

An EGCS conceived by Shipowners for Shipowners

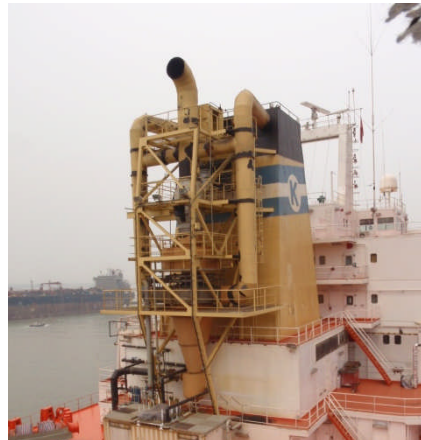


Holeby 2006-2008



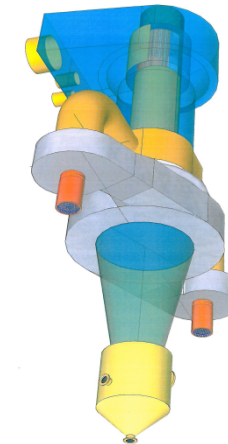
Core technology vs
PM and SO₂ trapping

Baru 2009-2010



Function/efficiency
large scale unit

Commercial unit
available from July 2011



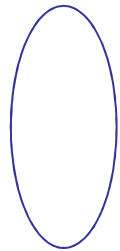
600 kW demo unit at
Marintek 2010/2011

Clean Marine AS
www.cleanmarine.no
By
Nils Chr. Hoy-Petersen

Commercial unit – MKII (patent pending)

