KRAENENDONK – *Smart robotics*

Helping metal construction industry to improve productivity

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Agenda

• Introduction

• Robotizing processes

• Total solution to improve productivity

• Reference cases

• Cost and labor savings
Introduction
Robot Technology Centre: total solutions
Robotics: What can we automate?

Cutting

Welding

Assembly
Profile and beam cutting
PTSC, Keppel, Signal Int., IHC Merwede
Beam welding
Fairfield Mabey Ltd, Max Bögl
Flange assembly
IHC Merwede, Keppel Singmarine
Submerged Arc Welding
Civmec, Australia
Hybrid Laser Arc Welding
Total solutions, to improve productivity

Requirements for a total solution:

• Integration of logistics (transport, storage)
• Software (centralized control, flow)
• Combining products (beams, tubes, assemblies)
• Combining processes (welding + assembly)
• Offering all services (installation, training, customer services)
Assembling, (tack) welding, picking, placing, ...

Most time consuming labor, now fully automatic
Beam assembly line
Assembling attachments to H-beams
Pipe shop with flange to tube assembly
Software
Software
ARAC - RinasWeld

- Product family based
- Easy macro creation
- Excel spreadsheet
- 3D adaptation
Software

ARAC – RinasWeld

- Model based
- Import 3D CAD model
- Automatic program generation
- Collision avoidance
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Reference cases

- Keppel
- Meyer Werft
- STX France
- Liebherr-Nenzing
- IHC Dredgers
- Fokker Aerostructures
- ASK Romein
- Steel Structures
- BAE Systems
- HSM Steel Structures
- DCNS Lorient
- Tosec
- Mercon Steel Structures
- Mabey Bridge
- Centraalstaal
- Aker Kvaerner Stord
- Aker Verdal
- Reggiane
- Saporiti
- Jurong Integrated Structures
- MSI
- BORSIG
- Grootint
- IHC Piping
- DAF Trucks
- Scania Nederland
- C.S.M.
- Victor Buyck
- Royal Schelde
- Bremer Vulkan
- UM Deniz Sanayi
- TTS Construction
- Chantiers de l’Atlantique
- Tatravagónka
- UIE
- IZAR Manises
- Umoe Karmsund
- Danyard
- Med Marine
- Dragados offshore
- STAS
- IHC Metalix
- Swan Hunter
- Van der Giessen-de Noord
- Odense Steel Shipyard
- Penn & Bauduin
- Nordic Yards Warnemünde
- Fincantieri Monfalcone
Caterpillar MSI, Belgium
VDL Technics, The Netherlands
Fincantieri Monfalcone, Italy
Fairfield Mabey Ltd, United Kingdom
Max Bögl, Germany
IHC, PTSC, etc
Cost, time and labor savings

Productivity

Robot Arc time for one piece production

- Teach-in
- Simulation
- ARAC
- RinasWeld
Cost, time and labor savings
Productivity

Work Preparation time versus teach-in 1980

Teach-in
Simulation
ARAC-C
RinasWeld
Cost savings: example

All manual labour
  picking
  tack welding
  placing
  welding
  waiting / logistics / changing tools / cleaning / maintenance

General savings on a pipe shop is 95%* in manual labour
Raising productivity with over 85%*
Raising the arc time with over 75%*

*Numbers differ between different companies and products
Thank you

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