

**Inland
Navigation
Week**



TECHNOLOGY MATCHMAKING WORKSHOP

Sebastien de Schouwer
Multronic

Monday March 20th 2023



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Fields of Application



Ships with our technology

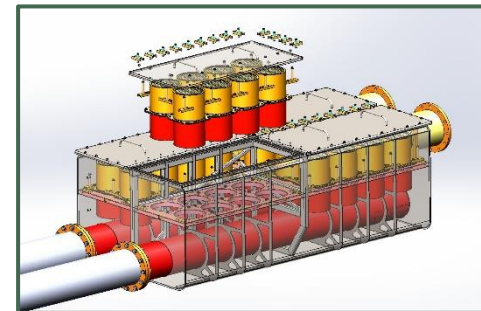
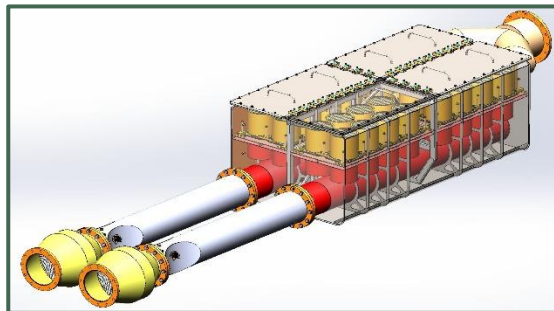
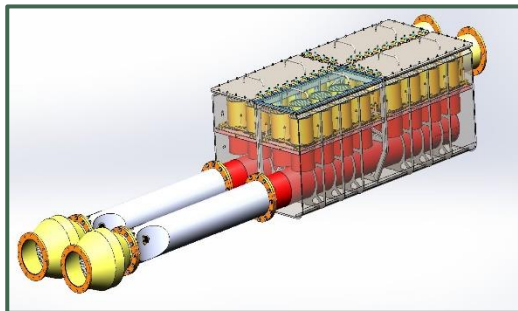
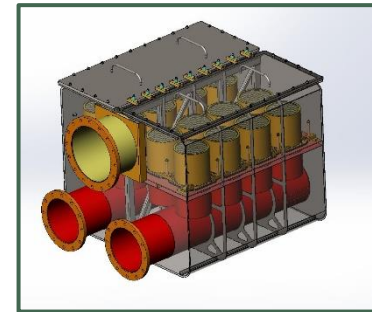
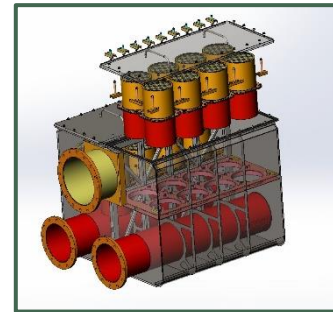
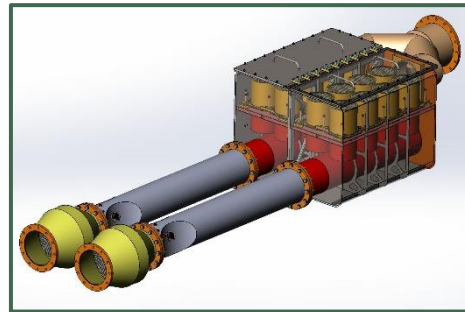
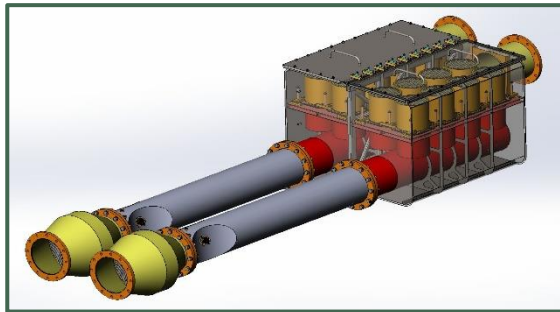
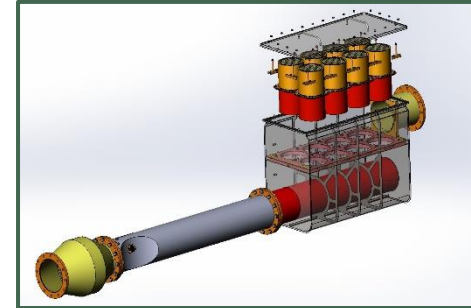
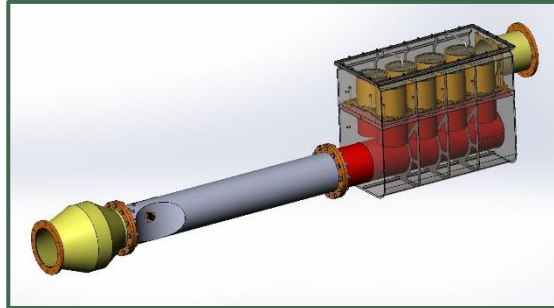
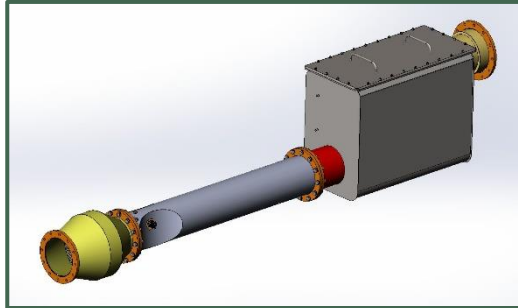




