FCM MeOH

Methanol LFSS

Roberto Comelli
Marine Division
2018.03.20
Alfa Laval On Board

- Oil cleaning
- Filtration
- Fuel conditioning
- Oily waste treatment
- Crankcase gas cleaning
- Exhaust gas cleaning
- Scrubber water cleaning
- Waste heat recovery
- Steam generation
- Thermal fluid heating
- Cooling and heating
- Desalination
- Ballast water treatment
- Inert gas production
- Gas combustion
- Tank cleaning
- Waste heat recovery
- Scrubber water cleaning
- Waste heat recovery
- Steam generation
- Thermal fluid heating
- Cooling and heating
- Desalination
- Ballast water treatment
- Inert gas production
- Gas combustion
- Tank cleaning
Fuel Solutions Portfolio

- FCM 1.5
- FCM LFF
- FCM Gas
- HFO
- MGO
- Hfo Emulsions
- MeOH
- LPG
- LNG
- VOC
- w. MDT PVU

Future Developments
FCM MeOH
FCM MeOH Delivered

1 x MDT Test Engine

4 x Hyundai
Marinvest
Westfal-Larsen

1 x MES Test Engine
3 x Mitsui O.S.K. Lines
# General Duty Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MeOH Pressure to Engine</td>
<td>10 barg</td>
</tr>
<tr>
<td>MeOH Temperature to Engine</td>
<td>10 - 50 °C</td>
</tr>
<tr>
<td>MeOH design flow to Engine</td>
<td>2900 Kg/h</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-10 - +45°C</td>
</tr>
<tr>
<td>Inert Gas Used</td>
<td>Nitrogen (10 barg)</td>
</tr>
<tr>
<td>Heating Media</td>
<td>Glycol Water (3 – 5 barg)</td>
</tr>
<tr>
<td>ATEX classification</td>
<td>Zone I</td>
</tr>
<tr>
<td>Max Power Consumption</td>
<td>25 kW</td>
</tr>
</tbody>
</table>
FCM One MeOH System Overview

- 1st stage of pressure
- Pressure Control Valve
- 2nd stage of pressure
- Pressure Control Valve
- Filtration Stage
- Deaeration Line
- Drain Line
- Nitrogen Supply
Initial design – Delivered Units

- Junction box
- Circulation pump
- Mixing tube
- Process heat exchangers
- Supply pump
- Control Cabinet
- Filter block
- Glycol water pump
- Glycol water expansion tank
- Junction box
Actual design – New Orders

- Easy-access valves
- New drain pumps
- Glycol water expansion tank
- Glycol water pump
- Inlet and outlet connections

- Junction box
- Supply pump
- Mixing tube
- Circulation pump
- Process heat exchangers
- Double Block & Bleed Filter
- Inlet and outlet connections

- Easy-access valves
- New drain pumps
- Glycol water expansion tank
- Glycol water pump
- Inlet and outlet connections
Lesson Learned - New features

Current orders

INSTALLATION

- Single module
  - fewer connections
  - Increased maintenance space
  - reduced footprint

- Single easy-access junction box

- More robust design
  - Lines run low on the module
  - Vibration proof
Lesson Learned - New features

Current orders

OPERATION

✓ Improved process
  ✓ Improved components reliability
  ✓ New std-by routines
  ✓ Faster operation

✓ Double Block and Bleed-filter
  ✓ Filter chambers independently drainable and serviceable
  ✓ No need to stop the system to clean the filter elements

✓ Spare Parts
  ✓ Parts in Distribution Center in Tumba, Sweden
Thank you for the attention. Questions?