

Congress  
Bergen

10

JUNE 14<sup>th</sup> - 17<sup>th</sup>, 2010

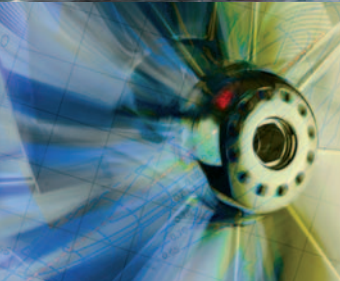
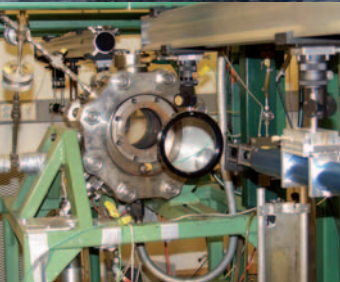
# 26<sup>th</sup> CIMAC World Congress on Combustion Engine Technology

for Ship propulsion  
Power generation  
Rail traction

## PRELIMINARY PROGRAM

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10

## CONTENTS

- 3 WELCOME ADDRESS
- 4 INTRODUCTION TO CIMAC
- 5 CONFERENCE VENUE
- 6 PRELIMINARY PROGRAMME
- 6 MONDAY, 14<sup>TH</sup> JUNE 2010
- 9 TUESDAY, 15<sup>TH</sup> JUNE 2010
- 14 WEDNESDAY, 16<sup>TH</sup> JUNE 2010
- 18 THURSDAY, 17<sup>TH</sup> JUNE 2010
- 23 EXHIBITION
- 25 OPTIONAL TOURS MONDAY 14<sup>TH</sup> JUNE 2010
- 26 OPTIONAL TOURS TUESDAY 15<sup>TH</sup> JUNE 2010
- 27 OPTIONAL TOURS WEDNESDAY 16<sup>TH</sup> JUNE 2010
- 28 OPTIONAL TOURS THURSDAY 17<sup>TH</sup> JUNE 2010
- 29 TECHNICAL VISITS FRIDAY 18<sup>TH</sup> JUNE 2010
- 30 OPTIONAL PRE AND POST CONGRESS TOURS
- 32 NORWAY
- 34 BERGEN
- 36 ACCOMMODATION
- 37 HOTEL OVERVIEW AND ROOM RATES
- 39 GETTING TO BERGEN
- 40 LOCAL BUSES IN BERGEN AND HORDALAND
- 41 GENERAL INFORMATION
- 43 REGISTRATION INFORMATION
- 46 MEMBERS OF CIMAC

Come to beautiful Bergen. You'll be most welcome.



CIMAC National Member Association Norway, through CIMAC 2010 AS has the pleasure of organising the 26<sup>th</sup> CIMAC World Congress on Combustion Engines, scheduled for 14<sup>th</sup> – 17<sup>th</sup> June 2010 in Bergen/Norway.

It is a special honour for us to have been awarded the next congress by CIMAC, an organization which has been acting for more than 50 years as a lively and attractive forum for engine and turbine builders and users. Today, CIMAC is the most important platform for the dialogue between the engine industry's technical experts and its customers.

The Congress is devoted to the presentation of papers in the fields of marine, power generation and locomotive engine engineering covering state-of-the-art technologies as well as the application of such engines. Moreover, the event provides the unique opportunity to meet colleagues and customers from the industry around the world.

Bergen is an old city with long-standing traditions of trade connections to most cities around the North Sea. It is still a small city. The Congress hotels are located within walking distance from Grieghallen Congress Centre. With its beautiful and spectacular surroundings with seven mountains and the sea, Bergen is the very best place for an international congress and exhibition.

The number of abstracts submitted for selection is 295, which is all time high. 182 papers are accepted for regular sessions and 66 for the poster session. An informative and high-quality congress is guaranteed.

Also panel discussions will highlight issues which are important for the engine world, among them possible conflicts of interest between legislation and sound engineering in special cases.

An exhibition will complement the technical sessions. The exhibition will be located in the same building, in Grieghallen Congress Centre and thus be closely integrated into the CIMAC Congress.

During the social events at the Congress you and the person accompanying you will gain an impression of the special atmosphere of Bergen in the light of the Nordic summer nights.

The 2010 Organising Committee invites you to the 26<sup>th</sup> CIMAC World Congress on Combustion Engine Technology. We wish you a successful and enjoyable stay in Bergen.



President of the 26<sup>th</sup> CIMAC World Congress

## Introduction to CIMAC

### What CIMAC is:

CIMAC is a worldwide non-profit association consisting of National Member Associations, National Member Groups and Corporate Members in 27 countries in America, Asia and Europe.

It brings together manufacturers of diesel and gas engines and gas turbines, users such as shipowners, utilities and rail operators and also suppliers, oil companies, classification societies and scientists.

### The mission of CIMAC:

- Promote exchange of scientific and technical information via its Congresses and CIMAC Circles
- Improve understanding between engine manufacturers and users
- Improve understanding between manufacturers and suppliers
- Promote Working Group activities
- Focus upon and promote the work and activities of National Member Associations
- Issue publications and support work in the area of standardisation
- Collaborate with other International Associations
- Inform regularly about CIMAC activities

### CIMAC Working Groups:

All CIMAC Working Groups are established to find solutions to technical, commercial and market problems, also to publish recommendations and press releases worldwide.

- Exhaust Emission Control
- Heavy Fuel
- Marine Lubricants
- Users
- Unified Rules for Vibration Analysis and Measurement
- Electronics and Software
- Gas Engines
- Engine Room Safety

CIMAC Working Groups are presently active in the following areas:

- Classification Societies
- Crankshaft Rules

### CIMAC Structure:

The CIMAC Congress represents the culmination point of all CIMAC activities and takes place every 3 years each time in a different member country.

<b>CIMAC Executive Board</b>	President Past President Vice President Technical Programme Vice President Technical Programme Vice President Working Groups Vice President Users Vice President Communication Secretary General	<b>Karl Wojcik, AVL List GmbH</b> <b>Prof. Nikolaos P. Kyrtatos, National Technical University of Athens</b> <b>Yasuhiro Itoh, Niigata Power Systems Co., Ltd.</b> <b>Klaus Heim, Wärtsilä Corporation Ltd.</b> <b>Søren Jensen, MAN Diesel SE</b> <b>Øyvind Toft, BW Fleet Management AS</b> <b>Hanspeter Zingg, ABB Turbo Systems Ltd.</b> <b>Markus Heseding, CIMAC/VDMA</b>
<b>Organizing Committee of the 26<sup>th</sup> CIMAC Congress</b>	Congress President CEO for the Hosting company CIMAC 2010 AS and Chairman of the Organizing Committee Chairman of the Finance Committee Chairman of Events Committee Chairman of Operation Committee Chairman of the Technical Committee	<b>Einar W. Sundt, Rolls-Royce Marine AS Engines Bergen</b> <b>Egil Holland, Federation of Norwegian Industries</b>  <b>Jarle Vik, Det Norske Veritas</b> <b>Martin Solnes, Wärtsilä Norway AS</b> <b>Lars Kolle, MARINTEK</b> <b>Markus Heseding, CIMAC/VDMA</b>

## Conference Venue

The congress will be held in Norway's largest combined culture, congress and exhibition centre, the Grieg Hall, named after the Norwegian composer Edvard Grieg. It is located within walking distance of most hotels in the city and has excellent facilities for congress events, both with regard to plenary lectures and oral and poster presentations. The spacious foyer, illuminated by thousands of light bulbs and with views in all directions, is unique.

A conference is not only limited to the conference venue itself. It is also everything you experience outside the conference halls. And there you have Bergen, just waiting for you with all its facilities! Stroll around the shops or down the picturesque narrow alleyways, around museums and art galleries, along Bryggen and around the Fish Market.



**Edvard Griegs Plass 1, N-5015 Bergen,**  
[www.grieghallen.no](http://www.grieghallen.no)



## PRELIMINARY PROGRAMME

Time	Monday, 14 <sup>th</sup> June 2010
08:00	Registration at the Grieg Hall
10:00	Opening Ceremony at the Grieg Hall
12:00	Opening of CIMAC 2010 Exhibition. Lunch for all participants & accompanying persons in Dovregubben Hall, level U. at Grieg Hall

## THE TECHNICAL PROGRAMME

The Technical Programme of the 26th CIMAC Congress will deal with diesel engines, gas engines, gas and steam turbines, their components and systems, covering marine, stationary and rail applications, with a special focus on the role of engine users. The Technical Programme will be developed in the Technical Sessions and the Poster Sessions.

### Technical Sessions

The high level Technical Sessions together with panels of technicians, top managers and users will enhance the communication to evaluate the impacts on the internal combustion engine industry. The topics will be:

- Session 1:** Product development – Diesel engines
  - Session 2:** Fundamental engineering – Piston engines (Diesel & Gas)
  - Session 3:** Environment, fuel & combustion – Diesel engines
  - Session 4:** Tribology – Diesel engines
  - Session 5:** Component & maintenance technology – Piston engines
  - Session 6:** Product development, component & maintenance technology – Gas engines
  - Session 8:** Integrated systems & electronic control – Engines, turbines & applications
  - Session 9:** Turbochargers
  
  - Session 11:** Users' aspects – Marine applications
  - Session 12:** Users' aspects – Land-based applications (Power generation, CHP, Oil & Gas, Rail etc.)
- Note:** No papers will be presented for Session 7 "Engines for off-shore applications" and Session 10 "Product development, fundamental engineering, environment, fuel & combustion – Gas turbines"

### Poster Sessions

On Tuesday, Wednesday and Thursday, more than 66 interesting Papers will be presented in the poster area located in the exhibition area. Opening times is from 10:00 to 16:00 on Tuesday and Wednesday, 10:00 to 14:00 on Thursday. Make use of this opportunity to discuss your topics with the authors directly and without any time pressure. The authors will be awaiting you for explanation and discussion in their booths.

**Note: This is the Preliminary Programme and subject to change!**

**TECHNICAL PROGRAMME MONDAY 14<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
13:30	(1–1) Product Development – Diesel Engines – High Speed Engines	(8–1) Integrated Systems & Electronic Control – Engines, Turbines & Applications – Sensors & Actuators	(6–1) Product Development, Component & Maintenance Technology – Gas Engines – New Engines	(4–1) Diesel Engines – Tribology I
	Chairman: A. Ludu, <i>AVL List GmbH, Austria</i>	Chairman: E. Boletis, <i>Wärtsilä Switzerland Ltd., Switzerland</i>	Chairman: L. M. Nerheim, <i>Bergen University College, Norway</i>	Chairman: R. Aufischer, <i>Miba Gleitlager GmbH, Austria</i>
	<p><b>251: The design and development of a new advanced heavy duty high speed diesel engine,</b> by E. Karimi, <i>Technomot, UK</i></p> <p><b>156: MTU's new series 8000 gas-protected engine,</b> by M. Eckstein, E. Osterloff, C. Hecker, <i>MTU Friedrichshafen GmbH, Germany</i></p> <p><b>284: MTU solutions for meeting future exhaust emissions regulations,</b> by U. Dohle, <i>MTU Friedrichshafen, Germany</i></p> <p><b>248: Development strategies for high speed marine diesel engines,</b> by F. Koch, T. Seidl, O. Schnitzer, G. Oehler, A. Loettgen, S. Loeser, <i>MAN Diesel SE, Germany</i></p>	<p><b>66: A Study on the Optimum Valve-timing of IC Engines by CFD method,</b> by Y. Yang, R. Li, <i>Southwest Jiaotong University, P. R. China</i></p> <p><b>5: Reducing fuel consumption on the field by continuously measuring fuel quality on electronically fuel injected engines,</b> by P. Flot, A. Meslati, <i>Controle Mesure Regulation, France</i>, T. Delorme, <i>Ecole Centrale Marseille, France</i></p> <p><b>190: Exhaust gas recirculation electric actuation technology,</b> by S. Hay-Arthur, A. Pintauro, <i>Woodward Governor, USA</i></p> <p><b>166: Malfunction diagnosis at marine diesel engines based on indicator cock pressure data – Model based sensor reconstruction of in-cylinder pressure trace using indicator cock pressure information &amp; Fundamental investigations on malfunction diagnosis at marine diesel engines based on reconstructed in-cylinder pressure information,</b> by P. Obrecht, P. Voegelin, <i>ETH Zurich, Aerothermochemistry and Combustion Systems Laboratory, Switzerland</i>, C. Onder, E. Oezatay, <i>ETH Zurich, Institute for Dynamic Systems and Control, Switzerland</i>, P. Fuchs, W. Fuchs, <i>Peter Fuchs Technology Group AG, Switzerland</i></p>	<p><b>54: Development of the Rolls-Royce C26:33L-marine gas engine series,</b> by T. Humerfelt, E. Johannessen, E. Vaktskjold, <i>Rolls-Royce Marine AS, Engines - Bergen, Norway</i></p> <p><b>109: Newly developed Mitsubishi MACH II – SI and CM-MACH gas engines, enhancing and expanding utilization for energy and specialty gases,</b> by M. Ishida, S. Namekawa, Y. Takahashi, H. Suzuki, A. Yuuki, K. Iwanaga, <i>Mitsubishi Heavy Industries, Ltd., Japan</i></p> <p><b>115: Development of large gas engine with high efficiency (MD36G),</b> by T. Oka, M. Kondo, <i>Mitsui Engineering and Shipbuilding Co. Ltd., Japan</i>, T. Aiko, <i>Daihatsu Diesel MFG. Co., Ltd., Japan</i></p> <p><b>189: Newly developed Kawasaki green gas engine – Top performance GE,</b> by H. Sakurai, T. Sugimoto, Y. Sakai, M. Honjou, T. Horie, <i>Kawasaki Heavy Industries, Ltd., Japan</i></p> <p><b>241: Development of high efficient gas engine H35/40G,</b> by D. Y. Jung, J. S. Kim, J. T. Kim, E. S. Kim, <i>Hyundai Heavy Industries Co., Ltd., Korea</i></p>	<p><b>74: Suction air humidity influence on piston running reliability in low-speed two-stroke diesel engines,</b> by F. Micali, M. Weber, M. Stark, K. Raess, <i>Wärtsilä Switzerland Ltd., Switzerland</i>, M. Potenza, <i>University of Salento, Italy</i></p> <p><b>76: Developing MDCLs to meet the demands required by modern engine design, base oil availability and emissions regulations,</b> by A. Mayhew, <i>Lubrizol Ltd., UK</i></p> <p><b>276: Analysis of damage mechanisms of various slide bearing materials used in medium speed and low speed diesel engines on the microscopic and macroscopic scale,</b> by M. Offenbecher, W. Gärtner, <i>Miba Gleitlager GmbH, Austria</i></p> <p><b>89: Experimental investigation of lubrication regimes on piston ring – Cylinder liner contacts for large two-stroke engines,</b> by A. Voelund, C. Felter, <i>MAN Diesel SE, Denmark</i>, P. Klit, T. Imran, <i>DTU, Denmark</i></p>
15:00	30 minutes Coffee break			

