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Come to Vienna, You'll be most welcome! Dear Reader and CIMAC Friend



n behalf of CIMAC and the Austrian National CIMAC Committee we are delighted to invite you to the **25**th CIMAC World Congress to be held in Vienna from 21 — 24 May 2007. The Congress is being held at the Vienna Hofburg, one of the most beautiful historical congress venues in the world.

We are proud that CIMAC has chosen Austria for its Silver Jubilee event, which we all will celebrate at the end of the Congress.

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.

Vienna promises to stand out as one of the most successful CIMAC conferences. More than 270 papers have been submitted. This new record in interest guarantees the selection of papers of only the highest quality and the prospect of it therefore being an exceptionally profitable meeting.

Three panel discussions with outstanding keynote speakers will provide a stimulating forum for the exchange of ideas and an informed review of developments to be expected in the future.

An informative and comprehensive exhibition with integrated poster sessions will complement the Congress presentations. It will offer not only an overview of the latest product developments but also create a discussion platform for exhibitors and Congress participants.

Social events enabling you and your accompanying partner to experience Austrian culture and gain memorable impressions of Vienna will round off your stay in this beautiful city.

There are many reasons to come to Vienna. We look forward to seeing you at the Vienna Hofburg.

West

Karl M. WojikPresident of the 25th CIMAC World Congress



Introduction to CIMAC

What CIMAC is:

The International Council on Combustion Engines (Conseil International des Machines a Combustion — CIMAC) was founded in Paris in 1951. It is a worldwide non-profit association consisting of National Member Associations, National Member Groups and Corporate Members in 24 countries in America, Asia and Europe.

It brings together manufacturers of diesel 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, CIMAC Circles and local CIMAC events
- 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 Members 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 and to publish Recommendations as well as press articles worldwide.

CIMAC Working Groups are presently active in the following areas:

- Exhaust Emissions
- Users
- Fuels and Lubricants
- Engine Specification
- Classification

CIMAC Congress:

The CIMAC Congress represents the culmination point of all CIMAC activities and takes place every 2 to 3 years each time in a different member country.

CIMAC Executive Board 2004-2007 Past President Vice Presidents Technical Program

Vice President Working Groups Vice President Users Vice President Commu Secretary General

Association (FMMI)

of the 25th CIMAC Congress

Congress President Chairman of the Organizing Committee Secretary General of the Organizing Chairman of the Exhibition Committee

Chairman of the Technical Committee General Manager of the hosting

Prof. Matti Kleimola, Wartsila Corporation

Prof. Nikolaos P. Kyrtatos, National Technical University of Athens Karl Woiik. AVI. List GmhH

Yasuhiro Itoh, Niigata Power Systems Co., Ltd. Dr. Georg Wachtmeister, Technical University of Munich

Øyvind Toft, Bergensen Worldwide Gas ASA Hanspeter Zingg, ABB Turbo Systems Ltd. Markus Heseding, CIMAC/VDMA

DI Karl Wojik, AVL List GmbH DI Dr. Rainer Aufischer, MIBA Gleitlager

Johanna Spitzer, FMMI Thomas Flauger, Kral AG Markus Heseding, CIMAC/VDMA

Dr. Berndt-Thomas Krafft





Conference Venue

The Hofburg Congress Centre occupies a unique position among the congress centers of the world. The state rooms of the Imperial Palace, the former residence of the Habsburgs, have maintained their original character despite being fitted out with the latest technical equipment. This impressive conference venue combines tradition with the requirements of a modern congress.

The Hofburg is situated in Vienna's city center. The most important museums are just down the street as are the Spanish Riding School, the Treasury, concert halls or Vienna's most elegant shopping streets. The close proximity to Vienna's inner city and its excellent infrastructure are the most important characteristics of this architecturally unique congress center.



With a concept combining flexibility, the most modern of congress technology and excellent service besides the luxurious ambiance, the Hofburg Vienna offers the right place for getting together, learn, meet and socialize in a special atmosphere.