Approach for marine applications : modular packages



Box Designs

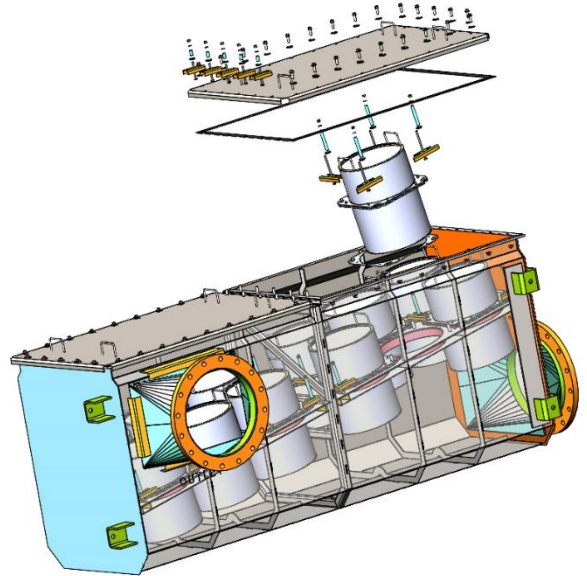
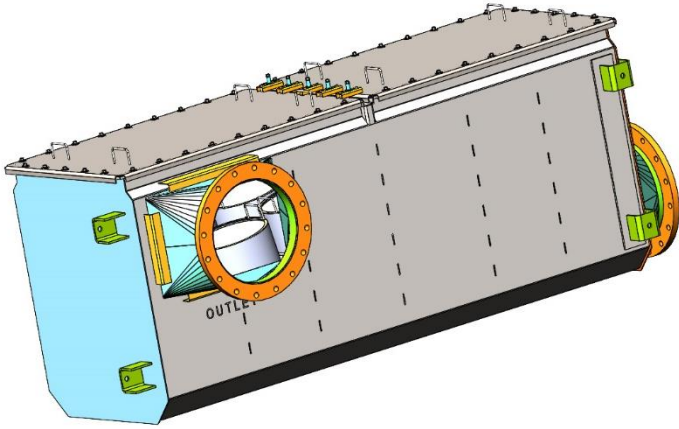
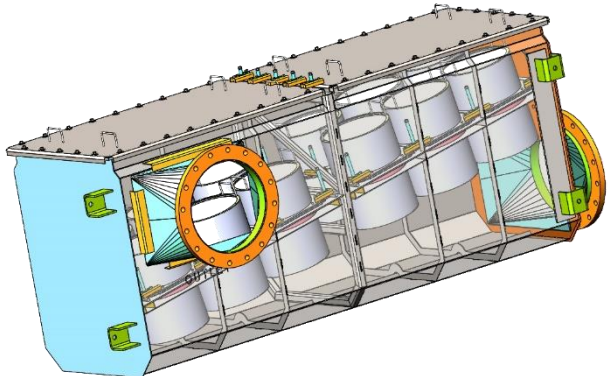
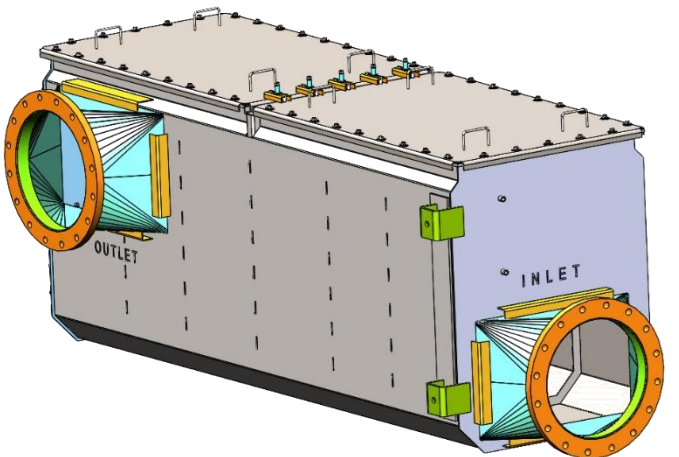