**TECHNICAL PROGRAMME MONDAY 14<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
15:30	(1–2) Product Development – Diesel Engines – Medium Speed Engines I	(3–10) Environment, Fuel & Combustion – Diesel Engines – Overview Emissions	(6–2) Product Development, Component & Maintenance Technology – Gas Engines – New Components	(4–2) Diesel Engines – Tribology II
	Chairman: C. Teetz, <i>MTU Friedrichshafen GmbH, Germany</i>	Chairman: R. J. Turunen, <i>VTT, Finland</i>	Chairman: J. D. Hiltner, <i>Hiltner Combustion Systems, LLC, USA</i>	Chairman: H. Gehring, <i>MAN Diesel SE, Germany</i>
	<p><b>2: GE Powerhaul diesel engine development</b>, by <i>P. Flynn, GE Transportation, USA</i></p> <p><b>165: Development of NIIGATA new medium-speed diesel engine “28AHX”</b>, by <i>K. Imai, H. Nagasawa, H. Yamamoto, S. Kato, K. Sonobe, Niigata Power Systems Co., Ltd., Japan</i></p> <p><b>302: Development of the new Caterpillar VM32C LE low emission engine</b>, by <i>U. Hopmann, Caterpillar Motoren GmbH und Co. KG, Germany</i></p> <p><b>279: Development of General Electric Transportations marine &amp; stationary engine family L and V250</b>, by <i>K. Bailey, General Electric, USA</i></p>	<p><b>23: Legislative update: International requirements on next generation nonroad – Marine &amp; stationary engines (diesel &amp; gas) &amp; their fuels</b>, by <i>P. Scherm, EUROMOT, Germany</i></p> <p><b>313: Large engine, quo vadis? Emission compliance scenarios across the four-stroke large diesel engine spectrum</b>, by <i>A. Ludu, AVL List GmbH, Austria</i></p> <p><b>174: Future emission demands for ship and locomotive engines – Challenges, concepts and synergies from HD-applications</b>, by <i>A. Wiartalla, L. Ruhkamp, T. Koerfer, FEV Motorentechnik GmbH, Germany, D. Tomazic, M. Tatur, E. Koehler, FEV Inc., USA</i></p> <p><b>50: Large engine injection systems for future emission legislations</b>, by <i>C. Kendlbacher, P. Müller, M. Bernhaupt, G. Rehbichler, Robert Bosch AG, Austria</i></p>	<p><b>47: Port inlet gas admission valves for large gas engines</b>, by <i>R. Boom, Woodward, Netherlands</i></p> <p><b>173: A new technology electronic ignition which eliminates the limitations of traditional ignition systems</b>, by <i>J. Lepley, Altronic Inc., USA</i></p> <p><b>182: Development of pre-chamber spark plug for gas engine</b>, by <i>K. Yamanaka, S. Nishioka, DENSO Europe B.V., Netherlands, Y. Shiraga, S. Nakai, OSAKA GAS CO., Ltd., Japan</i></p> <p><b>312: The gas engine of the future – Innovative combustion and high compression ratios for highest efficiencies</b>, by <i>J. Klausner, C. Trapp, J. Lang, M. Haidn, GE Jenbacher GmbH, Austria</i></p>	<p><b>24: Cylinder lubrication – Understanding oil stress in the low speed 2-stroke diesel engine</b>, by <i>J. Hammett, J. L. Garcia, Shell Global Solutions GmbH, Germany, F. Micali, Wärtsilä Switzerland Ltd., Switzerland, A. De Risi, University of Salento, Italy</i></p> <p><b>243: The piston-running behaviour monitoring of large bore low-speed marine diesel engine at sea by measurement of piston ring oil film thickness and iron content in cylinder drain oil</b>, by <i>Y. Saito, T. Yamada, IHI Corporation, Japan, K. Moriyama, Diesel United, Ltd., Japan</i></p> <p><b>113: Intelligent monitoring of journal bearing</b>, by <i>P. Kuosmanen, J. Juhanko, A. Valkonen, J. Martikainen, Helsinki University of Technology, Finland</i></p> <p><b>98: The UNIVERSAL concept: the lubrication solution to 2020 and beyond</b>, by <i>D. Lancon, V. Doyen, TOTAL Raffinage Marketing, France</i></p>
17:00	End of Technical Sessions for Monday			
18:30	Welcome Reception at the Grieg Hall			



**TECHNICAL PROGRAMME TUESDAY 15<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
08:30	(1–3) Product Development – Diesel Engines – Medium Speed Engines II	(3–3) Environment, Fuel & Combustion – Diesel Engines – PM / Smoke	(6–4) Product Development, Component & Maintenance Technology – Gas Engines – Operating Experience	(9–1) Turbochargers & Turbomachinery – New Products
	Chairman: T. Bouché, AVL List GmbH, Austria	Chairman: G. Wachtmeister, Technical University of Munich, Germany	Chairman: S. Goto, Niigata Power Systems Co., Ltd., Japan	Chairman: C. Roduner, ABB Turbo Systems Ltd., Switzerland
	<p><b>222: Continuous development of Hyundai HiMSEN engine family</b>, by J. K. Park, K. H. An, J. T. Kim, E. S. Kim, Hyundai Heavy Industries. Co., Ltd., Korea</p> <p><b>206: Latest developments in Wärtsilä's medium-speed engine portfolio</b>, by K. Heim, Wärtsilä Corporation, Switzerland, M. Troberg, Wärtsilä Corporation, Italy, M. Vaarasto, Wärtsilä Corporation, Finland</p> <p><b>287: Introduction of the Caterpillar common rail on M32 engine family – Operational experience</b>, by S. Haas, Caterpillar Motoren GmbH und Co. KG, Germany</p> <p><b>167: The 32 bore engine programm from MAN Diesel – The flexible adaption in terms of concept and construction layout for propulsion and stationary applications for diesel- and gasmarket</b>, by W. Bauder, C. Vogel, G. Heider, C. Poensgen, MAN Diesel SE, Germany</p>	<p><b>87: PM emission from ships – How to measure and reduce PM during voyage</b>, by K. Maeda, M. Tuda, M. Hori, National Fisheries University, Japan, K. Takasaki, Kyushu University, Japan, G. Kon, National Institute for Sea Training, Japan</p> <p><b>73: Chemical and physical characterization of exhaust particulate matter from a marine medium speed diesel engine</b>, by J. Ristimäki, G. Hellén, Wärtsilä Finland Oy, Finland, M. Lappi, VTT, Finland</p> <p><b>72: Particle number emission from high speed diesel engine with state-of-the-art exhaust gas after treatment system</b>, by S. Okada, Y. Kawabata, T. Saeki, Y. Takahata, M. Okubo, Yanmar Co., Ltd., Japan, J. Senda, Doshisha University, Japan</p> <p><b>11: Swirl combustion system for low smoke and particle emissions</b>, by R. Turunen, VTT, Finland, C. Wik, A.-H. Selvaraj, Wärtsilä, Finland</p>	<p><b>37: Operational experience of the 51/60 DF from MAN Diesel SE</b>, by N. Boeckhoff, G. Heider, P. Hagl, MAN Diesel SE, Germany</p> <p><b>112: Wärtsilä dual fuel (DF) engines for offshore applications and mechanical drive</b>, by K. Portin, Wärtsilä Finland Oy, Finland</p> <p><b>125: Experiences on 1 to 6 MW class highly adaptable micro-pilot gas engines in one hundred fields and over fifty thousand running hours</b>, by S. Nakayama, S. Goto, T. Hashimoto, S. Takahashi, Niigata Power Systems Co., Ltd., Japan</p> <p><b>262: Exploration of Optimum Design Parameters for Miller-Cycle Lean-Burn Gas Engines</b>, by D. Montgomery, S. Fiveland, S. Vijayaraghavan, H. Sivadas, M. Willi, Caterpillar, Inc., USA</p>	<p><b>128: New turbochargers for more powerful engines running under stricter emissions regimes</b>, by P. Neuenschwander, M. Thiele, V. Hauelsen, ABB Turbo Systems Ltd., Switzerland</p> <p><b>141: TCA33 – The new MAN Diesel turbocharger for high-speed engines</b>, by K. Bartholomae, E. Boelt, D. Balthasar, MAN Diesel SE, Germany</p> <p><b>135: Development of high-pressure ratio type turbocharger</b>, R. Murano, K. Nakano, Y. Hirata, IHI, Japan</p> <p><b>188: The high performance small turbochargers</b>, J. Klima, J. Vrzal, M. Vacek, PBS Turbo, Czech Republic</p>
10:00	30 minutes Poster Session break (Coffee will be served)			

**TECHNICAL PROGRAMME TUESDAY 15<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
10:30	(1–4) Product Development – Diesel Engines – High & Medium Speed Engines	(3–4) Environment, Fuel & Combustion – Diesel Engines – NO <sub>x</sub>	(6–3) Product Development, Component & Maintenance Technology – Gas Engines – Technology, Fuels & Emissions	(9–2) Turbochargers & Turbomachinery – Advanced Turbocharging Systems
	Chairman: P. Flynn, <i>GE Transportation Systems, USA</i>	Chairman: G. Hellén, <i>Wärtsilä Finland Oy</i>	Chairman: M. Troberg, <i>Wärtsilä M. Tuda, S.p.A., Italy</i>	Chairman: A. Rippl, <i>MAN Diesel SE, Germany</i>
	<p><b>200: Development of the S4000 workboat engine IRONMEN</b>, by N. Vesper, R. Speetzen, C. Glowacki, <i>MTU Friedrichshafen GmbH, Germany</i></p> <p><b>102: Impact of market demands and future emission legislations on medium speed engine design</b>, by E. Reichert, H. Pleimling, <i>FEV, Germany</i></p> <p><b>286: Emissions reduction opportunities on MaK engines</b>, by K. Wirth, <i>Caterpillar Motoren GmbH und Co. KG, Germany</i></p> <p><b>211: The next generation of MTU series 4000 rail engines to comply with EU IIIB emission legislation</b>, by I. Wintruff, O. Bücheler, S. Huchler, <i>MTU Friedrichshafen, Germany</i></p> <p><b>43: Design and development of the new GE Tier 3 locomotive diesel engine</b>, by N. Blythe, <i>General Electric, USA</i></p>	<p><b>136: Emission control technology by Niigata, the clean marine diesel engine for low speed, medium speed and high speed</b>, by T. Tagai, T. Mimura, S. Goto, <i>Niigata Power Systems Co., Ltd., Japan</i></p> <p><b>228: SCR system for NO<sub>x</sub> reduction of medium speed marine diesel engine</b>, Y. Niki, K. Hirata, T. Kishi, T. Inaba, M. Takagi, T. Fukuda, T. Nagai, E. Muraoka, <i>National Maritime Research Institute, Japan</i></p> <p><b>25: Development of a NO<sub>x</sub> fast sampling system for marine diesel engines</b>, by M. Ioannou, K. Xepapa, T. Stelios, N. Kyrtatos, <i>NTUA, Greece</i></p> <p><b>217: Development of sulfur-tolerant SCR type De-NO<sub>x</sub> system for marine applications</b>, Y.-M. Lee, S.-K. An, <i>DSME, Korea</i>, Y.-D. Yoo, <i>IAE, Korea</i>, Ø. Toft, <i>BW Fleet Management AS, Norway</i></p>	<p><b>106: Methane slip reduction in Wärtsilä lean burn gas engines</b>, by A. Jaervi, <i>Wärtsilä, Finland</i></p> <p><b>172: Qualifying the effect of different gas mixtures on NO<sub>x</sub> emissions</b>, by M. Birner, G. Wachtmeister, <i>Technical University of Munich, Germany</i></p> <p><b>212: Knock in dual fuel engines: A comparison between different techniques for detection and control</b>, by F. Millo, G. Lavarino, <i>Politecnico di Torino, Italy</i>, A. Cafari, <i>Wärtsilä, Italy</i></p> <p><b>213: Development of high-efficiency gas engine through observation and simulation of knocking phenomena</b>, by H. Tajima, D. Tsuru, <i>Kyushu University, Japan</i>, M. Kunimitsu, K. Sugiura, <i>Mitsui Engineering and Shipbuilding Co., Ltd., Japan</i></p>	<p><b>139: IMO III emission regulation: Impact on the turbocharging system</b>, by E. Codan, S. Bernasconi, H. Born, <i>ABB Turbo Systems Ltd., Switzerland</i></p> <p><b>53: Some reliability trends and operating issues related to exhaust gas turbochargers and diesel engine crankshaft &amp; running gear in the marine industry – A classification society view</b>, by K. Banisoleiman, J. Stainsby, Z. Bazari, <i>Lloyds Register EMEA, UK</i></p> <p><b>82: Design and first application of a 2-stage turbocharging system for a medium-speed diesel engine</b>, by T. Raikio, B. Hallbaeck, A. Hjort, <i>Wärtsilä Finland Oy, Finland</i></p> <p><b>293: 2-stage turbo charging – Flexibility for engine optimisation</b>, by E. Codan, C. Mathey, S. Voegeli, <i>ABB Turbo Systems Ltd., Switzerland</i></p>
12:00	Lunch break			