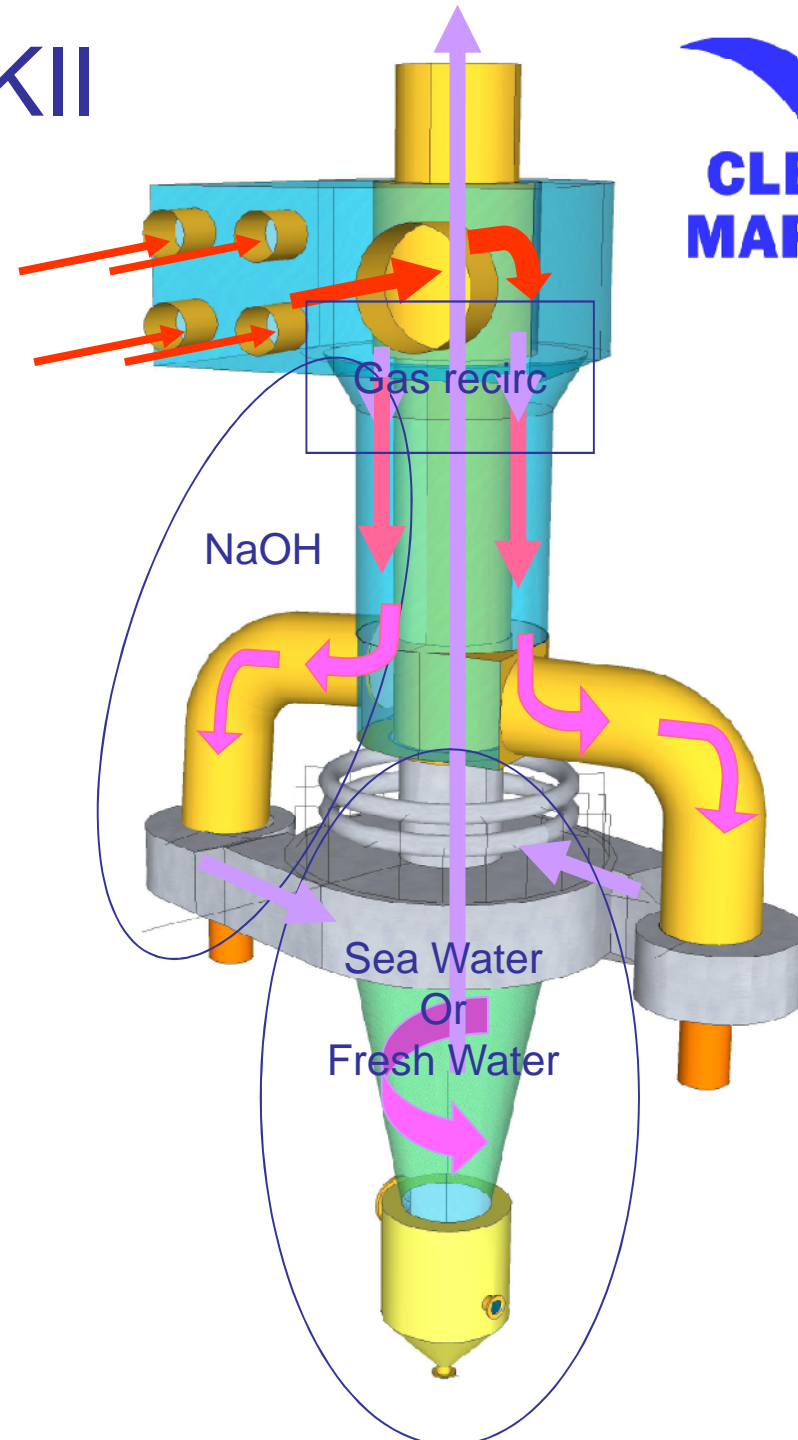


→ Raw gas



Cleaning phases

→ Clean gas



Particulate test results

Holeby – focus on PM

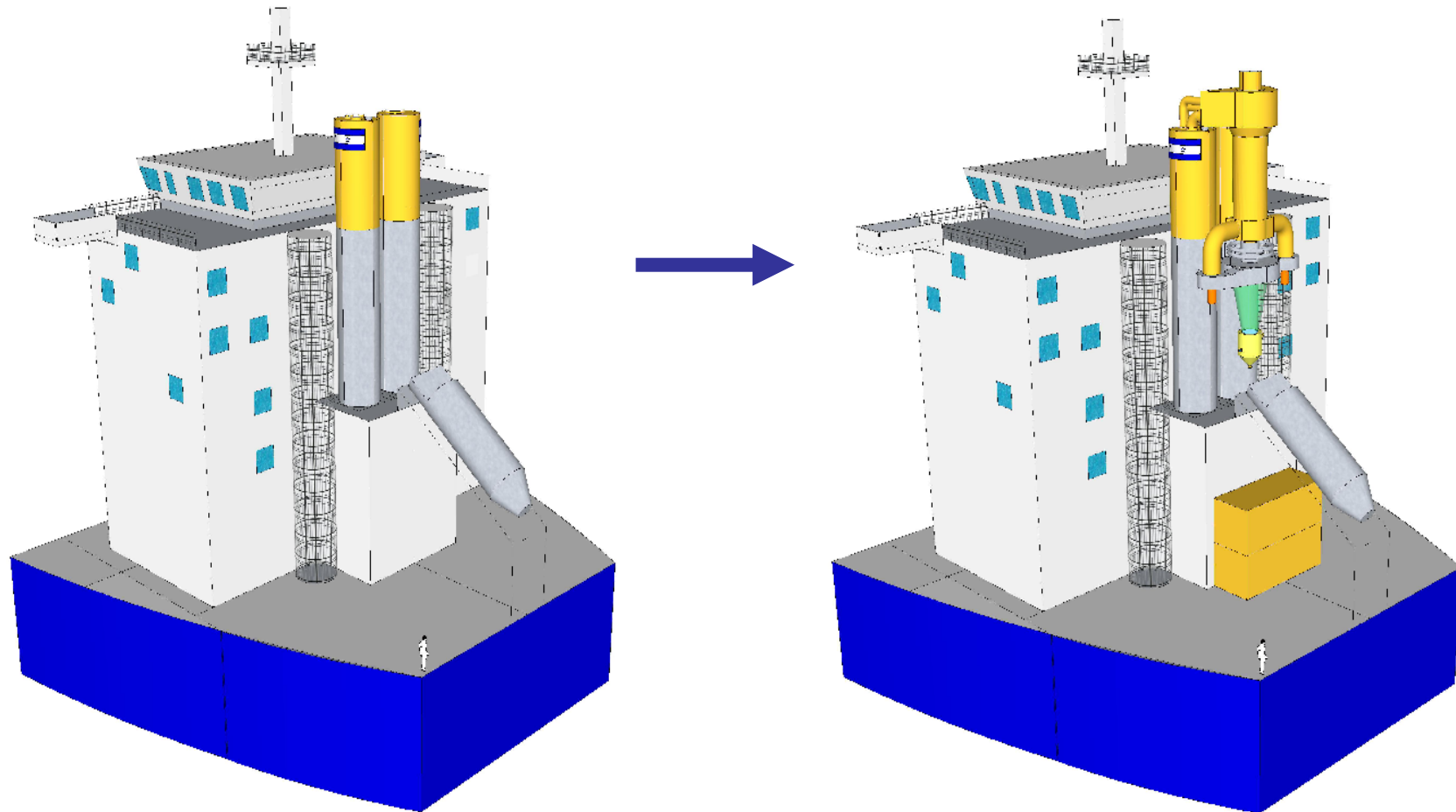
Fuel	PM raw gas g/kWh	PM clean gas g/kWh
MGO (0,0006%S)	0,303	0,037
HFO (0,5% S)	0,753	0,222
HFO (1,7%S)	1,031	0,343