Modular stands for:

- Standardized modular package for marine, gensets and other large powertrains
- Robust design stability against deformation for modular installation
- Same design different packs
 - SCR (SCR only for Marine IMO TIER III)
 - SCR + (with DOC and ASC for TIER 4 F and EU Stage IV)
 - Stage V package (with DOC, DPF, SCR,ASC)
 - Solutions for greenhouses with Natural gas engines and CHP units
- Compliant with Stage V for NOX, PM and PN!!!
- Scalable solution using over 80% of identical components in the systems
- Flexible standard solutions for in and outlet position of the systems (in => out 0° 90° or 180 °)
- Flexible for pipe diameters DIN 200, 250, 300, 350, 400, 500 & 600
- Compact setup also in the details (flange design of the modular, closing lid with screws inside footprint, etc..)
- Compliance with marine lifetime expectations, and maintenance intervals
- Easy service
- No lifting tools are needed for service

Modular system New build and during field service





Mechanical details

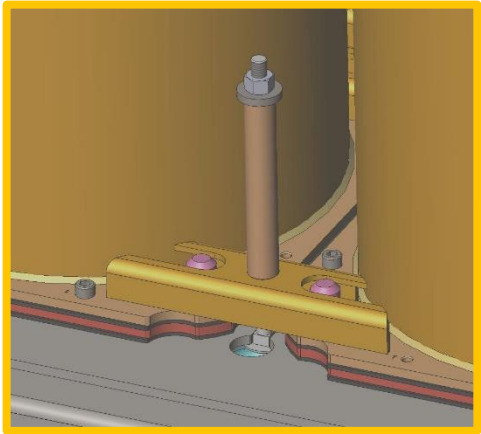
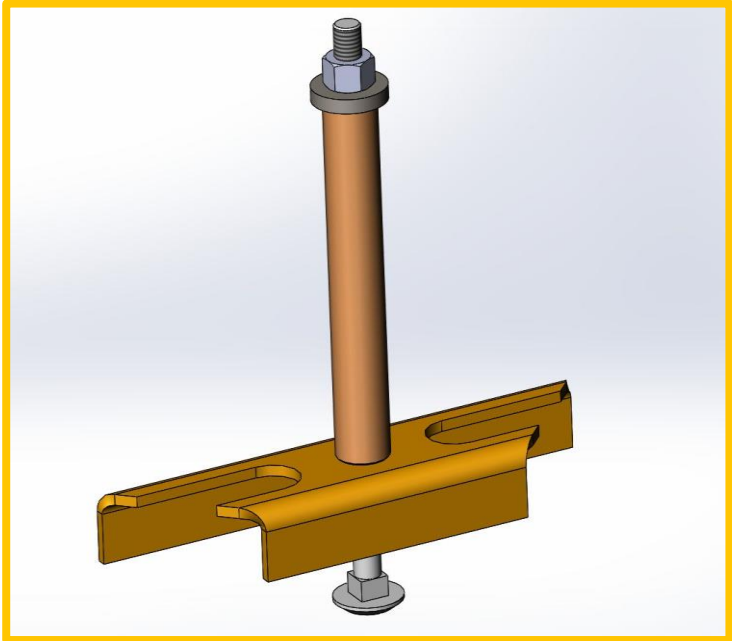
Modules are held in place by placeholders sticking out from the separation panel.