**TECHNICAL PROGRAMME TUESDAY 15<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
13:30	(1–5) Product Development – Diesel Engines – Low Speed Engines	(3–5) Environment, Fuel & Combustion – Diesel Engines – Injection & Engine Technologies	(6–5) Product Development, Component & Maintenance Technology – Gas Engines – Non-Traditional Gases & Tribology	(9–3) Turbochargers & Turbomachinery – Advanced Turbocharging Systems II
	Chairman: M. W. Rasser, AVL List GmbH, Austria	Chairman: K. Boulouchos, ETH Zürich, Switzerland	Chairman: S. Laiminger, GE Jenbacher GmbH & Co OHG, Austria	Chairman: V. Haeisen, ABB Turbo Systems Ltd., Switzerland
	<p><b>186: Cutting edge technologies of UE engine for higher efficiency and environment</b>, by H. Sakabe, N. Hosokawa, Mitsubishi Heavy Industries, Ltd., Japan</p> <p><b>199: The Wärtsilä low-speed engine programme for today's and future requirements</b>, by K. Heim, P. Frigge, Wärtsilä Corporation, Switzerland</p> <p><b>64: Product development of MAN B&amp;W two-stroke diesel engines</b>, by S. Kindt, MAN Diesel SE, Denmark</p> <p><b>86: The new Wärtsilä 820 mm-bore engine series – Advanced design and first running experience</b>, by M. Spahni, H. Brunner, R. de Jong, Wärtsilä Switzerland Ltd., Switzerland</p>	<p><b>238: Some experimental experience gained with a medium-speed diesel research engine</b>, by M. Imperato, T. Sarjovaara, M. Larmi, Helsinki University of Technology, Finland, I. Kallio, C. Wik, Wärtsilä Finland Oy, Finland</p> <p><b>143: Predictive simulation and experimental validation of phenomenological combustion and pollutant models for medium-speed common rail diesel engines at varying inlet conditions</b>, by P. Kyrtatos, P. Obrecht, K. Boulouchos, ETH Zürich, Switzerland</p> <p><b>195: Emission reduction potential of 3000 bar common rail injection and development trends</b>, by S. Pflaum, J. Wloka, G. Wachtmeister, Technical University of Munich, Germany</p> <p><b>218: NO<sub>x</sub> emission reduction by use of N<sub>2</sub> diluted charge air</b>, by O. Melhus, B. Haukebo, K. K. Langnes, Ecoxy AS, Norway, D. J. Stookey, Compact Membrane Systems, Inc., USA, J. E. Hustad, Norwegian University of Science and Technology (NTNU), Norway</p>	<p><b>126: Thermodynamic optimisation of three gas engine families for higher efficiency</b>, by R. Boewing, D. Plohberger, MWM GmbH, Germany</p> <p><b>180: Development of new gas engine oils for superior corrosion and deposit control in severe gas applications</b>, by S. Rea, F. W. Girshick, Infineum USA, L.P., USA</p> <p><b>258: Next generation gas engine lubrication</b>, by K. Tellier, ExxonMobil Research and Engineering, USA, G. Delafargue, ExxonMobil Lubricants and Specialties, France</p> <p><b>152: Energy of the future – Gas engines provide eco friendly power</b>, by M. Rasser, R. Beran, T. Baufeld, AVL List GmbH, Austria</p>	<p><b>250: Fuel economy by load profile optimized charging systems from MAN</b>, by H. Schmuttermair, A. Fernandez, MAN Diesel SE, Germany, M. Witt, MAN Turbo AG, Germany</p> <p><b>194: Development of large-scale turbocharger generator unit</b>, by H. Shimaya, R. Ide, T. Ito, T. Iwasaki, R. Suenaga, S. Tochio, Nishishiba Electric Co., Ltd., Japan, M. Kondo, M. Kunimitsu, Mitsui Engineering and Shipbuilding Co., Ltd., Japan</p> <p><b>204: Development of new turbocharger technology for energy efficient and low emission diesel power plant</b>, by T. Teshima, M. Kimura, K. Shiraishi, Y. Ono, Mitsubishi Heavy Industries, Ltd., Japan</p> <p><b>10: Multi-model adaptive wastegate control of a large medium-speed engine</b>, by F. Oestman, T. Kaas, Wärtsilä Finland Oy, Finland</p>
15:00	30 minutes Poster Session break (Coffee will be served)			

**TECHNICAL PROGRAMME TUESDAY 15<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
15:30	(12) Users' Aspects – Land-based Applications (Power Generation, CHP, Oil & Gas, Rail)	(3–6) Environment, Fuel & Combustion – Diesel Engines – Emission Reduction	(2–5) Fundamental Engineering – Gas Engines	(9–4) Turbochargers & Turbomachinery – Aspects of Turbomachinery
	Chairman: T. J. Callahan, <i>Southwest Research Institute (SwRI), USA</i>	Chairman: N. P. Kyrtatos, <i>NTUA, Greece</i>	Chairman: R. Beran, <i>AVL List GmbH, Austria</i>	Chairman: K. Bartholomae, <i>MAN Diesel SE, Germany</i>
	<p><b>1: Exhaust emissions from A 2,850 kW EMD SD60M locomotive equipped with a diesel oxidation catalyst,</b> by S. Fritz, D. Osborne, <i>Southwest Research Institute, USA</i>, M. Iden, <i>Union Pacific Railroad Company, USA</i>, J. Galassie, <i>Miratech Corporation, USA</i></p> <p><b>60: Wind diesel hybrid systems,</b> by C. Dommermuth, J. Dorner, <i>MAN Diesel SE, Germany</i></p> <p><b>272: VOC energy recovery by gas turbine cogeneration,</b> by Y. Yoshimura, <i>IHI Corporation, Japan</i></p> <p><b>57: Application of EGR to a medium speed EMD locomotive engine,</b> by J. Hedrick, S. Fritz, <i>Southwest Research Institute, USA</i>, S. Ted, <i>Advanced Global Engineering, Inc., USA</i></p>	<p><b>274: Sailing towards IMO Tier III – Exhaust after-treatment versus engine-internal technologies?,</b> by G. Tinschmann, G. Stiesch, <i>MAN Diesel SE, Germany</i></p> <p><b>299: Exhaust emission control of Mitsubishi UE diesel engine,</b> by A. Miyanagi, K. Watanabe, J. Yanagi, <i>Mitsubishi Heavy Industries, Ltd., Japan</i></p> <p><b>85: Two-stroke diesel exhaust emission reduction technology and new fuels,</b> by M. F. Pedersen, <i>MAN Diesel SE, Denmark</i></p> <p><b>205: Theoretical and experimental study on measures to minimize the NO<sub>x</sub> -SFC trade-off,</b> by K. Sugiura, K. Shimada, <i>Mitsui Engineering and Shipbuilding Co., Ltd., Japan</i>, K. Takasaki, K. Okazaki, <i>Kyushu University, Japan</i></p>	<p><b>168: Formation of formaldehyde in lean burn gas engines,</b> by M. Bauer, G. Wachtmeister, <i>Technical University of Munich, Germany</i></p> <p><b>239: Optimization of combustion and knocking behaviour in open chamber gas engines based on optical analysis and 3D-CFD simulation,</b> by P. Christiner, G. Kogler, A. Wimmer, <i>LEC - Large Engines Competence Center, Austria</i>, T. Jauk, <i>Graz University of Technology, Austria</i></p> <p><b>4: Knock occurrence prediction by means of chemical kinetics in heavy duty dual-fuel engine,</b> by G. Javadirad, M. Gorji, <i>Nushirvani University of Technology, Iran</i>, A. Al-Sened, <i>Technomot Ltd., United Kingdom</i>, M. Keshavarz, H. Safari, <i>Iran Heavy Diesel MFG. Co., Iran</i></p> <p><b>33: Stoichiometric operation of natural gas engines for very low emissions applications,</b> by J. Hiltner, M. Flory, <i>Hiltner Combustion Systems, USA</i></p>	<p><b>170: Turbocharger performance stability under HFO conditions,</b> by V. Haueisen, <i>ABB Turbo Systems Ltd., Switzerland</i></p> <p><b>129: 3D-fluid-structure interaction for an axial turbocharger turbine blade to improve the vibrational safeguard process,</b> by A. Bornhorn, S. Mayr, T. Winter, <i>MAN Diesel SE, Germany</i></p> <p><b>42: ST27: A new generation of radial turbine turbochargers for highest pressure ratios,</b> by R. Drozdowski, K. Buchmann, <i>Kompressorenbau Bannewitz GmbH, Germany</i></p> <p><b>79: Development of Niigata-NGT3B gas turbine for large standby generator set,</b> by H. Kojima, S. Tarui, T. Kuribayashi, K. Takahashi, M. Koyama, <i>Niigata Power Systems Co., Ltd., Japan</i></p>
17:00	End of Technical Sessions for Tuesday			
19:00	ABB Evening			

## POSTER SESSION FOR TUESDAY 15<sup>TH</sup> JUNE 2010

### Session 1

- 145: Design upgrade of a single cylinder medium speed research engine to meet demand for 300 bar cylinder pressure and high mean piston speed**, by O. Kaario, A. Tilli, K. Lehto, E. Antila, A. Elonheimo, M. Larmi, T. Sarjovaara, TKK, Helsinki University of Technology, Finland, J. Tiainen, I. Kallio, H. Rinta-Torala, Wärtsilä Finland Oy, Finland
- 150: Development of new local engine family – The first heavy diesel engine comes from Iran**, by M. Ghanbari, T. Ashtari, S. A. Jazayeri, Iran Heavy Diesel Engines Manufacturing Company (DESA), Iran

### Session 2

- 20: Improving the Combustion process in lean-burn natural gas compressor engines**, by R. Evans, R. Brown, A. Mezo, The University of British Columbia, Canada
- 176: Combustion system design study to maximize thermal efficiency in open chamber stationary natural gas engines**, by L. Tozzi, E. Sotiropoulou, J. Adair, D. Chiera, Woodward, USA

### Session 3

- 3: An investigation on injection characteristics of direct-injected heavy duty diesel engine by means of multi-zone spray modeling**, by G. Javadirad, M. Gorji, Nushirvani University of Technology, Iran, M. Keshavarz, Iran Heavy Diesel MFG. Co., Iran, S. A. Jazayeri, K N Toosi University of Technology, Iran
- 52: Effects of Miller timing on the performance and exhaust emissions of a non-road diesel engine**, by S. Niemi, University of Vaasa and Turku University of Applied Sciences, Finland, P. Nousiainen, P. Lassila, V. Tikkanen, K. Ekman, Turku University of Applied Sciences, Finland
- 56: Research on calculation method of brake NO<sub>x</sub>-emission from marine diesel engine for on-board measurement**, by Z. Yin, Jimei University, P. R. of China
- 91: EMI MIN – A government funded research program to reduce emissions**, by U. Schlemmer-Kelling, S. Watzek, Caterpillar Motoren GmbH & Co. KG, Germany
- 118: Proposal on controlled spray evaporation and mixture formation by use of multi-component mixing fuel spray model**, by J. Senda, M. Matsumoto, Doshisha University, Japan, Y. Kobashi, Kanazawa Institute of Technology, Japan
- 132: Emissions – The way ahead**, by P. Tremuli, A. Carter, Ricardo UK Ltd., UK
- 137: Improvements to transient response times and decreased smoke production in medium speed marine propulsion diesel engines**, by T. Yamada, DAIHATSU DIESEL MFG. CO., Ltd., Japan
- 169: NO formation model of a diesel engine based on quantum chemistry**, by S. Zhou, T. Xu, Y. Zhu, Harbin Engineering University, P.R. of China
- 192: Engine technology combined Miller Cycle with YANMAR combustion system**, by S. Hamaoka, T. Handa, F. Kotou, H. Omote, Y. Takahata, Yanmar Co., Ltd., Japan
- 201: Optimization of combustion system to comply with IMO Tier 2 regulation on medium speed diesel engines**, by K. -D. Kim, W. -H. Yoon, S. -H. Ghal, H. -I. Kim, Hyundai Heavy Industries Co., Ltd., Korea
- 268: Prediction of NO<sub>x</sub> reduction by direct water injection system through immiscible droplet collision modelling**, by H. Tajima, D. Tsuru, Kyushu University, Japan, S. Kawauchi, National Maritime Research Institute, Japan
- 311: Analysis of diesel engine performance using diesel oil-water emulsion fuel by laboratory experimental**, by A. Sudrajad, I. bin Ali, University Malaysia Pahang, Malaysia, R. A. Bakar, Faculty of Mechanical Engineering, Malaysia, N. Osami, Kobe University of Mercantile Marine, Japan, S. Kawauchi, National Maritime Research Institute, Japan

### Session 6

- 95: Wärtsilä gas engines – The green power alternative**, by H. Sillanpää, U. Astrand, Wärtsilä Finland Oy, Finland
- 130: Integrated cylinder pressure measurement for gas engine control**, by N. Stefan, B. Matthias, IMES GmbH, Germany
- 237: Controlling NO<sub>x</sub> emissions of large gas engines based on in-cylinder pressure measurement**, by S. Sofke, J. Eggers, M. Greve, AVAT Automation GmbH, Germany

### Session 12

- 105: Managing black paint formation in trunk piston engine oils – Novel product development through complex simulated testing**, by R. Sankara, N. Agarwal, V. K. Chhatwal, K. P. Naithani, R. K. Malhotra, A. Kumar, IndianOil Corporation Ltd., India, A. Mayhew, Lubrizol Corporation, UK
- 155: Acid and base in engine oil and the correct determination of oil change intervals**, by W. F. Girshick, Infineum USA, L.P., USA

**TECHNICAL PROGRAMME WEDNESDAY 16<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
08:30	(11–1) Users' Aspects – Marine Applications < – Service Experiences	(2–1) Fundamental Engineering – Piston Engines – Combustion Four Stroke	(3–7) Environment, Fuel & Combustion – Diesel Engines – Modelling I	(8–4) Integrated Systems & Electronic Control – Engines, Turbines & Applications – Electronic Control Systems
	Chairman F. Deichmann, <i>Columbus Shipmanagement GmbH, Germany</i>	Chairman: S. Pischinger, <i>FEV Motorentechnik GmbH, Germany</i>	Chairman: A. Wimmer, <i>LEC Large Engines Competence Center, Austria</i>	Chairman: I. Vlaskos, <i>Ricardo Deutschland GmbH, Germany</i>
	<p><b>17: Service experience of MAN B&amp;W two stroke diesel engines</b>, by <i>S. B. Jakobsen, MAN Diesel SE, Denmark</i></p> <p><b>75: Shipboard engine performance assessment by comparing actual measured data to nominal values produced by detailed engine simulations</b>, by <i>N. Kyrtatos, E. Tzanos, NTUA, Greece, J. Coustas, D. Vastarouhas, E. Rizos, Danaos Shipping Co. Ltd., Greece</i></p> <p><b>153: Several of Wärtsilä RTA marine engine operations</b>, by <i>Y. L. Li, Hudong Heavy Machinery Co., Ltd., China</i></p> <p><b>289: Operating experience with MaK M43</b>, by <i>K. Vollrath, Caterpillar Motoren GmbH und Co. KG, Germany</i></p>	<p><b>32: HERCULES-B: The continuation of a major R&amp;D effort towards the next generation marine diesel engines</b>, by <i>N. Kyrtatos, NTUA, Greece, L. Hellberg, Wärtsilä Corp., Finland, C. Poensgen, MAN Diesel SE, Germany</i></p> <p><b>34: Optical and numerical investigation of the combustion process in a single cylinder medium speed diesel engine</b>, by <i>U. Waldenmaier, J. Metzger, P. Porten, G. Stiesch, MAN Diesel SE, Germany, T. Heidenreich, U. Wagner, Institute for Reciprocating Engines (IFKM), University of Karlsruhe, Germany</i></p> <p><b>230: Researches for adapted injection strategy's to the pertaining emission limits by using of maritime fuels in heavy-fuel capable diesel engines</b>, by <i>R. Rabe, University of Rostock, Germany</i></p> <p><b>18: Experimental and computational considerations of fuel spray mixing</b>, by <i>H. J. Hillamo, V. Vuorinen, T. Sarjovaara, O. Kaario, M. Larmi, TKK Helsinki University of Technology, Finland</i></p>	<p><b>281: Aspects of emulsified fuel spray combustion in a high-pressure and high-temperature atmosphere</b>, by <i>H. Okada, T. Tsukamoto, H. Sasaki, Tokyo University of Marine Science and Technology, Japan, T. Ohtsuka, Ibaraki Prefectural Kaiyo High School, Japan</i></p> <p><b>247: Assessing the performance of spray and combustion simulation tools against reference data obtained in a spray combustion chamber representative of large two-stroke diesel engine combustion systems</b>, by <i>R. Schulz, K. Herrmann, G. Weisser, Wärtsilä Switzerland Ltd, Switzerland, Y. M. Wright, K. Boulouchos, Swiss Federal Institute of Technology (ETH) Zürich, Switzerland</i></p> <p><b>39: Modelling of the oxidation of fuel sulphur in low speed two-stroke diesel engines</b>, by <i>A. Andreasen, S. Mayer, MAN Diesel SE, Denmark</i></p> <p><b>164: A study on the spray combustion characteristics of bio diesel fuel</b>, by <i>A. Azetsu, K.-O. Hagio, M. Aoki, Tokai University, Japan</i></p>	<p><b>209: From remote monitoring to life-cycle asset management – The development of a new service concept</b>, by <i>J. Pensar, Wärtsilä Corporation, Finland</i></p> <p><b>160: Electronics for the safety-critical application and control of combustion engines</b>, by <i>D. Eikemeier, MAN Diesel SE, Germany</i></p> <p><b>214: Permanent diagnosis and optimization of large-bore marine engine operation with expert based AVL EPOSTM</b>, by <i>H. Mohr, R. Teichmann, N. Mayrhofer, AVL List GmbH, Austria, R. Johansen, Kongsberg Maritime AS, Norway</i></p> <p><b>227: Applying close loop control, 'Auto-tuning', to MAN Diesel two-stroke engines</b>, by <i>T. Moeller, MAN Diesel SE, Denmark</i></p> <p><b>207: The UNIC embedded controls – First years of field experience</b>, by <i>J. Pensar, J. Akerman, Wärtsilä Corporation, Finland</i></p>
10:00	30 minutes Poster Session break (Coffee will be served)			