Heldenplatz, A-1014 Vienna, www.hofburg.com



★ Hofburg **Congress Centre**



FINAL PROGRAMME

Time	Monday, 21 st May 2007
08:00	Registration at Hofburg Congress Centre
10:00	Opening Ceremony at Hofburg Congress Centre, Festsaal
12:00	Lunch for participants & accompanying persons at Hofburg Congress Centre

THE TECHNICAL PROGRAMME

The Technical Programme of the 25th CIMAC Congress will deal with diesel engines, gas engines and gas 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 — Diesel Engines

Session 6: System Integration — Diesel Engines

Session 7: Product Development — Gas Engines

Session 8: Component & Maintenance Technology — Gas Engines

Session 9: Turbochargers

Session 10: Product Development & Fundamental Engineering — Gas Turbines

Session 11: Environment, Fuel & Combustion — Gas Turbines

Session 12: Integrated Systems — Piston Engines & Gas Turbines

Session 13: Users' Aspects — Marine Applications

Session 14: Users' Aspects — Land-based Applications (Power Generation, CHP, Oil & Gas, Rail etc.)

Poster Sessions

On Tuesday, Wednesday and Thursday, 25 interesting Papers will be presented in the poster area located in the exhibition area. Opening time is from 10:00 to 16:00. 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.



TECHNICAL PROGRAMME MONDAY, 21st MAY 2007

Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"	
13:30	(1–1) 2-stroke slow-speed marine engines	(3–1) Diesel engines — Emission reduction methods 1	(2–1) Diesel engines — Combustion & performance	(10) Gas turbines — Product development & Fundamental engineering	
	Chairman: T. Bouché, AVL List GmbH, Austria	AVL List GmbH, Austria	Chairman: G. Wachtmeister, Technical University of Munich, Germany	Chairman: R. Beran, AVL List GmbH, Austria	Chairman: K. Takeishi, Osaka University, Japan
	43: The latest developments & technologies of the UE engines, by H. Sakabe, Y. Yamazaki, Mitsubishi Heavy Industries, Ltd., Japan 115: Latest developments of Wärtsilä low-speed engines to meet current & future customer demands, by K. Heim, Wärtsilä Corporation, Switzerland 68: Design of the new 2-stroke engines from MAN Diesel A/S, by T. S. Knudsen, CE. Egeberg, MAN Diesel A/S, Denmark	277: Engine manufacturers considerations on non-road mobile machinery legislation, by P. Scherm, P. Daskalopoulos, Euromot, M. Heseding, VDMA, Germany 99: The influence of a SOx abatement plant on diesel engine emissions, by F. Bak, MAN Diesel AlS, Denmark 165: Taking the next steps in emissions reduction for large 2-stroke engines, by R. Holtbecker, G. Weisser, M. Amoser, Wärtsilä Switzerland Ltd., Switzerland 29: New applications of direct water injection for marine diesel engines, by H. Tajima, K. Takasaki, Kyushu University, T. Takaishi, S. Murakami, Mitsubishi Heavy Industries, Ltd., Japan	31: The HERCULES Project: a major R&D effort for marine engines of high efficiency & low emissions, by N. P. Kyrtatos, ULEME E.E.I.G., Germany, M. Kleimola, Wärtsilä Corporation, Finland, R. Marquard, MAN Diesel SE, Germany 163: The design & operation of the fully controllable medium-speed research engine EVE, by I. Kallio, P. Rantanen, M. Imperato, E. Antila, T. Sarjovaara, M. Larmi, Helsinki University of Technology, K. Huhtala, Tampere University of Technology, G. Liljenfeldt, Wärtsilä Finland Oy, Finland 36: Turbocharging system for NO _x -optimised medium-speed diesel engines with high mean effective pressure, by J. Bucher, BBB, Germany	19: The study of stress corrosion cracking in Ni base super alloy, by Y. Uemura, T. Kurimura, K. Takahashi, H. Mitsui, I. Okada, Mitsubishi Heavy Industries, Ltd., Japan, B. Provitola, Mitsubishi Power Systems Americas, Inc., USA 168: Gasturbine with CO2 retention — 400 MW Oxyfuel-System Graz Cycle, by H. Jericha, W. Sanz, E. Göttlich, Graz University of Technology, Austria 237: Optimising the thermooxidation stability of gas turbine oils, by F. Novotny-Farkas, K. Baumann, OMV Refining & Marketing, Austria, T. Leimeter, Gubkin State Oil and Gas University, Russia	
15:00	30 minutes coffee break				



