



LR

**Sustainable
developments in
IWW industry**

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Content

- Introduction
- Present projects with alternative fuels
- Ship optimization
- Autonomous sailing
- Conclusions



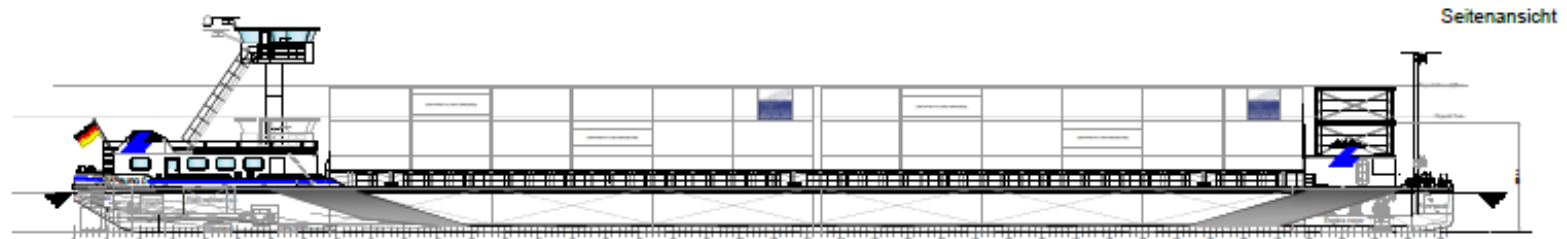
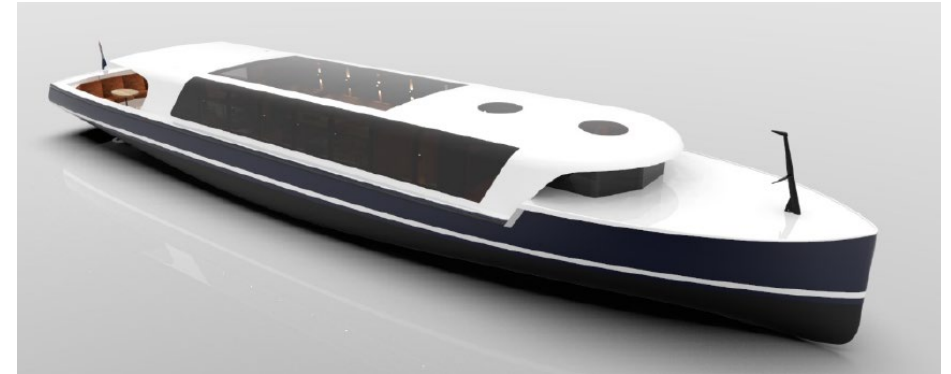
Introduction

- Presentation meant to give an insight in present practice
- IWW is already sustainable way of transport
- Industry is well aware of need for greening
- Technical focus on alternative fuels, ship optimization, autonomous sailing
- Rules from classification societies available
- Statutory regulations being developed in CESNI and CCNR