**TECHNICAL PROGRAMME WEDNESDAY 16<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
10:30	(11–2) Users' Aspects – Marine Applications – Monitoring	(2–2) Fundamental Engineering – Piston Engines – Mechanics I	(3–9) Environment, Fuel & Combustion – Diesel Engines – Downstream Components	(5–1) Component & Maintenance Technology – Piston Engines – Components
	Chairman: E. Gust, <i>ZOLLERN BHW Gleitlager, Germany</i>	Chairman: R. Nordrik, <i>Rolls-Royce Marine AS, Norway</i>	Chairman: S. Mayer, <i>MAN Diesel SE, Denmark</i>	Chairman: F. Koch, <i>MAN Diesel SE, Germany</i>
	<p><b>61: A new approach of a fully automatic lubrication oil treatment system,</b> by H. Schmitz, R. Lennartz, <i>Boll+Kirch Filterbau GmbH, Germany</i></p> <p><b>21: One way to condition-based survey for marine diesel engines,</b> by J. Rebel, <i>Germanischer Lloyd, Germany</i></p> <p><b>175: Development of a remote non intrusive diagnosis system for two stroke diesel engines,</b> by F. J. Jimenez-Espadafor, J. A. Becerra Villanueva, M. Torres Garcia, T. Sanchez Lencero, <i>Seville University, Spain</i>, F. Fernandez-Vacas, M. Bueno del Amo, <i>Endesa Generacion, Spain</i></p> <p><b>310: Evaluation method of engine and propulsion shaft alignment for large vessel,</b> by I. Sugimoto, T. Nakao, <i>Hitachi Zosen Diesel and Engineering Co., Ltd., Japan</i></p>	<p><b>107: Comparison of crankshaft calculation methods with reference to classification societies' requirements,</b> by M. Savolainen, H. Tienhaara, <i>Wärtsilä Oy, Finland</i>, T. Resch, <i>AVL List GmbH, Austria</i>, B. Smiljanic, <i>AVL AST d.o.o, Croatia</i></p> <p><b>90: Fatigue design and optimization of diesel engine cylinder heads,</b> by T. Gocmez, <i>Institute for Combustion Engines VKA RWTH Aachen University, Germany</i>, S. Lauer, <i>FEV Motorentechnik GmbH, Germany</i></p> <p><b>83: Fracture mechanics approach to contact problems in medium speed diesel engines,</b> by C. Loennqvist, A. Maentylae, <i>Wärtsilä Finland Oy, Finland</i></p> <p><b>223: The influence of hull deflection and propeller loading on load distribution in engine bearings,</b> by B. J. Vartdal, <i>Det Norske Veritas AS, Norway</i></p>	<p><b>69: Theoretical and practical results of engine and exhaust gas performance optimisation,</b> by H. Jungbluth, A. Tippel, <i>Innospec Ltd., Germany</i>, D. Daniels, <i>Innospec Fuel Specialties, USA</i>, S. Bludszweit, <i>MET Motoren- und Energietechnik GmbH, Germany</i></p> <p><b>256: Exhaust gas heat recovery on large engines – Potential, opportunities, limitations,</b> by I. Vlaskos, P. Feulner, A. Alizadeh, <i>Ricardo Deutschland, Germany</i></p> <p><b>242: Next Generation of flexible and reliable SCR-Systems,</b> by C. Gerhart, <i>AlzChem, Germany</i></p> <p><b>44: Attenuation of low-frequency exhaust noise from combustion engines,</b> by S. Frederiksen, <i>Silentor AS, Denmark</i>, B. B. Jessen, <i>Delta, Denmark</i></p>	<p><b>81: Recent development in analysis and design of principal bearings of large two stroke diesel engines,</b> by P. Rønnedal, H. W. Christensen, <i>MAN Diesel SE, Denmark</i></p> <p><b>193: Trends in engine design and their impact on engine bearing design and performance,</b> by C. Forstner, <i>Miba Gleitlager GmbH, Austria</i></p> <p><b>298: Variable valve timing – A necessity for future large diesel and gas engines,</b> by C. Mathey, <i>ABB Turbo Systems Ltd., Switzerland</i></p> <p><b>198: Revised fatigue assessment of welded two-stroke engine structures,</b> by D. Bachmann, S. Soennichsen, <i>Wärtsilä Corporation, Switzerland</i></p> <p><b>27: Topology optimization of main medium-speed diesel engine parts,</b> by P. Böhm, D. Pinkernell, <i>MAN Diesel SE, Germany</i></p>
12:00	Lunch break			

**TECHNICAL PROGRAMME WEDNESDAY 16<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
13:30	(11–3) Users' Aspects – Marine Applications – Fuels	(2–3) Fundamental Engineering – Piston Engines – Combustion Two Strokes	(3–8) Environment, Fuel & Combustion – Diesel Engines – Modelling II	(5–2) Component & Maintenance Technology – Piston Engines – Wear & Monitoring
	Chairman: Ø. Toft, <i>BW Fleet Management AS, Norway</i>	Chairman: K. Heim, <i>Wärtsilä Corporation, Switzerland</i>	Chairman: G. Weisser, <i>Wärtsilä Switzerland Ltd., Switzerland</i>	Chairman: F. Cantow, <i>Federal-Mogul Burscheid GmbH, Germany</i>
	<p><b>49: Experience with measuring cylinder oil consumption rate,</b> by C. Schneider, <i>KRAL AG, Austria</i></p> <p><b>84: Combustion quality of marine residual fuel – Trend, control, effect on engine,</b> by A. Takeda, N. Iijima, S. Umemoto, H. Miyano, <i>Nippon Yuka Kogyo, Japan</i>, H. Nakatani, K. Adachi, K. Adachi, <i>NYK LINE, Japan</i>, H. Tajima, <i>Kyushu University, Japan</i></p> <p><b>157: The users views of having to use low-sulphur fuels combined with slow-steaming,</b> by K. Wilson, <i>Keith Wilson and Associates, England</i></p> <p><b>300: Environment-friendly operation using LPG on the MAN B&amp;W dual fuel ME-GI engine,</b> by R. S. Laursen, <i>MAN Diesel SE, Denmark</i></p> <p><b>297: Evaluation of using natural gas as a fuel for LNG carriers application of marine gas turbines,</b> by A. Radwan, M. Morsy, <i>University of Alexandria, Egypt</i>, M. Fahmy, <i>Arab Academy for Science and Technology, Egypt</i></p>	<p><b>40: In-situ optical combustion diagnostics on a large two-stroke marine diesel engine,</b> by S. Mayer, J. Hult, H. H. Poulsen, <i>MAN Diesel SE, Denmark</i></p> <p><b>108: Study of exhaust gas separation (EGS) system on 2-stroke engine,</b> by M. Takahashi, I. Tanaka, <i>Mitsui Engineering and Shipbuilding Co., Ltd., Japan</i></p> <p><b>270: PIV study of the effect of piston motion on the confined swirling flow in the scavenging process in 2-stroke marine diesel engines,</b> by S. Haider, K. E. Meyer, J. Schramm, <i>Technical University of Denmark (DTU), Denmark</i>, S. Mayer, <i>MAN Diesel SE, Denmark</i></p> <p><b>38: Design of Experiment (DoE) analysis of the NO<sub>x</sub>-SFOC trade-off in two-stroke marine engines,</b> by S. Mayer, A. Andreasen, <i>MAN Diesel SE, Denmark</i></p>	<p><b>255: Combustion chamber design to control particulate matter emission,</b> by P. Tremuli, A. S. Carter, <i>Ricardo UK Ltd., UK</i></p> <p><b>229: Computational study of In-Cylinder NO<sub>x</sub> reduction in a large marine diesel engine using water injection strategies,</b> by C. Chryssakis, A. Frangopoulos, L. Kaiktsis, <i>NTUA, Greece</i></p> <p><b>233: Numerical simulation of a new dual fuel (Diesel-Gas) D87 engine with multi-dimensional CFD model,</b> by A. Gharehghani, M. Ghanbari, M. Mirsalim, S. A. Jazayeri, <i>Iran Heavy Diesel Engine Mfg. (DESA), Iran</i></p> <p><b>235: Predictive simulation of combustion and emissions in large diesel engines with multiple fuel injection,</b> by G. Pirker, B. Losonczi, W. Fimml, A. Wimmer, <i>LEC - Large Engines Competence Center, Austria</i></p>	<p><b>100: Contact pressure and temperature prediction in a marine piston ring,</b> by D. Grunditz, H. Pedersen, H.-G. Qvist, <i>Daros Piston Rings, Sweden</i></p> <p><b>147: Cylinder condition analysis in relation to large bore engines,</b> by J. W. Fogh, C. L. Felter, <i>MAN Diesel SE, Denmark</i></p> <p><b>184: Development of bearing wear monitoring system using automatic calibration technique, B-WACS,</b> by J. K. Kim, U. Duk Hyung, K. Sok Ha, K. Sang Jin, <i>Doosan Engine, Korea</i></p> <p><b>179: Development of a new evaluation method for the influences of catalyst fines on abrasive wears of marine diesel engines burning heavy fuel oil,</b> by T. Yamada, H. Ukai, T. Fujii, <i>Diesel United, Japan</i></p> <p><b>46: Further development and application of MWH CrystalCoat: a mineral-metal, multi-phase coating to protect highly-loaded engine components against hot-corrosion,</b> by R. Stanglmaier, <i>Märkisches Werk GmbH, Germany</i></p>
15:00	30 minutes Poster Session break (Coffee will be served)			
15:30	<b>Panel: “Are regulations for air emissions counter productive for derating and low load operation?”</b> Chairman: N. Hansen, <i>Hanseatic Lloyd Schiffahrt GmbH &amp; Co. KG, Germany</i> Panelists to be announced			
17:00	End of Technical Sessions for Wednesday			



## POSTER SESSION FOR WEDNESDAY 16<sup>TH</sup> JUNE 2010

### Session 2

- 8: Simulation research on split injection of a heavy duty diesel engine**, by M. Li, Dalian Jiaotong University, China, J. An, DaLian Locomotive and Rolling Stock Works, China
- 78: Stability of controlling operation inputs over inlet air conditions of turbocharged compression-ignition engines**, by G. Chen, Gannon University, USA
- 224: Effect of intake channel design to cylinder charge and initial swirl**, by A. Eero, TKK, Finland
- 226: High speed surface temperature and heat flux measurements in large two-stroke diesel engines**, by C. Christiansen, J. Schramm, Technical University of Denmark, Denmark
- 259: Influence of the air temperature on the internal combustion engine valves models**, by D. Chalet, A. Piton, P. Chesse, Ecole Centrale de Nantes, France
- 306: Optimization of intake port shape in a DI diesel engine using CFD flow simulation**, by J. Kheyrollahi, DESA, Iran

### Session 3

- 122: The application of catalytic after treatment technology to reduce pollution from large engines: What can be done today? / What is possible tomorrow?**, by J. Mc Carney, W. Chu, R. Johnson Matthey, Berkshire, R. Chalupa, Johnson Matthey Catalysts (Germany) GmbH, Germany
- 171: NO<sub>x</sub> formation simulation and NO<sub>x</sub> emission reduction in a marine diesel engine**, by S. Zhou, Y. Zhu, Harbin Engineering University, P.R. of China, P. Zhou, University of Strathclyde, UK
- 221: Combustion efficiency of emulsified fuels and their possible environmental impacts**, by A. Dibofori-Orji, Rivers State College Of Education, Nigeria
- 236: Computational study of flow and combustion in a large marine diesel engine operating with heavy fuel oil**, by K. Pantazis, C. Chryssakis, L. Kaiktsis, NTUA, Greece
- 240: A combined numerical and experimental study on the influence of the injection system on the spray, the combustion and emissions in medium speed diesel engines**, by C. Fink, Rostock University, Germany, M. Frobenius, AVL Deutschland GmbH, Germany, R. Pittermann, WTZ Rosslau gGmbH, Germany
- 245: Characterising heat release in a diesel engine: A comparison between Seiliger process and Vibe model**, by Y. Ding, D. Stapersma, H. Grimmelius, Technology University of Delft, the Netherlands, H. Knoll, Netherlands Defence Academy, The Netherlands
- 291: Application of a SCRT system at modular power plant based on 'On Road' technology**, by M. Himmen, I. Zirkwa, HJS, Germany

### Session 5

- 45: Field experience with the MWH ReliaValve with sentry rotator: a 2-stroke exhaust valve with demonstrated time between overhauls (TBO) of over 5 years**, by H. Fellmann, Märkisches Werk GmbH, Germany
- 162: Hard coatings based on laser cladding for piston groove lands of marine diesel engines**, by S. Kanungo, S. Dixit, Tolani Maritime Institute, India
- 185: Introduction of Doosan water in oil monitoring system, O-WACS**, by K. -T. Hong, J. -S. Park, M. -C. Park, S. -J. Kim, Doosan Engine, Korea
- 282: New MAHLE innovative steel piston designs for high performance gas engines**, by T. Estrum, MAHLE GmbH, Germany
- 301: The effect of crankshaft and crankcase flexibility on the lubrication performance of heavy duty diesel engine main bearings**, by H. Karimaei, H. Chamani, Iran Heavy Diesel Engine (DESA), Iran

