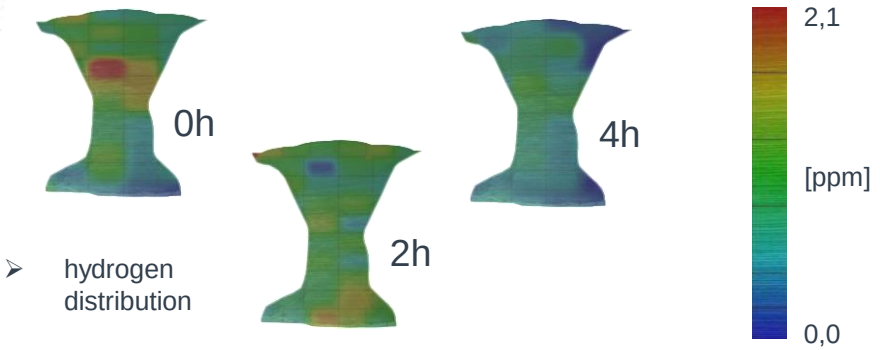
Development of an implant test bench for an qualified examination of the hydrogen content

Project network

- Fraunhofer Institute as a cooperation partner

Results

- hydrogen distribution over the weld cross section
- no need for a pwht of 4h at 300°C



➢ hydrogen distribution

EEW SPC – current R&D Projects

Offshore Wind Solutions (OWS)
01.11.2015 – 31.10.2018

„More wind more future - Innovations for offshore wind“



future XL-Monopile
- Ø 10m
- Lenght 110 m
- Weight 1.900 t

Task

Development of innovative planning and production technologies for the production of deep-water foundation structures for water depths > 40m (XL-Monopiles) while reducing the delivery time by 20-30%

Project network
- biggest R&D joint project in Northern Germany
- 18 participating companies & institutions (Fraunhofer, Siemens AG, Nordic Yards, University of Rostock etc.)

Interim results
- already made great advances in the automated preparation of drawings („One-Click-Drawing")
- first opportunities for error detection while welding

EEW SPC – current R&D Projects

Multi-wire SAW with cold wire feed
01.12.2015 – 30.11.2017



- macro of the first attempts
- excellent welding properties

Task

Development of a process technology for the multi-wire SAW with cold wire feed

Secondary aims

- developing a targeted weld qualitiy by feeding a cold wire (not enrgized wire)
- obtaining a new WPQ for EEW SPC by recognized institutes (DNV; GL; LR etc.)
- using the new technology for LW in thick plate area

Project Network

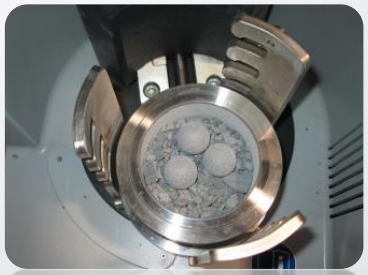
- Fraunhofer Institute as a cooperation partner

Interim results

- First attempts very successful
- Increasing the deposition rate by about 20%
- Currently determining the optimum system configuration

EEW SPC – planned R&D-Projects







Source: Sulzer (Roll)

Developing new technologies for…

automated post-processing of thick-walled welded pipe structures (AutoGrind)
(Joint project with Fraunhofer Institute)

- development of plant and control technology
  → working time and cost optimization

environmentally friendly recycling of weld slag
(Fraunhofer Institute and UniRo as a joint partner)

- optimization / reversal of the disposal costs

Innovative offshore system coating
(prject board + cooperation with Fraunhofer Institute and RoKo)

- thermal spraying of aluminum (TSA) as a large corrosion protection process for offshore wind foundation structures

EEW SPC

Aims & Impacts of R&D-Projects

EEW SPC

Europe

Technology

- creating and securing jobs
- staff training
- expansion of knowledge
- increasing competitiveness
- cost saving through process optimization

- positive effects for the achievement of the energy transition
- increase added value
- concentration of knowledge through technology plattform
- improved market appeal

- generating new knowledge
- new and further developments of technology innovations
- quality assurance / -increase
- cost savings
- optimized application possibilities



Thank you for your attention!

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Photo: Fotogloria/Ulrich Wirrwa