TECHNICAL PROGRAMME MONDAY, 21st MAY 2007

Т	ime	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"
1	5:30	(1–2) 4-stroke medium-speed engines 1	(3–2) Diesel engines — Emission reduction methods 2	(2–2) Gas engines — Combustion & performance	(9–1) Turbochargers — Emission reduction & consequences for charging systems
		Chairman: C. Teetz, MTU Friedrichshafen GmbH, Germany	Chairman: R. Holtbecker, Wärtsilä Switzerland Ltd., Switzerland	Chairman: T. J. Callahan, Southwest Research Institute (SwRI), USA	Chairman: A. Rippl, MAN Diesel SE, Germany
		104: The new MAN 32/44 CR — efficient, clean & compact, by C. Vogel, G. Heider, S. Haas, A. Marzinek, MAN Diesel SE, Germany 27: Development of Niigata 4-stroke engines, by Y. Itoh, M. Kawakami, Y. Mouri, S. Goto, Niigata Power Systems Co., Ltd., Japan 164: Development of HiMSEN H32/40 medium- speed diesel engine, by J. S. Kim, J. T. Kim, O. S. Kwon, Hyundai Heavy Industries Co., Ltd., Korea 243: Latest developments in Wärtsilä 4-stroke engine portfolio, by J. Kytölä, Wärtsilä Corporation, Finland, K. Heim, Wärtsilä Corporation, Switzerland	148: Combustion system development for IMO Tier 2, by G. Tinschmann, M. Taschek, H. Haberland, P. Eilts, MAN Diesel SE, Germany 32: The environment friendly medium-speed engine, by U. Schlemmer-Kelling, Caterpillar Motoren GmbH & Co. KG, Germany 28: Environmental contribution with Niigata marine diesel engines, by M. Kawakami, T. Mimura, N. Nakamaru, T. Takai, Niigata Power Systems Co., Ltd., Japan 258: Emission compliance strategy for multiapplication medium speed engines, by A. Ludu, T. Bouché, AVL List GmbH, M. Engelmayer, LEC – Large Engines Competence Center, Austria, G. Lustgarten, AVL Consultant, Switzerland	112: The combustion improvement technologies for large natural gas engine by in-cylinder observation & prediction, by S. Nakai, S. Morimoto, H. Yamawaki, The Japan Gas Association, R. Nakano, Mitsubishi Heavy Industries, Ltd., Japan 125: The combustion phenomena in the precombustion chamber of micro-pilot gas engine, by T. Hirose, T. Yamada, Ishikawajima-Harima Heavy Industries Co., Ltd., H. Furutani, National Institute of Advanced Industrial Science and Technology, S. Goto, Niigata Power Systems Co., Ltd., Japan 178: Combustion characteristics & performance of supercharged pyrolysis gas engine with micro-pilot ignition, by E. Tomita, N. Fukatani, N. Kawahara, K. Maruyama, Okayama University, T. Komoda, Mitsui Engineering & Shipbuilding, Co., Ltd. Japan 171: Combustion characteristics of HCC1 engines fuelled with natural gas & DME, by M. Ishida, S. Jung, H. Ueki, D. Sakaguchi, Nagasaki University, Japan	101: Utilisation of 2-stage turbo charging as an emission reduction mean on a Wärtsilä 4-stroke medium-speed diesel engine, by C. Wik, Wärtsilä Italia S.p.a., Italy, B. Hallback, Wärtsilä Finland Oy, Finland 245: Emissions — A new challenge for turbocharging, by E. Codan, C. Mathey, ABB Turbo Systems Ltd., Switzerland 22: Smokeless transient loading of medium/high-speed engines using a controlled turbocharging system, by G. Papalambrou, N. Alexandrakis, N. P. Kyrtatos, National Technical University of Athens, Greece, E. Codan, I. Vlaskos, ABB Turbo Systems Ltd., Switzerland, V. Pawils, Germany, R. Boom, Woodward Governor Nederland B.V., The Netherlands 25: Simulation of a sequential turbocharging system transient behaviour including compressor surging, by Wang Weicai, Wang Yinyan, Feng Yongming, Harbin Engineering University, PR China
1	7:00	End of Technical Sessions fo	or Monday		
1	8:30	Welcome Reception at the C	City Hall of Vienna For details,	please see the invitation in your cong	gress bag