### Session 11

- 196: PID controller auto-tuning for ship power plant simulation system**, by F.E.I. Jingzhou, Harbin Engineering University, China
- 232: Inclusion rating of clean steels: A study on role of steel cleanliness on fatigue performance of forged steel components used in marine propulsion**, by K.Y Sastry, J. O. Nokleby, Det Norske Veritas AS, Norway, M. Hekkanen, M. Jarl, Oerebro University, Sweden
- 264: FluiCheck™ SOS (Scrape-down Oil System)**, by R. Dunfee, K. Brower, D. Smrdel, The Lubrizol Corporation, USA, G. Martin, Caledonia Instrumentation Systems, Ltd., Scotland, R. Drijfholt, Wärtsilä Switzerland Ltd., Switzerland
- 280: The integration of mean value first principle diesel engine models in dynamic waste heat and cooling load analysis**, by H. Grimmelius, H. Nicolai, Delft University of Technology, The Netherlands, D. Stapersma, Netherlands Defence Academy, The Netherlands

**TECHNICAL PROGRAMME THURSDAY 17<sup>TH</sup> JUNE 2010**

Time	Room A	Room B	Room C	Room D
08:30	(8–3) Integrated Systems & Electronic Control – Engines, Turbines & Applications – Operation & Field Experience	(3–1) Environment, Fuel & Combustion – Diesel Engines – Fuels I	(2–6) Fundamental Engineering – Piston Engines – Mechanics II	(5–4) Component & Maintenance Technology – Piston Engines – Injection
	Chairman: H. Pleimling, <i>FEV Motorentchnik GmbH, Germany</i>	Chairman: M. Larmi, <i>Helsinki University of Technology (HUT), Finland</i>	Chairman: P. Hupperich, <i>FEV Engine Technology, Inc., USA</i>	Chairman: K. Sugiura, <i>Mitsui Engineering &amp; Shipbuilding Co. Ltd., Japan</i>
	<p><b>55: Scavenge performance monitoring system for Wärtsilä two-stroke engines</b>, by S. Nanda, <i>Wärtsilä Switzerland, Switzerland</i></p> <p><b>149: Goal based standards in verification of ship machinery</b>, by E. Brodin, J. O. Nokleby, H. B. Karlsen, <i>Det Norske Veritas, Norway</i></p> <p><b>154: An integrated modelling framework for the design, operation and control of marine energy systems</b>, by G. G. Dimopoulos, N. M. P. Kakalis, <i>Det Norske Veritas, Greece</i></p> <p><b>275: Field experiences and opportunities of modern measurement techniques</b>, by T. Philipp, <i>Geislinger GmbH, Austria</i></p>	<p><b>31: A step to reduce SOx emission from ships – Improvement in combustion of high-aromatic and low-sulfur distillate fuel</b>, by K. Takasaki, K. Okazaki, D. Yamanishi, <i>Kyushu University, Japan, K. Sugiura, Mitsui Engineering and Shipbuilding Co., Ltd., Japan, S. Baba, H. Tanaka, Hitachi Zosen Corporation, Japan</i></p> <p><b>246: Ignition and combustion characteristics of marine fuels, problems and challenges – Will the revised fuel specifications ensure ignition and combustion characteristics will be adequately addressed?</b>, by D. O. Halle, J. Stirling, A. Strom, <i>DNV Petroleum Services, Norway, J. K. Paulsen, Canima Services AS, Norway</i></p> <p><b>183: Optical Combustion Analyzer (OCA) for evaluation of combustion characteristics of bunker fuel oils</b>, by E. Tomita, A. Yamaguchi, T. Takeuchi, <i>Okayama University, Japan, Y. Yamamoto, K. Morinaka, Eiwa-Giken, Co. Ltd., Japan</i></p> <p><b>70: Investigating the ignition properties of marine fuels by the Fuel Ignition Analyser and its comparison to marine engines</b>, by P. de Hoog, K. Steernberg, <i>Shell, The Netherlands, S. Forget, Shell, UK</i></p>	<p><b>140: Improving fatigue strength of solid type crankshafts by development of high strength low alloy steel</b>, by T. Shinozaki, N. Fujitsuna, Y. Yasumoto, H. Nagasaka, <i>Kobe Steel, Ltd., Japan</i></p> <p><b>197: Full cyclic simulation and fatigue design of conrod and crankshaft for medium-speed diesel engine</b>, by J. W. Park, S. C. An, K. H. Jung, J. H. Son, <i>Hyundai Heavy Industries Co., Ltd., Korea</i></p> <p><b>51: Vibration characteristics of a V20 medium speed gas engine – Simulation and measurement</b>, by R. Nordrik, H. Solbakken, <i>Rolls-Royce Marine AS, Norway</i></p> <p><b>9: Torsional vibration analysis of 16V240ZJ diesel engine based on virtual prototype technology</b>, by J. Wang, X. Li, <i>Dalian Jiaotong University, China, S. Mu, DaLian Locomotive and Rolling Stock Works, China</i></p>	<p><b>119: Second generation of HFO injection system for medium speed engines to fulfil future requirements</b>, by C. Senghaas, H. Schneider, S. Reinhard, <i>L'Orange GmbH, Germany, D. Jay, K. Ehrstroem, Wärtsilä Corp., Finland</i></p> <p><b>48: Application and advantages of the common rail technology with WDD as a retro-fit package for diesel-electric rail traction</b>, by M. Ganser, A. Ganser, R. Hertach, G. Smeretschuk, <i>Ganser CRS AG, Switzerland</i></p> <p><b>131: Economical and technical aspects of Duap's fuel injection parts and systems</b>, by S. R. Jung, <i>Duap AG, Switzerland</i></p> <p><b>159: The new HEINZMANN common-rail and EFI engine control system for medium-speed and high-speed engines</b>, by M.- T. Heller, A. Jaufmann, <i>HEINZMANN, Germany</i></p>
10:00	30 minutes Poster Session break (Coffee will be served)			

## TECHNICAL PROGRAMME THURSDAY 17<sup>TH</sup> JUNE 2010

Time	Room A	Room B	Room C	Room D
10:30	<b>(8–2)</b> Integrated Systems & Electronic Control – Engines, Turbines & Applications – Fuel Injection & Valve Actuation	<b>(3–2)</b> Environment, Fuel & Combustion – Diesel Engines – Fuels II	<b>(2–4)</b> Fundamental Engineering – Piston Engines – Thermodynamics	<b>(5–3)</b> Component & Maintenance Technology – Piston Engines – Noise & Vibration
	Chairman: M. Pischinger, <i>FEV Motorentechnik GmbH, Germany</i>	Chairman: K. Takasaki, <i>Kyushu University, Japan</i>	Chairman: T. Körfer, <i>FEV Motorentechnik GmbH, Germany</i>	Chairman: Y. Itoh, <i>Niigata Power Systems Co., Ltd., Japan</i>
	<p><b>62: A study on numerical calibration of fuel injection parameters for diesel engine</b>, by R. Li, L. Li, <i>Southwest Jiaotong University, P. R. China</i></p> <p><b>36: More than 100.000 running hours field test experience in HFO operation with CR injection systems on MAN medium speed diesel engines – Basis for reliable and efficient propulsion engines to reach IMO TIER2 and IMO TIER3 legislation</b>, by G. Heider, T. Kremser, T. Gritzko, <i>MAN Diesel SE, Germany</i></p> <p><b>101: A new fuel injection and exhaust valve actuation system for a two-stroke engine family in the 30 to 50 cm bore segment</b>, by E. Boletis, A. Kyrtatos, T. Yildirim, Y. Jia, <i>Wärtsilä Switzerland, Switzerland</i></p> <p><b>68: Valve train with learning control features</b>, by M. Herranen, T. Virvalo, K. Huhtala, <i>Tampere University of Technology, Finland, T. Glader, I. Kallio, Wärtsilä Finland Oy, Finland</i></p>	<p><b>121: Medium speed diesel engines operated on alternative fuels: lessons learned and remaining questions</b>, by S. Verhelst, R. Sierens, <i>Ghent University, Belgium, L. Vervaeke, T. Berckmoes, L. Duyck, Anglo Belgian Corporation nv, Belgium</i></p> <p><b>13: Marine distillate fuels specifications – Today and tomorrow</b>, by Ø. Buhaug, <i>StatoilHydro ASA, Norway</i></p> <p><b>26: High Cetane Number paraffinic diesel fuels and emission reduction in engine combustion</b>, by M. Larmi, A. Tilli, T. Sarjovaara, <i>TKK, Finland, M. Honkanen, Neste Renewable Fuels Oy, Finland</i></p> <p><b>303: Future fuels for marine applications – MaK engines will be prepared!</b>, by M. Kunterwald, <i>Caterpillar Motoren GmbH &amp; Co. KG, Germany</i></p>	<p><b>203: Advanced heat transfer modeling with application to CI engine CFD simulations</b>, by M. Nuutinen, O. Kaario, M. Larmi, <i>Helsinki University of Technology, Finland</i></p> <p><b>187: Piston surface heat transfer during combustion in large marine diesel engines</b>, by M. V. Jensen, J. H. Walther, <i>Technical University of Denmark, Denmark</i></p> <p><b>7: Three-dimensional numerical simulation and structural optimization on the intake port of locomotive diesel engine</b>, by M. Li, H. Cui, Y. Han, <i>Dalian Jiaotong University, China, S. Zhang, DaLian Locomotive and Rolling Stock Works, China</i></p> <p><b>210: Combining dual stage turbocharging with extreme Miller timings to achieve NO<sub>x</sub> emissions reductions in marine diesel engines</b>, by F. Millo, M. Gianoglio, <i>Politecnico di Torino, Italy, D. Delneri, Wärtsilä, Italy</i></p>	<p><b>114: Noise reductions for low speed diesel engines and application of noise measurement using spherical beamforming technique</b>, by S. Kajihara, <i>Mitsui Engineering and Shipbuilding Co., Ltd., Japan, K. Takashima, Nittobo Acoustic Engineering Co., Ltd., Japan, J. Hoejgaard, M. Roegild, MAN Diesel SE, Denmark</i></p> <p><b>285: New low noise solutions for medium speed diesel engines</b>, by H. Tienhaara, M. Aura, <i>Wärtsilä Finland Oy, Finland, F. Degano, Wärtsilä Italia S.p.A, Italy, A. Karjalainen, Machinery Acoustics Oy, Finland</i></p> <p><b>219: Two node torsional vibration control of the multi-cylinder two stroke diesel engine</b>, by S. J. Hwang, <i>STX Heavy Industries, Korea</i></p> <p><b>231: Modern ultrasonic quality evaluation of large crankshafts</b>, by A. Silvonon, P. Halla-aho, <i>Wärtsilä Finland Oy, Finland, T. Hakkarainen, Inspecta Oy, Finland</i></p>
12:00	Lunch break			
13:30	<b>The Collin Trust Lecture: “Beyond Oil”</b> by K. Aleklett, <i>Prof. at Uppsala University, Sweden</i> <i>Presentation of the Collin Trust Lecture Award</i> , by S. Dexter, <i>President of the Collin Trust</i>			
14:30	<b>Panel: “Fuels of the future – What will come next after HFO?”</b> Chairman: N. Kyrtatos, <i>NTUA - Laboratory of Marine Engineering, Greece. Panelists to be announced.</i>			
16:00	End of Technical Sessions for Thursday			
18:30	Closing Ceremony and Gala Dinner Party at the Grieg Hall			

## POSTER SESSION FOR WEDNESDAY 16<sup>TH</sup> JUNE 2010

### Session 2

- 92: A single-phase flow model based on void fraction for boiling heat transfer calculation in cylinder head,**  
by X. Li, Shanghai Marine Diesel Engine Research Institute, P.R. China
- 99: Comparison of several methods of improving the part-load performance of a medium-speed engine with a two-stage turbocharging system,** by J. Bucher, BBB, Germany
- 215: Modeling the thermal conductivity of various cast irons,** by D. M. Holmgren, Daros Piston Rings AB, Sweden
- 292: Life assessment of the camshaft in a heavy duty diesel engine using flexible multibody dynamic,**  
by M. Mehrgou, Iran Heavy Diesel Engine Mfg Co. (DESA), Iran
- 307: Failure analysis of a heavy duty diesel engine cylinder head to improve fatigue life,** by H. Chamani, J. Kheyrollahi, A. Malakizadi, Iran Heavy Diesel Engine (DESA), Iran

### Session 3

- 41: Fuel Consumption of a power generator diesel engine fuelled by biodiesel blends,** by J. R. Sodre, O. S. Valente, M. Jose da Silva, F. I. Abdo, Pontifical Catholic University of Minas Gerais, Brazil
- 93: Sludge waste reduction in heavy fuel oil treatment,** by J. Smythe, G. Jackson, Infineum UK, UK
- 117: New application and modeling of low ignitability fuel for marine engines,**  
by D. Struckmeier, D. Tsurum, H. Tajima, Kyushu University, Japan
- 134: Thermodynamic modeling of single cylinder diesel engine working with diesel oil and blends of biodiesel,**  
by C.R.P. Belchior, Federal University of Rio de Janeiro, Brazil, G.C. Souza Junior, Brazilian Navy, Brazil
- 225: Characterisation of residual fuel oil combustion properties and the appropriate selection of marine fuel additives to improve combustion,** by M. Vermeire, Chevron, Belgium, J. Spencer, W. Ang, Infineum UK Ltd., England
- 260: Syngas production from plasma stabilized diesel partial oxidation,** by A. Nikipelov, A. Rakitin, Y. Leonov, NeqLab Research BV, Netherlands, A. Starikovskii, Drexel Plasma Institute, USA
- 263: Non vegetable origin biofuels as a combustibility improver,** by L. Stor, A. Prada, PETROBRAS SA, Brazil
- 265: Quality discrimination of bunker fuel oil on multivariable combustion analysis in modified FIA vessel,**  
by H. Tajima, K. Takasaki, Kyushu University, Japan, A. Takeda, Nippon Yuka Kogyo Co., Ltd., Japan, D. Yamanishi, National Fisheries University, Japan