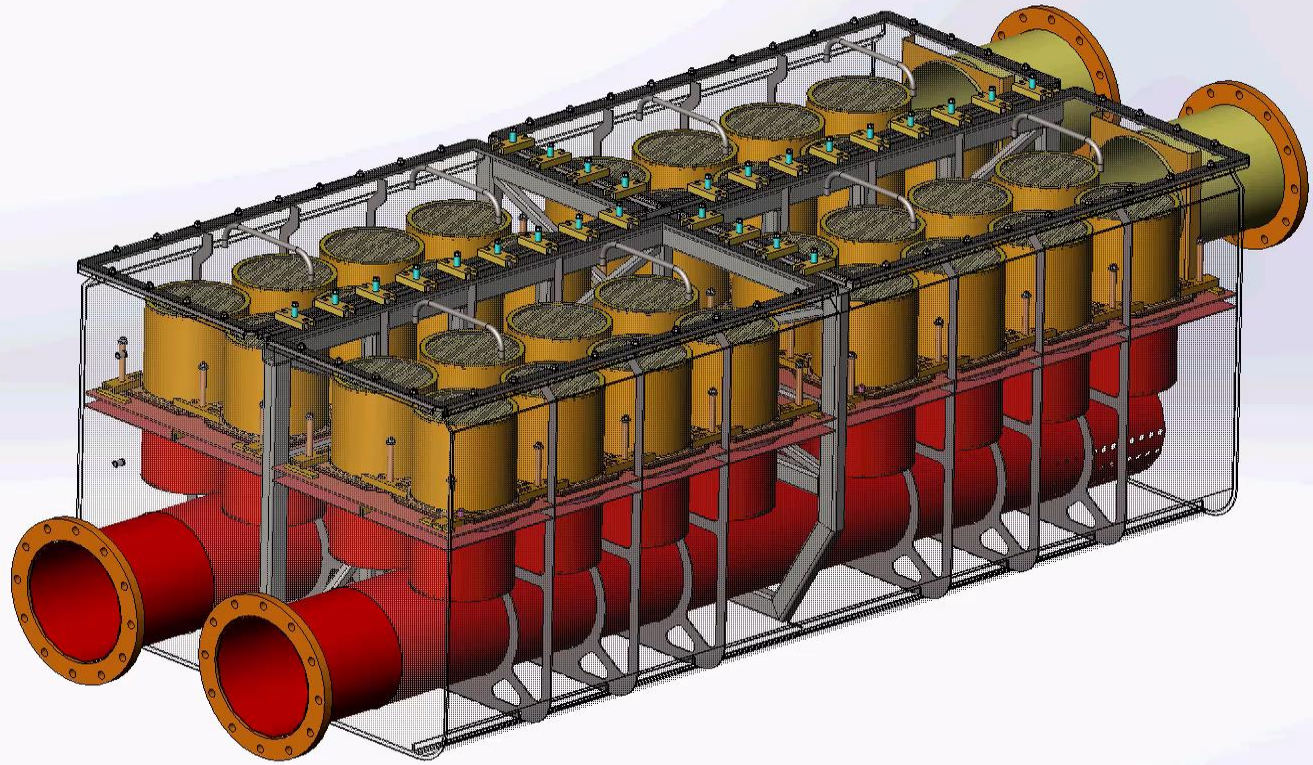
A clamp keeps the units down.