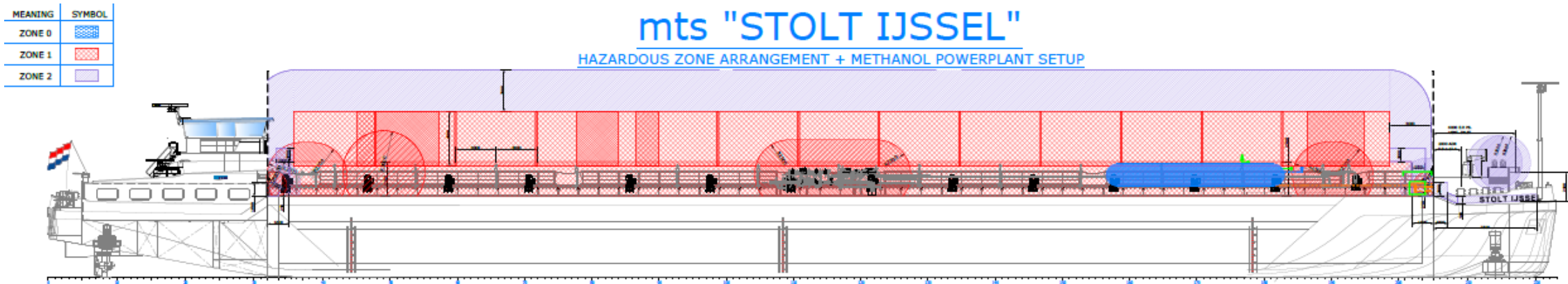
Present projects with Hydrogen as fuel

- Conversion dry cargo ship 'MSC Maas'
- New con school ship 'Ab Initio'
- New con 135 m dry cargo ship 'Antonie'
- Conversion dry cargo ship 'FPS Waal'
- New con dry cargo push combination 'Rhenus Mannheim'
- New con pax ship 'Neo Orbis'
- Conversion MTS 'Volendam'
- New con pax ship 'NepRiver'
- Conversion pax ship 'Donauprinzessin'



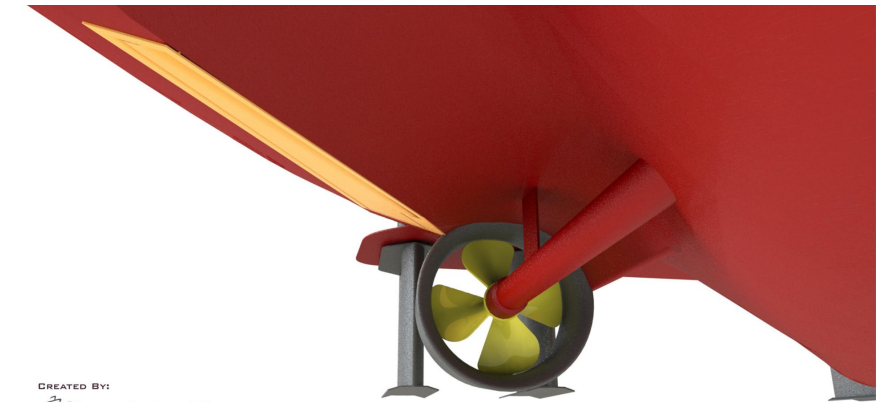
Present projects with Methanol as fuel

- New con Type C tanker 'Stolt IJssel'
- Conversion Type C tanker 'Chicago'
- Conversion series of cabin vessels

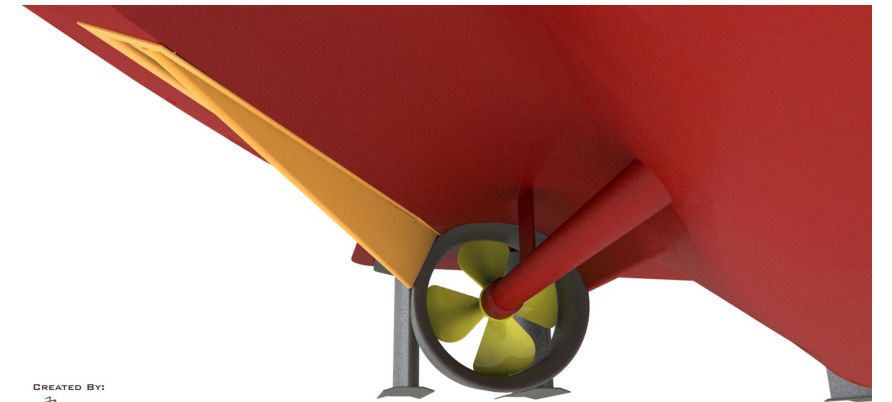


Ship optimization

- Fuel reduction has become paramount
- Weight reduction (has limitations)
- Use of other materials (high tensile steel, aluminium, glass reinforced fibres)
- Optimization of hull form
- Ships fit for shallow water
- Trim optimization for shallow water
- Twin screw / flex tunnels



CREATED BY:
ROMMERTS SHIP DESIGN B.V.
RENSEN-DRIESSEN SHIPBUILDING B.V.



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Autonomous sailing

- Necessary to cope with limited availability of personnel
- Data collection to improve sailing
- Crew support (lane assist, collision avoiding, bridge warning)
- Pilot projects (Mts 'Walcheren', 'Watertrucks')



Conclusions

- First steps for more sustainability have been taken
- Uncertainty on regulations is considered as biggest challenge, so regulations should support developments on sustainability
- As the use of alternative fuels is rather new in the inland waterway industry sharing of knowledge and cooperation is key
- Classification societies can play an important role in the further development of sustainable inland waterway shipping



Thank you

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