Baru – focus on SO₂

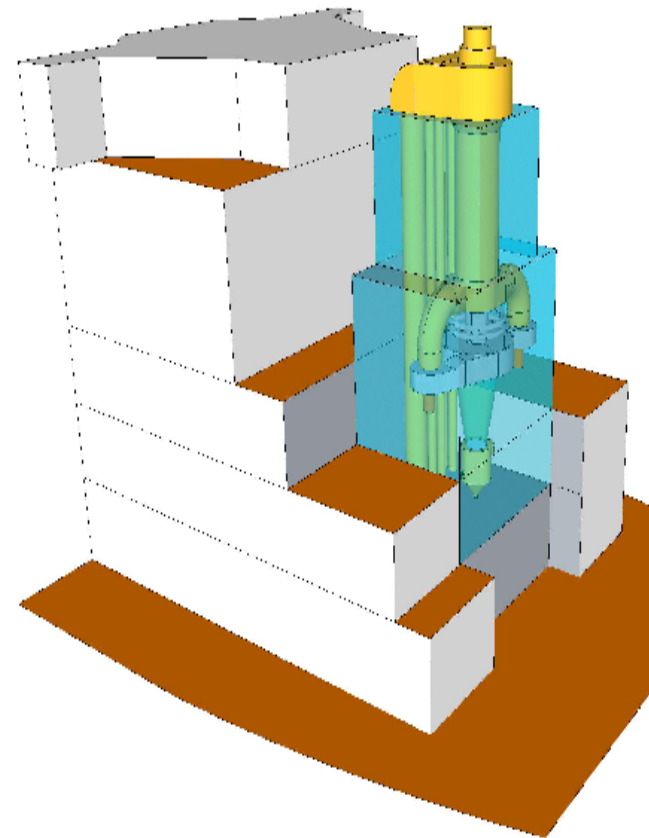
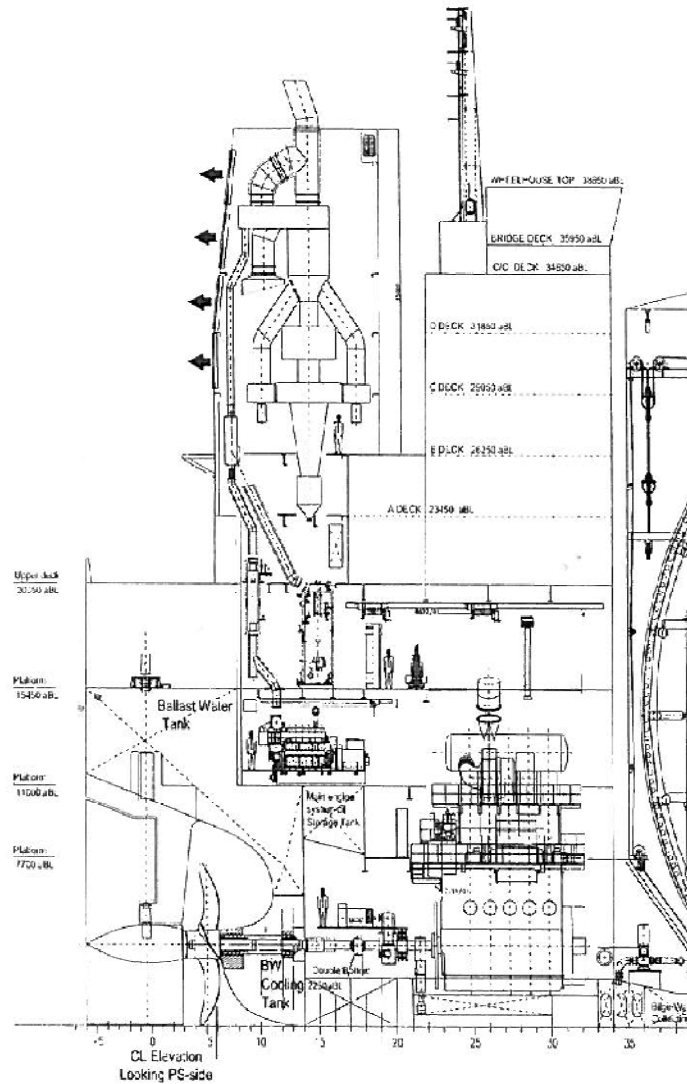
Parameters	Raw gas	Clean gas	Cleaning rate %
SO ₂ (ppm)	570	4-7	98-99
Equivalent S% in fuel	3,23	0,03-0,05	”

- Engine output – 6 MW
- Sea water – 200m³/h
- NaOH – 50 l/h
- Power consumption abt 2% (of the treated power)

MKII – retrofit



MKII – new building





Summary system offerings

- One cleaning unit serves all engines
- Complete independency of engine(s) operation modes
- System set-up: simple and compact, low weight, new buildings or retro-fit
- Operation characteristics: Simple, flexible to emission requirements
- Value for shipowner:
 - CAPEX: Relatively low
 - Pay Back: Favourable (< 1 year)
 - Training needs: moderate