Long bolts to maintain proper pretension increased resistance for heating up and cooling down.

Bolts/nuts which were deformed by heat can be cut off and replaced during maintenance

Changing of filters can be done by a regular mechanic or by technical crew



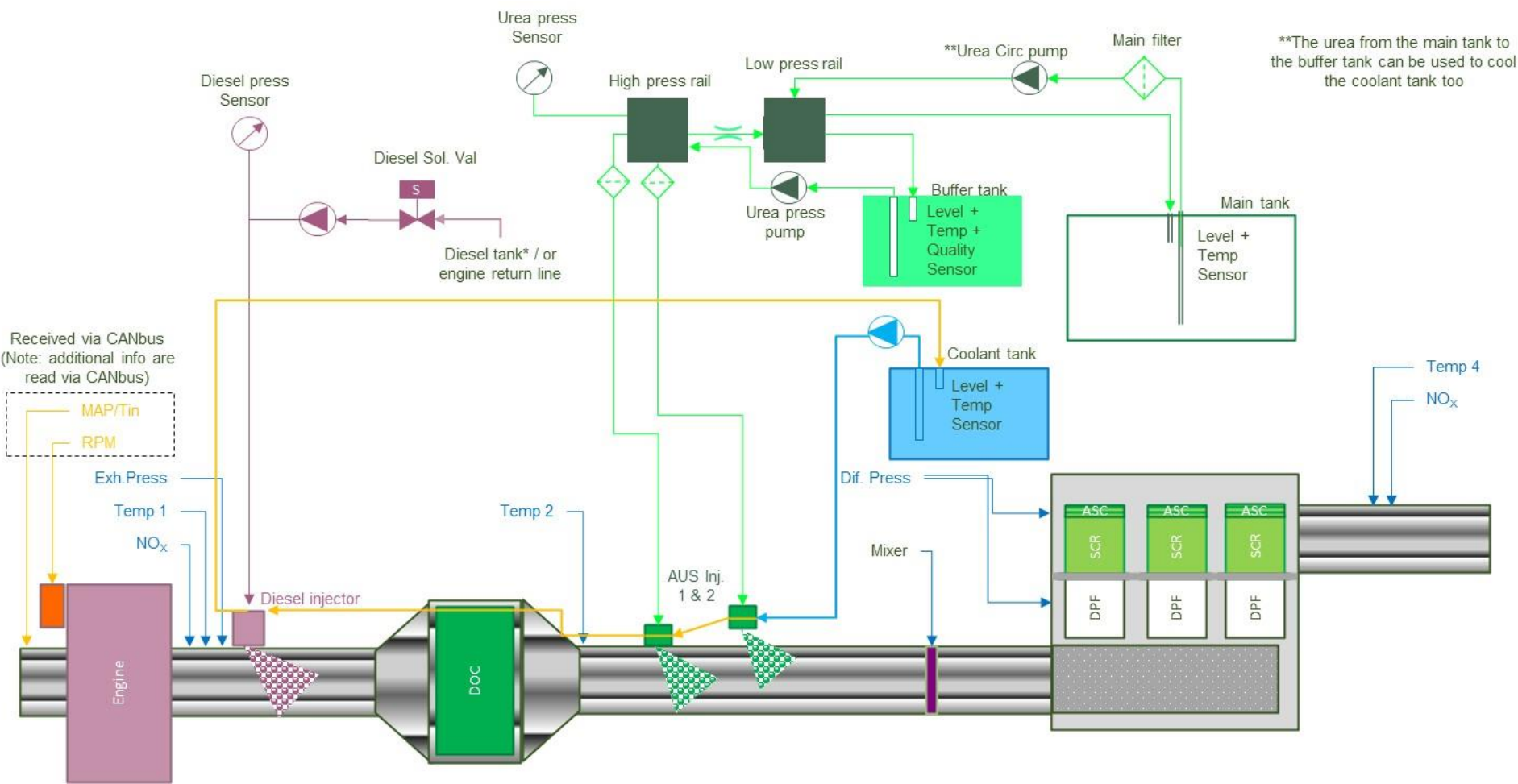




The Multronic control and dosing systems – Diesel Engines



Schematic of a Stage V control package







Multronic offers a large family of mixing pipe solutions. Our standards cover a wide ranges of engine sizes and exhaust flows starting from 2000 to 7500kg/h and per pipe.