### Session 4

- 35: The use of tribology and wear metal analysis in two-stroke engines to optimize oil feed rates and reduce liner wear,**  
by M. Winkler, Kittiwake GmbH, Germany
- 77: Online oil condition monitoring sensors,** by S. Lunt, Kittiwake Developments Ltd., UK
- 111: Marine lubricant technology for future fuels,** by M. Boons, D. Vroljik, Chevron Oronite, Netherlands
- 127: Development of a new lubricating oil for use with low sulphur distillate fuels,** by T. Garner, Infineum, UK
- 191: The relationship between the oil analyses results and the running surface conditions of machinery – A report of marine field engineer,** by T. Hashimoto, M. Kawabata, Y. Sasaki, TRIBOTEX Co. Ltd., Japan
- 202: Development of a new lead-free bearing material for low speed two-stroke diesel engines,**  
by M. Yamada, W. Zhong, N. Kawakami, A. Ono, Daido Metal Co., Ltd., Japan
- 283: Slide bearing monitoring system: Recognizing friction before noticeable mechanical damage occurs; a field report,**  
by M. Theobald, Schaller Automation GmbH Co KG, Germany

### Session 5

- 65: The effect of crankshaft and crankcase flexibility on the lubrication performance of heavy duty diesel engine main bearings,**  
by D. Lee, K. Joo, T. Nam, Mokpo National Maritime University, Korea, E. Kim, S. Kim, Vitech, Korea
- 163: Effects of inertia and gas torques on the crankshaft in determining vibration amplitudes for condition monitoring in preventive maintenance,** by J. C. ORJI, Starzs Marine, Nigeria
- 220: Sound field adjustment using sound absorber in the ISO type sound insulation test facilities,**  
by M. -S. Kim, STX Heavy Industries, Korea

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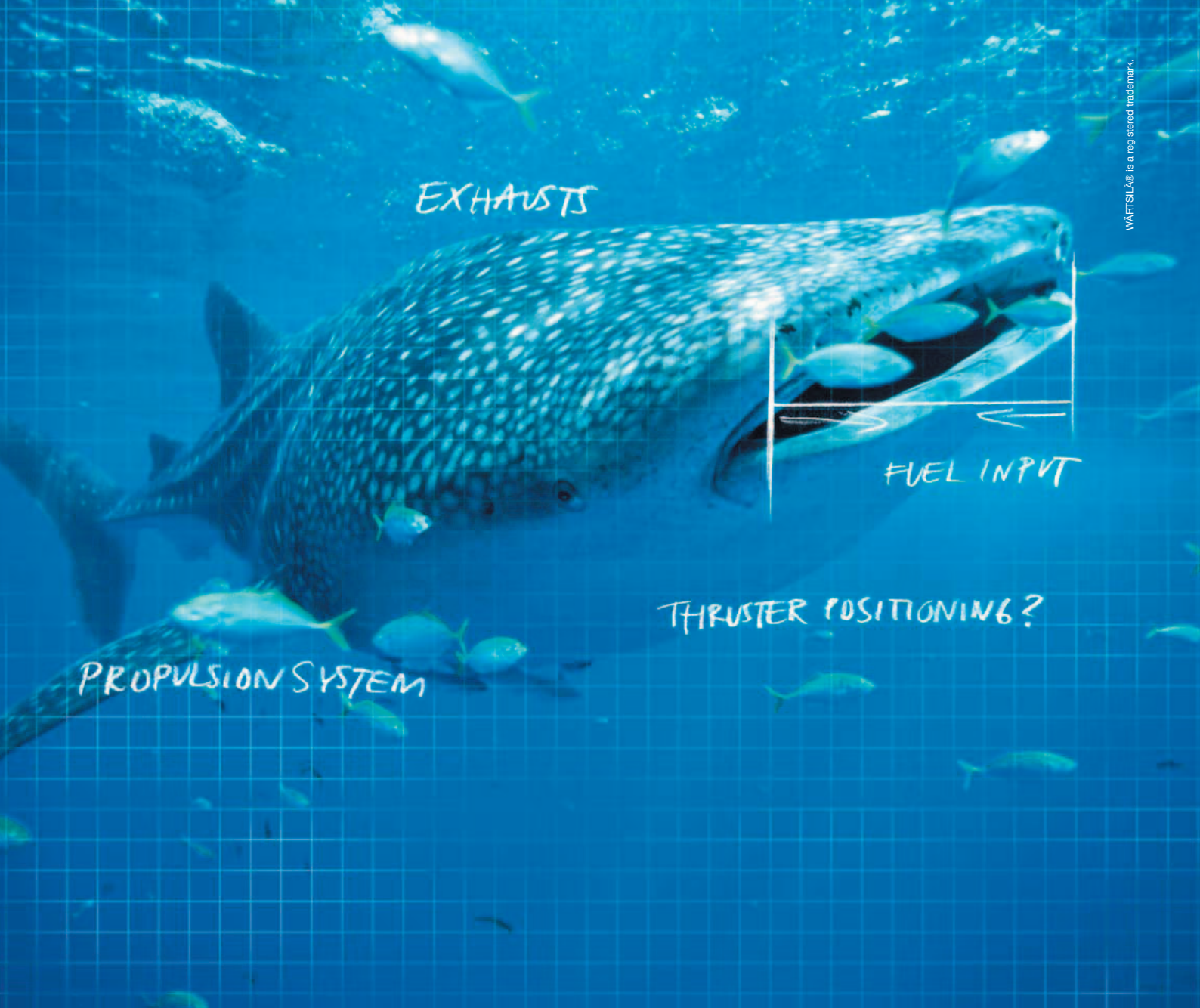
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## EXHIBITION

The CIMAC Congress is one of the most important international events in the field of large diesel and gas engines, including turbine applications. The exhibition will make up the central part of the Congress and will contribute to communication within the industry.

The exhibition will be held in Dovregubbens Hall, level U, at the Grieg Hall in Bergen. For details please see exhibition plan enclosed.

The net exhibition area occupies about 1000 m<sup>2</sup> of floorage. Entrance to the exhibition is free of charge for all delegates, and coffee/tea will be served in the exhibition area during all breaks. Integrated in the exhibition is the CIMAC technical poster session.

For further information on the exhibition and registration, please refer to the webpage: [www.cimac.com](http://www.cimac.com) under Congress 2010/ Exhibition.

### Exhibition Opening Times

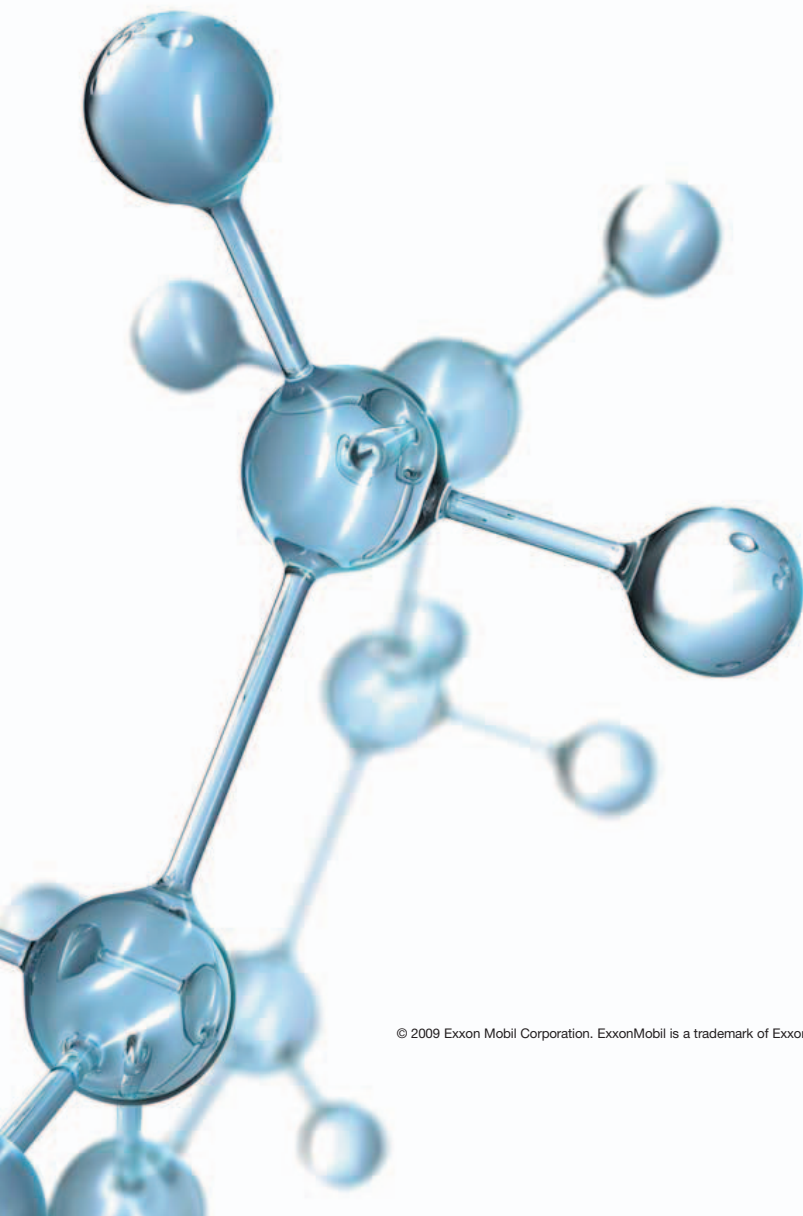
Monday 14 <sup>th</sup> June	12:00 – 18:00
Tuesday 15 <sup>th</sup> June	08:30 – 18:00
Wednesday 16 <sup>th</sup> June	08:30 – 18:00
Thursday 17 <sup>th</sup> June	08:30 – 14:00



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## Optional Tours Monday 14<sup>th</sup> June 2010

Bergen is a perfect starting point for a journey where visitors can choose from a great variety of organized tours and day trips to the fjords of Western Norway. Visitors can also experience the wonderful scenery and all the attractions on their own, either by car or by public transport in all seasons. Below you will find some tour suggestions to choose from.

The starting-point for all the tours is outside the main entrance of the venue, Grieg Hall.

The prices are quoted in NOK/per person and may be subject to change for reasons beyond the control of the Congress Secretariat (Congress-Conference AS).

Cancellation terms for the optional tours and activities for accompanying persons:

A full refund minus NOK 150 will be granted if written notice is received prior to 4<sup>th</sup> May 2010. Cancellations after that date will not be refunded, unless the activity is cancelled due to lack of participation.

### **Bergen Highlights**

**Monday 14<sup>th</sup> June afternoon (14:00 – 16:00)**

This tour offers an initial overview of the history and structure of the city. It takes you through the charming streets of Bergen, focusing on the downtown area surrounding the bustling harbour, the UNESCO-listed Wharf and the beautiful city park.

***Price per person NOK 180 including bus/guide and based on minimum 40 persons per bus.  
The trip starts outside the main entrance of the venue, Grieg Hall.***



## Optional Tours Tuesday 15<sup>th</sup> June 2010

### **Hanseatic Wharf – Bryggen, Mount Fløyen & Edvard Griegs home, Troidhaugen Tuesday 15<sup>th</sup> June morning (09:00 – 16:00)**

The famous Wharf – Bryggen is one of Bergen`s most visited attractions. We wander amongst the wooden tenements. Join this journey through history while we walk down the UNESCO listed Wharf. The walk ends with a trip on the funicular to see the breathtaking panoramic view of Bergen. The ride on the funicular takes about 5-7 minutes, and the view improves the closer you get to the top. Lunch at the Fløyen Restaurant.

After lunch we continue to Troidhaugen, the home of the famous composer, Edvard Grieg. Nina and Edvard Grieg`s home was built in 1885, and the couple lived there during the last 22 summers of Edvard Grieg`s life. Troidhaugen became a museum in May 1928. It mainly consists of a museum, Grieg`s home, a concert hall and the gravesite. While visiting the museum you will be able to listen to selected extracts of Grieg`s compositions. The museum gives you an overview of Edvard Grieg`s life; from his childhood in Bergen to his life as a famous composer.

During the visit to Troidhaugen, you will experience a private ½ hour piano recital.

***Price per person NOK 850 including guide/entrance fees/lunch and based on minimum 40 persons per bus. The trip starts outside the main entrance of the venue, Grieg Hall.***



Optional Tours Wednesday 16<sup>th</sup> June 2010

**Guided boat trip to Lysøen – the home of the violinist Ole Bull**  
**Wednesday 16<sup>th</sup> June (09:00 – 15:00)**



We walk from the Grieg Hall down to the harbour and go by boat to Lysøen. We will be served a nice buffet lunch during our boat trip. Upon arrival we visit the beautiful Lysøen Museum which consists of the house of the famous Norwegian violinist, Ole Bull, an old farm from the 1700-century, a charming café and the island Lysøen itself. On the 165 acre island, you will find wonderful scenery, 13 km with footpaths, gazebos and on the highest elevated point of the island, a lookout tower raised in memory of Ole Bull.

Norwegian violinist. Ole Bull was born in Bergen on 5<sup>th</sup> February 1810. For more information refer to [www.olebull2010.no/english](http://www.olebull2010.no/english)

During the visit to Lysøen, you will experience a violin concert in the home of Ole Bull.

***Price per person NOK 1000 including boat/guide/entrance fees/lunch and based on a minimum 60 persons attending. The trip starts outside the main entrance of the venue, Grieg Hall.***



### Optional Tours Thursday 17<sup>th</sup> June 2010

#### **Visit the old town, have lunch and visit the local aquarium – Akvariet Thursday 17<sup>th</sup> June morning (10:00 – 14:00)**

In the 19<sup>th</sup> century Bergen was the largest city with wooden houses. The Old Town Bergen has been rebuilt and consists of houses dating back to the 18<sup>th</sup>, 19<sup>th</sup> and 20<sup>th</sup> centuries. We stroll amongst something like 50 wooden houses, we will have a good look at several shops and workshops as well as private homes from various periods. Our stroll through the oldest part of the city gives us a sense of history through generations.

After our historic walk we visit the local aquarium to meet popular local personalities. In the many aquariums you can watch all kinds of fish and other creatures from the Norwegian coast beneath the surface. Akvariet also has crocodiles, snakes and small monkeys.

***Price per person NOK 750 including bus/guide/entrance fees/lunch and based on a minimum 40 persons per bus. The trip starts outside the main entrance of the venue, Grieg Hall.***



## Technical Visits Friday 18<sup>th</sup> June 2010

### Excursion to Wärtsilä

Wärtsilä is extremely active in Norway, with approximately 1100 employees. The main activities are pursued in three locations in the Sunnhordland region, south of Bergen.



**Bømlo (Main office):** Design, development and manufacturing of CP-propellers, reduction gears and control systems. Main base for the Wärtsilä Services operations.

**Stord:** Design, development, engineering and manufacturing of electrical and automation systems and solutions. Sales and Projects management and execution.

**Fitjar:** Ship Design- and engineering services. This trip will include both the Bømlo and Fitjar facilities.

**Travelling:** A high speed catamaran will bring you from downtown Bergen to Bømlo. This voyage is most enjoyable, cruising through a delightful archipelago, with the North Sea to the west and mountains and a glacier to the east. The return will go by bus and fjordferry through the same landscape.

This technical visit combines visits to world front runners in Marine engineering with a boat cruise in a beautiful setting.