The mixing pipes are specially designed for airless urea dosing (no need for compressed air). They are available for twin injection systems, for injectors with maximum dosing rates going from 9 up to 80 kg/h.

The mixing pipes boost the performance of the SCR system. The designs optimize the urea hydrolyzation and deliver high NH₃ uniformity at the lowest possible pressure drop for the SCR inlet.

Multronic offers mixer pipes ranging from DN 200 to DN600. The pipes can be used in parallel when the exhaust gas flow exceeds the maximum requirement.



Low Flow, Low temp

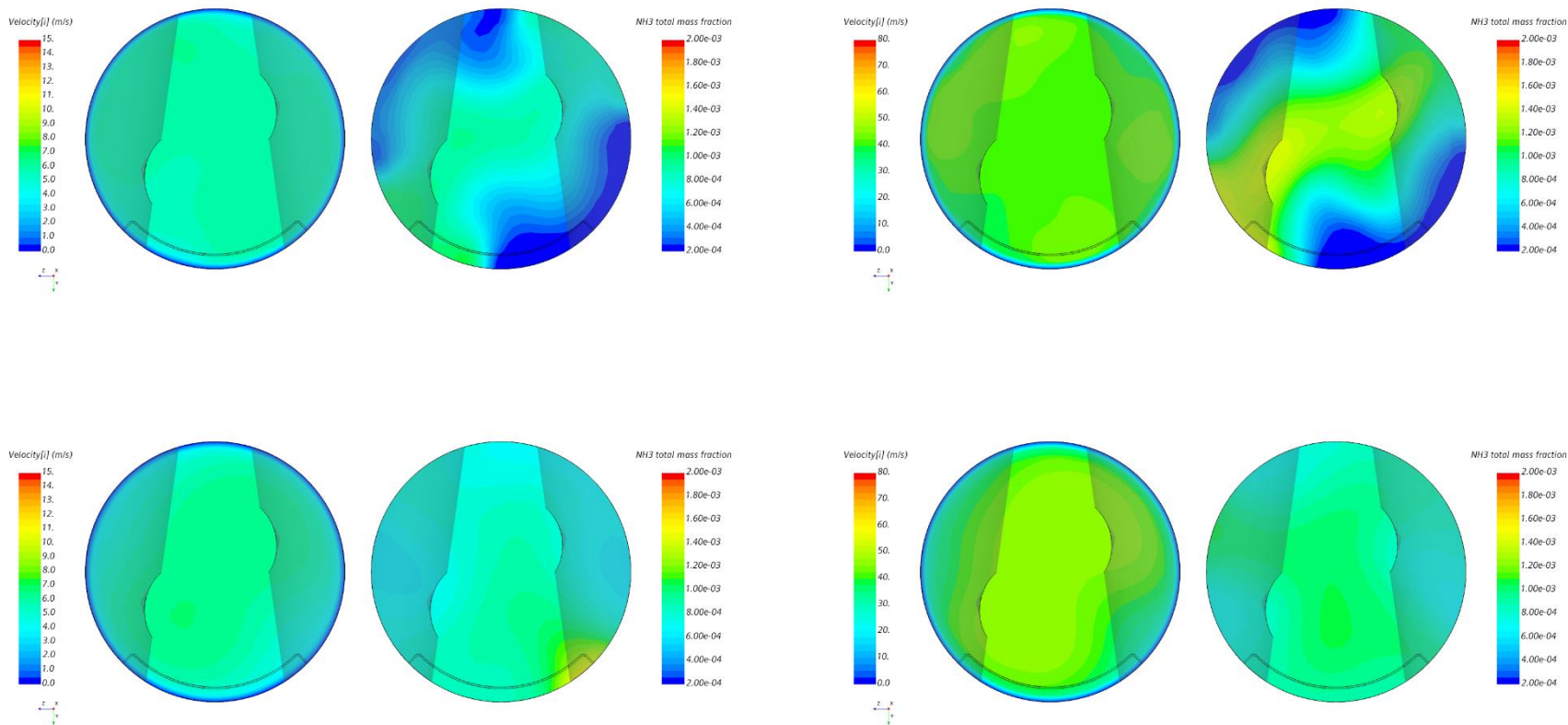
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High flow, high temp