- 08.00 Departure by boat from downtown Bergen
- 09.30 Arrival Wärtsilä in Bømlo. Welcome, presentation of Wärtsilä in Norway, tour through factory, lunch
- 12.00 Departure by bus
- 13.00 Arrival Wärtsilä Ship Design in Fitjar. Presentation and tour.
- 14.00 Departure by bus
- 14.15 Ferrytrip
- 15.00 End of ferrytrip
- 15.30 Arrival Bergen Airport
- 16.15 Arrival Bergen

**Price per person NOK 800,-**

### Excursion to Rolls-Royce Marine, Engines - Bergen at Hordvikneset

Rolls-Royce Marine, Engines - Bergen is the Rolls-Royce Centre of Excellence (CoE) for heavy diesel and gas engines. All Rolls-Royce Bergen medium speed diesel and gas engines are built in this factory, which is also responsible for design and development.



The factory is located just on the northern tip of the Bergen Peninsula, only 20 km north of Bergen.

- 08:30 Departure by bus from the Grieg Hall
- 09:00 Arrival at RRM Engines Bergen
- 09:15 Welcome and presentation of RRM Engines Bergen, tour of the factory and baguette lunch
- 11:45 Departure by bus
- 12:30 Arrival at the Grieg Hall

**Price per person NOK 300,-**

### Excursion to Mongstad Refinery

The refinery, which is located 60 km north of Bergen, is a modern highly-upgraded refinery with an annual capacity of 10 million tonnes of crude. It is the largest facility of its kind in Norway, and medium-sized in European terms. A combined heat and power (CHP) station is under construction to provide process heat and electricity for the Mongstad refinery. A full-scale carbon capture facility is also planned in the conjunction with the CHP station.



- 09:00 Departure by bus from the Grieg Hall
- 10:00 Arrival at Statoil Mongstad
- 10:15 Welcome and presentation of Statoil Mongstad, tour of the plant and lunch
- 13:45 Departure
- 15:00 Arrival at the Grieg Hall

**Price per person NOK 400,-**

## Optional Pre and Post Congress Tours



### Explore the beautiful Norwegian fjords!

The perfect and most environmentally-friendly way of experiencing the Norwegian fjords is to travel on an organized trip using public transport, such as train, bus and boat. Whether you are planning a longer holiday or just a short break, Fjord Tours is guaranteed to have offers that suit you.



Photo: Paal Audestad/ Fjord Tours

### Norway in a nutshell® – See this small but great country!

Norway in a nutshell® is the most popular round trip in Norway – and for a good reason. It features some of the most spectacular scenery in Fjord Norway. Highlights include a ride on the Bergen Railway and the famous Flåm railway, and a fjord cruise on Aurlandsfjord and the narrow Nærøyfjord (included on UNESCO's World Heritage List). You will have a close-up view of the steep mountain slopes as your bus makes its breathtaking ascent up the hairpin bends of the Stalheimskleiva road.

Round trip from Bergen: Price per person NOK 975

### Sognefjord in a nutshell – Huge fjord, huge experience!

Sognefjord is Norway's longest and deepest fjord and stretches more than 200 km inwards to the foot of the Jotunheimen Mountain. The dramatic and friendly landscape claims to be one of the most beautiful travel destinations in the world. The Sognefjord in a nutshell round trip combines a beautiful boat journey on Sognefjord, with a spectacular train journey on the Flåm Railway. Explore more of the Sognefjord area and extend your trip with a visit to the narrow Dalsfjord and the Gaularfjell mountains, also known as the "Waterfall Country".

Round trip from Bergen: Price per person NOK 1150

Round trip from Bergen including Dalsfjord and Gaularfjell mountains: NOK 1570

### Hardanger in a nutshell – A taste of fruit and fjord!

The 179 km long Hardangerfjord contains natural landscapes that are spellbinding to even the most well travelled tourist. Here you will find cultural and natural pearls side by side. Take a day trip by train, bus and express boat through beautiful scenery with views of majestic mountains, roaring waterfalls and idyllic fruit farms. In Eidfjord you can choose to take an exciting sightseeing trip to the powerful Vøringsfossen waterfall.

Round trip from Bergen: Price per person NOK 790

To get even more out of your trip, we recommend that you have overnight stays along the route. Try Fjord Pass®, Norway's most extensive hotel pass, and get discount at 170 hotels all over Norway.

### BOOKING AND MORE INFORMATION:

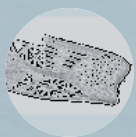
For booking and more information about these or other round trips in Norway visit [www.fjordtours.com](http://www.fjordtours.com).

# Powered by gas – probably the cleanest vessel since the age of sails



Bergen gas engines are now being specified for vessel propulsion and benefit from many years of land-based experience.

BE\_Gas\_Prod\_1\_1\_122009



Design- and ship systems



Propulsion systems



Pod propulsion systems



Thruster systems



Manoeuvring systems



Waterjet propulsion



Deck Machinery



Stabilisers



Bearings

Rolls-Royce is widely recognised for its ship design and system solutions for a broad range of vessels. Systems comprising propellers and thrusters, engines, stabilisers, deck machinery, rudders, steering gear, automation and control systems. Rolls-Royce supply gas-powered propulsion solutions that reduce emissions significantly. Compared to

diesel engines that meet IMO Tier 2 emission levels, Bergen gas engines give an emissions reduction of 92% NO<sub>x</sub>, close to 25% in CO<sub>2</sub> and virtually eliminate SO<sub>x</sub> and particulates, already meeting enforced and future IMO Tier 3 requirements. Clean efficiency by Rolls-Royce.

**Trusted to deliver excellence**

## NORWAY



Norway is situated in northern Europe occupying the western portion of the Scandinavian Peninsula, and under the terms of the Spitsbergen Treaty it includes Jan Mayen Island and the Arctic archipelago of Svalbard. The majority of the country shares a border to the east with Sweden; its northernmost region is bordered by Finland to the south and Russia to the east.

Throughout Norway, you will find stunning and dramatic scenery and landscape. The west coast of southern Norway and the coast of northern Norway present some of the most visually impressive coastal sceneries in the world. National Geographic has listed the Norwegian fjords as the world's top tourist attraction.

The main tourist cities in Norway are Oslo, Bergen, Stavanger, Trondheim and Tromsø. Much of the nature of Norway remains unspoiled, and thus attracts numerous hikers and skiers. The fjords, mountains and waterfalls in Western and North Norway attract several hundred thousand foreign tourists each year.

The culture of Norway evolved as a result of its sparse population, harsh climate, and relative isolation from the rest of Europe. It is therefore distinct from other countries in Europe in that it has fewer opulent palaces and castles, smaller agricultural areas, and longer travel distances.

### FACTS & FIGURES

<b>General data:</b>	
Capital:	Oslo
Population:	4.85 million
Total Area:	385,155 km <sup>2</sup>
Currency:	NOK
Language:	Norwegian
National day:	17 <sup>th</sup> May
International Dialling Code:	+47
Time Zone:	Central European Time (C.E.T.)
Religion:	Protestant (85%) Other (15%)
<b>Political Data:</b>	
Type of State:	Constitutional Monarchy
Type of Government:	Parliamentary Democracy





# It's about partnership

## The world's most environmentally friendly ship

The Viking Lady is a brand new, state-of-the-art offshore supply vessel, specially designed to safely service offshore installations in the extremely harsh waters of the North Sea. But what makes this lady really unique is her fuel cell – the first of its kind worldwide on board a ship.

The fuel cell and combustion engines on board the Viking Lady are powered by LNG (liquefied natural gas). This significantly reduces harmful emissions compared with the traditional marine oils that commercial ships generally operate on. Compared with a traditional ship, the reduction in harmful emissions as a result of the Viking Lady's advanced technology equals the emissions from 22,000 cars annually.

The Viking Lady is the first commercial ship ever with a fuel cell specially adapted for marine use. The fuel cell has several advantages: it reduces emissions to air and fuel consumption and operates very quietly – all significant for a ship with frequent stops in busy harbours located in populated areas.

The propulsion concept is developed by the FellowSHIP joint venture where DNV is one of the partners.

## BERGEN



Bergen is a cosmopolitan city with small-town charm and atmosphere. It is the second largest city in Norway. The inhabitants love to show off their beautiful and many-sided city. They are proud of Bergen's shipping, trading and cultural traditions. The city with its 250,000 inhabitants is like a spectacular amphitheatre clambering up the mountain slopes, overlooking the sea, embracing you. You can roam through living history in this modern city, the gateway to the wildest and loveliest fjords of Norway.

Bergen's location, surrounded by seven mountains, makes it strikingly attractive and provides an element of intimacy. It is surrounded by one of the world's greatest tourist attractions, the Norwegian fjords which have now been included on UNESCO's World Heritage List.

**Area:** 465 km<sup>2</sup>

**Population:** app. 250 000

### GENERAL INFORMATION

#### Banks and Currency Exchange

Banks are generally open from Monday to Friday, from 10:00 to 16:00. Most Norwegian banks have currency exchange facilities available during opening hours and can also change travellers' cheques.

Please ask about charges before changing money, as these may vary considerably. Automated cash dispensers can be found outside most banks, where cash can be withdrawn 24 hours a day.

#### Business Hours and Shopping

Shopping hours are Monday to Friday, from 10:00 to 18:00 and Saturday 10:00 to 16:00. Let yourself be tempted by the retailers' varied selection and good deals! Bergen has a strong tradition as a trade city. You will find a wide and tempting selection of shops from the small and specialized, and to the big department stores. Among the most famous shopping centres we can mention Kløverhuset in Strand Street, Gallery at Torgallmenning, Bergen Storsenter close to the bus station, train station and great parking and Lagoon Park located south of the centre as one of the country's largest. In addition, you will discover small and specialized shops virtually across the

central part of town. Many of them can be found along the Bryggen, in Upper Street and Little Upper Street, on Vetrilidsallmenning, Market and Vågsallmenningen, along the Strand Quay, in Strand Street and the surrounding area Torgallmenningen. The opening hours for the shopping centres Monday to Friday are 10:00 to 21:00 and 10:00 to 18:00 on Saturdays.

As Norway is not a member of the European union, all foreign citizens (apart from those of Sweden, Denmark and Finland) are eligible for a refund of the VAT if the goods purchased are brought out of the country one month after the purchase at the latest.

## BERGEN

### Climate

Summer is usually wonderful in Bergen. Bergen enjoys plenty of mild weather, thanks to the warming effect of the Gulf Stream. Most places in Norway look good in the sunshine, but few places can compare with a walk on the wing, the Fish Market, Bryggen

or in the park at Nordnes when the sun shines. Normally the temperature varies between 15° to 25°C during June. Bergen is situated in the northern part of the world and is noticeably colder than other neighbouring European countries.

### Credit Cards

Widely accepted credit card brands include Visa, Eurocard / MasterCard, Diners Club and American Express, which

are accepted in most localities at the larger establishments and hotels.

### Currency

The official currency in Norway is Norwegian Kroner (NOK).

Exchange rate per January 2010:  
€1 = approximately NOK 8.3

### Electricity

The standard voltage in Norway is 220 V. The Norwegian network supplies a

frequency of 50Hz. Plugs are continental-style two pins.

### Insurance

The congress organisers cannot accept liability for personal injuries sustained, or for loss or damage to property belonging to the participants and accompanying persons, either during or as a result of the congress. Registration does not include

insurance. It is strongly recommended that you arrange insurance when you register for the congress and book your travel arrangements. Insurance should be purchased in your country of origin.

### Tipping

In Norway it is usual to tip friendly service with 5-10% of the total amount of consumption.

### Visas

Passport-holders from countries in Western-Europe, North-America and Australia will not need a visa to enter Norway. If in doubt please check with your nearest Norwegian embassy. For further information please visit [www.norway.org](http://www.norway.org). The Congress Secretariat (Congress-Confer-

ence AS) will be pleased to send letters of invitation to any individual making such a request. A letter of invitation often facilitates the procedure of obtaining a visa. Please note that the letter is not a commitment on the part of the congress to provide any financial support.



## ACCOMMODATION

A number of rooms in different hotel categories have been booked at special rates. All hotels are located in the city centre with only a few minutes walk from the congress venue.

To secure accommodation of your choice, you should register as early as possible. Prices quoted are per room per night and include breakfast, service and VAT. All hotel reservations will be subject to availability and cannot be guaranteed after 1<sup>st</sup> May 2010.

There will be no organized shuttle service to the congress venue, because the Grieg Hall is located in the city centre and easily reached either by foot or by public transport. The special room rates listed under Hotel Overview are only available if reservations are made through the Congress Secretariat (Congress-Conference AS) electronically on the Online Registration Form.

### BOOKING AND CANCELLATION CONDITIONS

#### Hotel Deposit

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A hotel deposit of the cost of one night's stay must be paid in advance together with the Congress fees. The hotel deposit will be deducted from the total cost of accommodation. The remaining hotel payment will be charged at the hotel during the Congress.

#### Cancellation

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The hotel deposit will not be refundable for any cancellations after 1<sup>st</sup> May 2010. All cancellations and changes to reservations should be made in writing by e-mail or fax.

Cancellation up to 1 <sup>st</sup> May 2010	Handling charge of NOK 150
From 1 <sup>st</sup> May to arrival date	First night deposit
"No Show"	First night deposit

The cancellation policy for the accommodation is as follows:

#### General Information

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Confirmation of both hotel accommodation and participation at the Congress will be included in a confirmation letter. Participants are requested to pay their personal expenses directly to the hotel when checking out.

## Hotel Overview and Room Rates

		Single	Double
		NOK	NOK
1	Radisson Blu Royal	1895	2095
2	Clarion Havnekontoret	1895	1995
3	Radisson Blu Norge	1745	1945
4	First Hotel Marin	1698	1898
5	Neptun Hotel	1695	1945
6	Scandic Bergen City	1690	1890
7	Clarion Admiral	1595	1795
8	Rica Hotel Bergen	1445	1695
9	Comfort Hotel Holberg	1395	1595
10	Best Western Hordaheimen	1295	1595
11	Strand Hotel	1290	1540
12	Thon Hotel Bristol	1267	1567
13	Thon Hotel Rosenkrantz	1210	1510
14	Grand Terminus	1190	1390
15	Augustin	1190	1390
16	Thon Hotel Bergen Brygge	1045	1375

All rates are per room per night including breakfast, service and taxes.