4D

=>

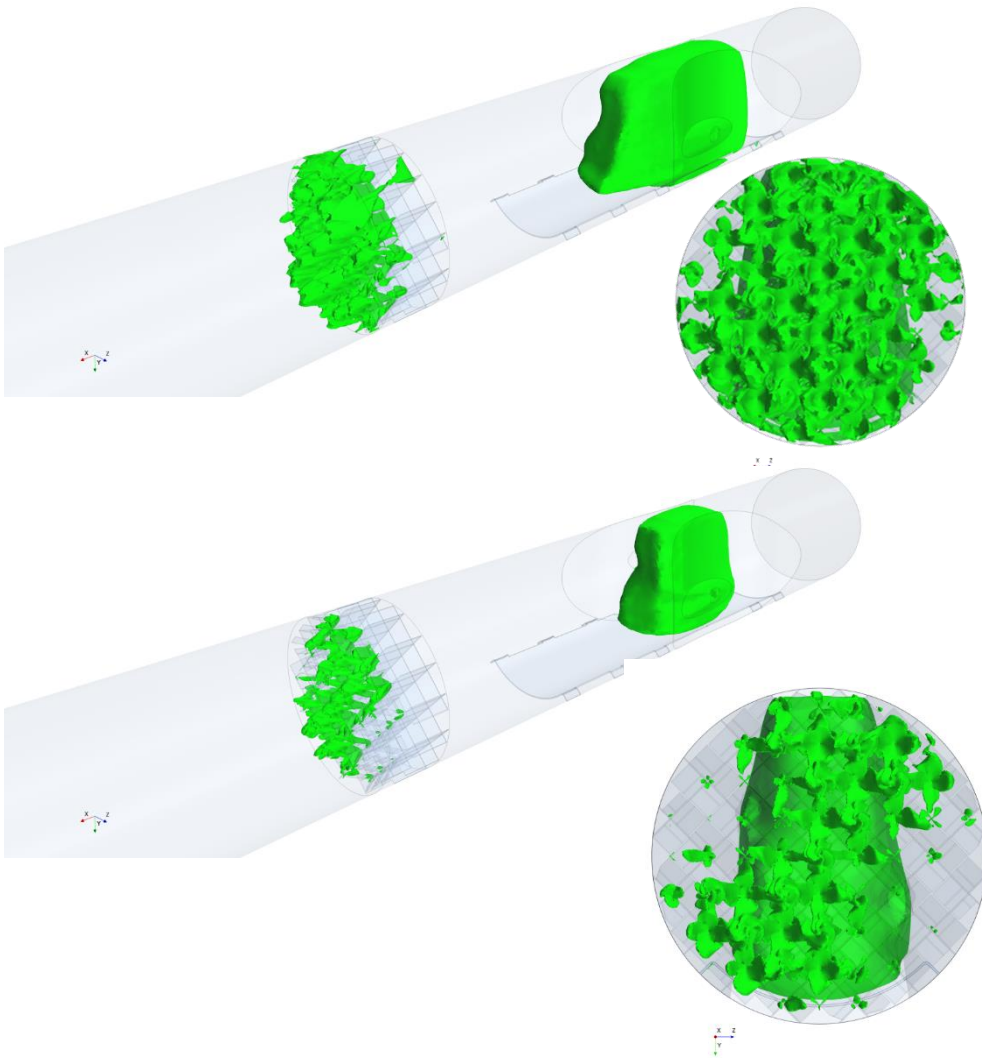
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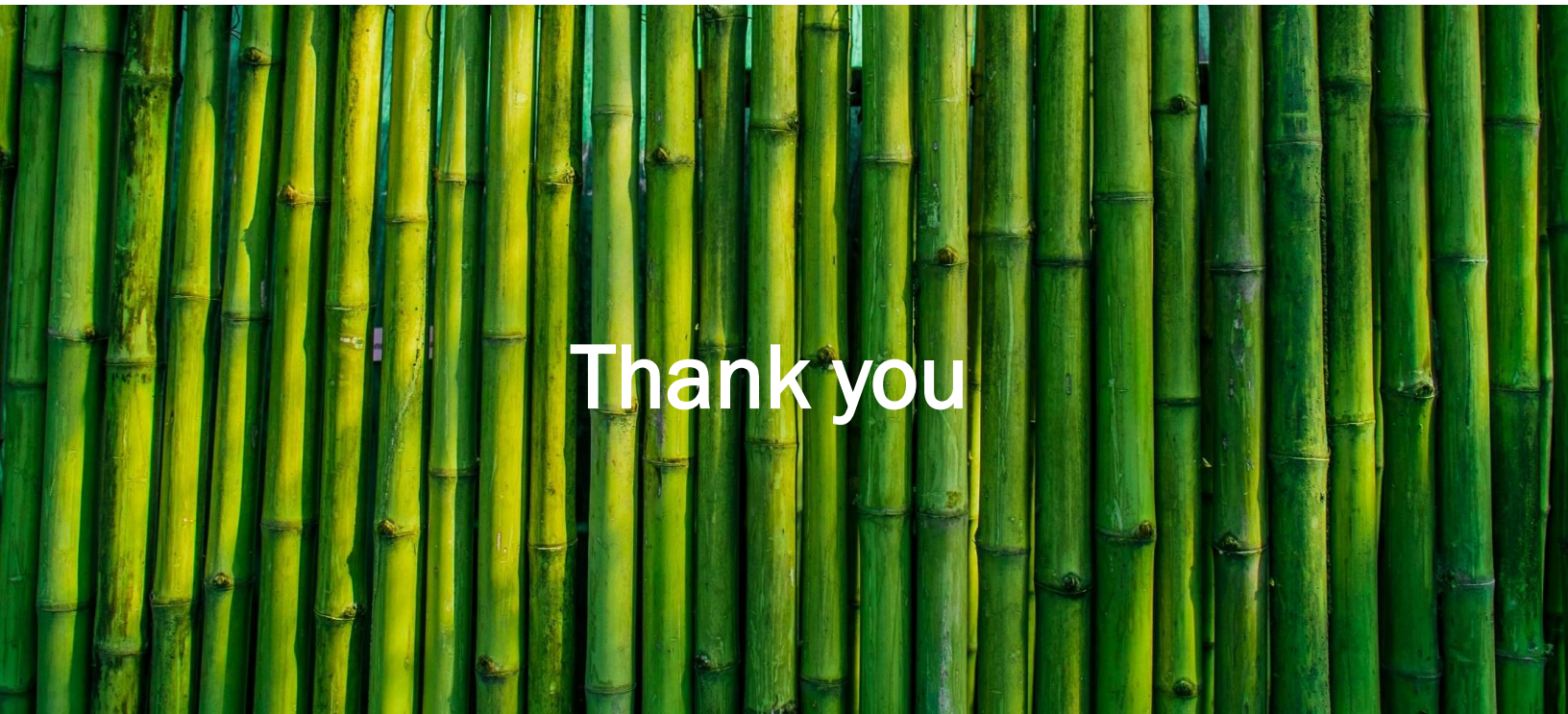




Goals of this development program:

- Obtain high exhaust gas uniformity at low pressure drop
- Achieve good urea droplet transportation at both high and low flow
- Achieve homogeneous urea distribution in shortest possible distance
- Achieve complete urea and water evaporation at short distance
- Obtain similar results for high and low flow
- Obtain repeatable results for DN 200 up to DN 600
- Prevent urea deposit under low load conditions
- Promote urea nozzle washing with exhaust gas flow





Thank you