## Hotel Overview



- |                         |                             |                             |
|-------------------------|-----------------------------|-----------------------------|
| 1 Radisson Blu Royal    | 7 Clarion Admiral           | 13 Thon Hotel Rosenkrantz   |
| 2 Clarion Havnekontoret | 8 Rica Hotel Bergen         | 14 Grand Terminus           |
| 3 Radisson Blu Norge    | 9 Comfort Hotel Holberg     | 15 Augustin                 |
| 4 First Hotel Marin     | 10 Best Western Hordaheimen | 16 Thon Hotel Bergen Brygge |
| 5 Neptun Hotel          | 11 Strand Hotel             |                             |
| 6 Scandic Bergen City   | 12 Thon Hotel Bristol       |                             |

## Getting to Bergen

### Travelling by plane

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Bergen Flesland Airport is easy to reach from the rest of Norway and from abroad. Thanks to direct flights from Copenhagen, Stockholm, Reykjavik, Helsinki, Amsterdam and London, you only need to change planes once to reach Bergen from far-away destinations. Low-fare airlines also operate direct flights to Bergen from international airports (Paris, Hamburg, Newcastle, Prague, London and more). You can also take direct sea routes from Denmark and Newcastle-upon-Tyne in England.

### Airport transfer

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#### Bus

The airport bus from Bergen Airport Flesland and Bergen city centre takes about 30 minutes and has departures every 15.min between 06:00 and 21:00 on weekdays. See [www.flybussen.no](http://www.flybussen.no) for detailed information.



Single ticket: NOK 90

Return ticket: NOK 150

#### Taxi

Generally, taxis are expensive in Norway. The taxi stand is located directly opposite the main entrance. The trip to the city centre takes about 20-30 minutes and costs about NOK 300-500, depending on whether the roads are clear. It can be added that taxi drivers rarely expect or receive tips. For further information, visit the following sites: [www.bergentaxi.no](http://www.bergentaxi.no) / [www.norgestaxi.no](http://www.norgestaxi.no)

### Travelling by train

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Bergen is served by a railway line which runs from Oslo. The railway line (Bergen Railway) is operated by the Norwegian State Railways (NSB). The journey takes about six hours and gives you beautiful views for the last three hours and is an experience in itself. Different international ratings consider the train ride between Oslo and Bergen by the Bergen Railway as the most exciting and beautiful train ride in the world. If you buy your ticket online well in advance, fares may be quite reasonable.



### Boat and ferry transfer

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Direct ferry routes from Denmark, enjoy a trip on the Hurtigruten, or take the boat to beautiful Sognefjord. There are also fast boat services from Stavanger as well as several communities north of Bergen. Because these passenger ferries stop at various small towns on the way there, you get a great view of the coast and its islands.

## Public Transport

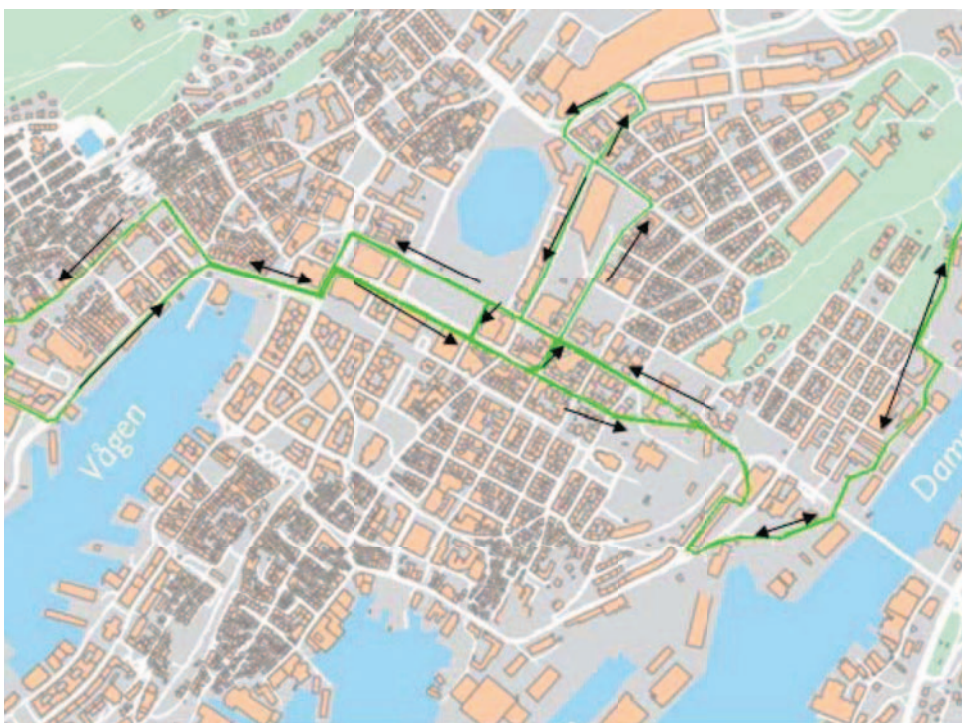
Once arrived in downtown Bergen, the city's public transportation network consisting of buses, trolleybus and trains will take you about the city affordably and efficiently. Take the opportunity to stretch your legs after your flight to Bergen lands: The main sights of the city are all within walking distance of each other, especially in Bryggen and at the waterfront.

### Free bus service



A free bus service operates during the day from Monday to Saturday, looping around the city centre of Bergen.

The council has decided to reintroduce the centre bus with more environmentally friendly buses because it encourages the increased use of public transport and thus has a good effect on the environment. Furthermore, it is a good service for residents of Bergen and its visitors. Shown below is the route that the bus follows .



### Local buses in Bergen and Hordaland

Tide is the operator of all the local bus services in Bergen and the Bergen suburban area.

Within the municipality of Bergen there is a one price policy (NOK 23 per adult single ticket for any distance within the municipality).



## GENERAL INFORMATION

The Congress will take place at the Grieg Hall located in Bergen. The address is:

Edvard Griegs Plass 1  
5015 Bergen

### Language

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The official language of the Congress is English and all presentations are to be made in English. There is no translation service.

### Congress Proceedings

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For all participants, all papers will be available in electronic form.

### Lunch

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After the Opening Ceremony on Monday 14<sup>th</sup> June lunch is included in all delegates' and accompanying persons' fees. From Tuesday 15<sup>th</sup> June to Thursday 17<sup>th</sup> June lunch is included in the delegate registration fee but not in the accompanying persons' fee.

### Contact for Questions

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For questions regarding Registration, Exhibition and Optional Tours for accompanying persons, please contact:

Congress-Conference AS  
P.O. Box 2694 Solli  
N-0204 Oslo, Norway  
Phone: +47 22 56 19 30  
Fax: +47 22 56 05 41.  
E-mail: [cimac2010@congrex.no](mailto:cimac2010@congrex.no)

### For questions regarding Hotel Accommodation, please contact:

Congress-Conference AS  
P.O. Box 2694 Solli  
N-0204 Oslo, Norway  
Phone: +47 22 56 19 30  
Fax: +47 22 56 05 41  
E-mail: [cimacregistration@congrex.no](mailto:cimacregistration@congrex.no)

### For questions directed at the local host, please contact:

CIMAC 2010 AS  
Egil Holland  
Middelthuns gate 27,  
P.O. Box 7072 Majorstuen  
0306 Oslo, Norway  
Phone: +47 91 70 39 38  
Fax: +47 23 08 88 98  
E-mail: [eholland@online.no](mailto:eholland@online.no)  
Internet: [www.cimac.com](http://www.cimac.com)

### For questions regarding the Technical Programme, please contact:

CIMAC Central Secretariat  
c/o VDMA e. V.  
Lyoner Str. 18  
60528 Frankfurt / Germany  
Phone: +49 69 6603 1567  
Fax: +49 69 6603 2355  
e-mail: [cimac@vdma.org](mailto:cimac@vdma.org)  
Internet: [www.cimac.com](http://www.cimac.com)

### Contact Persons:

Mr. Markus Heseding, Secretary General  
Ms. Lucie Hanzlová  
Mrs. Martina Pelzer



# A100

pressure ratios up to 5.8

ABB Turbocharging.  
Setting a new standard.

ABB Turbocharging introduces the all-new A100 turbocharger generation as a significant step in the development of single-stage, high-efficiency, high-pressure turbocharging. Three A100 series set a new standard with highest compressor pressure ratios for the high-speed and medium-speed diesel and gas engine segments as well as highest efficiency at high pressure ratios for low-speed diesel engines. For further information please contact ABB Turbo Systems Ltd, Baden/Switzerland. [www.abb.com/turbocharging](http://www.abb.com/turbocharging)

Power and productivity  
for a better world™



## REGISTRATION INFORMATION

Congress participation is open to all persons who are interested in attending the congress at the fees which are stated below.

### How to register

- You may register online via the web by completing the online registration form which is available on the congress webpage, [www.cimac.com](http://www.cimac.com), under Congress 2010/ Registration.

### Registration Fees

Registration Fees	Fee incl. VAT/NOK	
CIMAC Members *	NOK 14 000	Approx. € 1687
Non-members	NOK 15 000	Approx. € 1807
Speakers **	NOK 9 500	Approx. € 1145
Students ***	NOK 6 000	Approx. € 723
One Day Tickets ****	NOK 5 500	Approx. € 662
Accompanying Persons	NOK 3 000	Approx. € 361
Gala Dinner for One Day Participants + Exhibitors	NOK 1 200	Approx. € 145

Exchange rate per January 2010:  
€1 = approximately NOK 8.3

- \* If you are uncertain about your membership status, please contact the CIMAC Central Secretariat ([cimac@vdma.org](mailto:cimac@vdma.org)). US-ASME members are dealt as CIMAC members.
- \*\* Please submit your abstract number on the online registration form. Please note that only one author per paper will be granted the reduced "speaker's fee".
- \*\*\* Students are required to send a copy of their student ID to the congress secretariat (Congress-Conference AS) by e-mail. Email: [cimacregistration@congrex.no](mailto:cimacregistration@congrex.no) Students are required to present their student ID upon registration on site.
- \*\*\*\* One Day Tickets will only be available on site at the congress venue.

### The registration fee for CIMAC-Members, Non-Members, Speakers and Students includes:

- Congress bag
- Congress badge (to be worn at all events)
- Admission to all sessions
- Admission to the exhibition
- Coffee/tea during coffee breaks
- Congress Proceedings in electronic form
- Opening Ceremony on Monday 14<sup>th</sup> June in the Grieg Hall
- Lunch on 14<sup>th</sup>-17<sup>th</sup> June in the Grieg Hall
- Welcome Reception on Monday 14<sup>th</sup> June in the Grieg Hall
- ABB evening on Tuesday 15<sup>th</sup> June at 19.00
- Gala Dinner on Thursday 17<sup>th</sup> June in the Grieg Hall

### The registration fee for accompanying persons includes:

- Congress badge (to be worn at all events)
- Admission to the exhibition
- Coffee/tea during coffee breaks
- Opening Ceremony on Monday 14<sup>th</sup> June in the Grieg Hall
- Lunch after the Opening Ceremony in the Grieg Hall
- Welcome Reception on Monday 14<sup>th</sup> June in the Grieg Hall
- ABB evening on Tuesday 15<sup>th</sup> June
- Gala Dinner on Thursday 17<sup>th</sup> June in the Grieg Hall

## REGISTRATION INFORMATION

### How to register at the congress (on-site)

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The registration counters will be located in the foyer on level 1 of the congress venue.

Grieg Hall  
Edvard Griegs Plass 1  
5015 Bergen

Registration opening hours:

Sunday 13 <sup>th</sup> June	14:00 – 21:00
Monday 14 <sup>th</sup> June	08:00 – 17:00
Tuesday 15 <sup>th</sup> June	08:00 – 17:00
Wednesday 16 <sup>th</sup> June	08:00 – 17:00
Thursday 17 <sup>th</sup> June	08:00 – 17:00

The congress badges will be handed over to you at the registration counter together with the congress bag. All participants and accompanying persons are obliged to wear the official congress badges on all congress occasions. An additional fee will be charged for reproduction of lost congress badges.

The Opening Ceremony will take place at the Grieg Hall on Monday 14<sup>th</sup> June, from 10:00 to 12:00. For those who intend to join the Opening Ceremony, we recommend that you register earlier in order to avoid a last-minute opening-ceremony rush.

### Payment Instructions

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All payments must be made in NOK by credit card. No other type of payment will be accepted.

The following credit cards are accepted:  
Visa, Euro-/MasterCard, American Express and Diners.

If you pay by credit card via the congress website, please submit your credit card number including the expiry date and the total amount charged to make the transaction.

### Confirmation of Registration

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The confirmation of registration and receipt of payment will only be sent when both the registration form and payment are received in full. The confirmation will be sent to the participant by post, fax or e-mail.

### Cancellation Conditions

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The amount to be refunded will depend on the cancellation dates as follows:

Up to 8 <sup>th</sup> April	90% refund
From 9 <sup>th</sup> April to 4 <sup>th</sup> May	50% refund
After 4 <sup>th</sup> May	No refund

Cancellation must be made to the Congress secretariat (Congress-Conference AS) in writing either by letter, fax or e-mail. Refunds for cancellation received will be made after the CIMAC Congress.

### Replacements

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If you are unable to participate in the congress and would like to send a substitute attendee, please contact the Congress Secretariat. Name changes are accepted at any time at an extra charge of NOK 150.

Congress Secretariat of the 26<sup>th</sup> CIMAC Congress 2010 in Bergen:

c/o Congress-Conference AS  
P.O. Box 2694 Solli,  
N-0204 Oslo  
Norway  
Phone: +47 22 56 19 30  
Fax: +47 22 56 05 41  
E-mail: [cimacregistration@congrex.no](mailto:cimacregistration@congrex.no)



Scandinavian Airlines

## Official Airline

SAS is proud to be the Official Airline for CIMAC 2010 and welcomes you to Bergen.

As Official Airline we offer you 10% conference and event discount on our published fares\*.  
Simply log in with the designated event code **NO1007** at [www.wideroe.no/sasdelegates](http://www.wideroe.no/sasdelegates)  
and book your flight on SAS, Blue1 and Widerøe.

### Traveling from the USA:

Book online via above link if you are flying from Chicago, New York or Washington DC.  
From other US destinations similar discounts are offered on through fare tickets using  
connecting flights on United domestic USA in connection with SAS transatlantic flight.  
Please call 1-800 221 2350 to book your ticket.

When flying with SAS, you will naturally earn EuroBonus points on your journey, or with  
one of the Star Alliance airlines frequent flyer programs.

For more information visit [www.flysas.com/delegates](http://www.flysas.com/delegates)

Welcome on board!

\*except 2% on our lowest Economy fares

### Carbon Offset your air travel to the Event

SAS offers all participants to voluntarily offset their CO<sub>2</sub> emission. [www.flysas.com/emissioncalculator](http://www.flysas.com/emissioncalculator)

**Denmark** 70 10 30 00 **Norway** 05400 **Sweden** 0770 727 727 **Finland** 020 386 000  
**Europe** +44 208 990 7270, **USA** 1-800 221 2350 **Australia** 1300 727 707  
**China** 010 8527 6100 **Japan** 03-5400 2331 **Singapore** 6235 2488  
**Thailand** 02 2845 8200

## CIMAC members

### National Member Associations (NMAs):

#### Austria

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