TECHNICAL PROGRAMME TUESDAY, 22 nd MAY 2007

			"Souterrain"	"Schatzkammer"
S	(1–3) 4-stroke medium- speed engines 2	(3–3) Diesel engines — Calculation models & measurements	(2–3) Piston engines — Injection & combustion	(11) Gas turbines — Environment, fuel & combustion
1	Chairman: J. Kytölä, Wärtsilä Corporation, Finland	Chairman: P. Hupperich, FEV Engine Technology, Inc., USA	Chairman: S. Pischinger, FEV Motorentechnik GmbH, Germany	Chairman: H. Jericha, Technical University of Graz, Austria
	96: Development of 1.25 MW DME diesel engine, by K. Masuda, T. Sakai, T. Bando, H. Kondo, Daihatsu Diesel Mfg. Co., Ltd., A. Shimizu, JFE Engineering Corporation, Japan 153: Development of the high-speed diesel engine 20V 8000 M71, by N. Veser, A. Schneemann, W. Kasper, B. Wollmann, MTU Friedrichs- hafen GmbH, Germany 53: Development of the DLoco DL240ZJ engine to comply with current & future emissions regulations, by L. M. Nerheim, M. J. Graddage, Ricardo UK Ltd., UK, An J., Liang S., Dalian Locomotive and Rolling Stock Works Co. Ltd., PR China	13: Individual cylinder ultra- fast NO measurement for marine diesel engines, by M. Ioannou, N. Alexandrakis, N. P. Kyrtatos, National Technical University of Athens, Greece 230: Developments on exhaust emission modelling for large 2-stroke diesel engines — some comparisons with measured data & an update on the latest emission reduction techniques, by N. Kjemtrup, K. Aabo, T. S. Knudsen, MAN Diesel A/S, Denmark 140: Numerical investigations of fuel-water emulsion combustion in DI-diesel engines, by P. Eckert, A. Velji, U. Spicher, Technical University of Karlsruhe, Germany	147: Numerical & experimental investigation of the gas flow, mixture formation & combustion to optimise soot emissions in medium-speed marine common rail diesel engines, by M. Frobenius, I. Thiele, AVI. Deutschland GmbH, U. Schlemmer-Kelling, Caterpillar Motoren GmbH & Co. KG, Germany 128: A comparison of characteristic timescale & flame area evolution combustion models in medium-speed diesel engines, by O. Kaario, M. Larmi, Helsinki University of Technology, L. O. Liavag, Wärtsilä Finland Oy, Finland 24: Numerical simulation & improvement of a locomotive diesel nozzle, by Li Minghai, Zhang Xiaokun, Cui Hongiang, Guan Ying, Dalian Jiaotong University, PR China	39: Development of dual-fuel gas turbine combustor of liquid and digester gas, by M. Koyama, Niigata Power Systems Co., Ltd., Japan 10: Experiences with wood particles as regenerative fuel for directly fired gas turbines of the small power range, by F. Wingelhofer, Vienna University of Technology, Austria 38: Efforts towards the effective use of unused energy by small gas turbine generators, by H. Asai, M. Koyama, Y. Nakayama, K. Toba, Niigata Power Systems Co., Ltd., Japan



Congress 07	Congress 07
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Time	Room	Room	Room	Room
	"Festsaal"	"Zeremoniensaal"	"Souterrain"	"Schatzkamme
13:30	(7–1) Gas engines —	(3–5) Diesel engines —	(2–5) 2-stroke engines —	(9–3) Turbochargers –
	Product development	Combustion	Fundamental engineering	Compressor design
	Chairman: L. M. Nerheim, Ricardo UK Ltd., UK	Chairman: N. P. Kyrtatos, National Technical University of Athens, Greece	Chairman: P. S. Pedersen, MAN Diesel SE, Germany	Chairman: V. Haueiser ABB Turbo Systems Ltd. Switzerland
	Short presentation of CIMAC WG 17 "Gas Engines" 86: The evolution of MACH-3oG toward the more efficient gas engine, by M. Katsumi, R. Nakano, T. Yamamoto, S. Yotsuji, Mitsubishi Heavy Industries, Ltd., N. Fukatani, H. Kameyama, K. Ishibashi, The Japan Gas Association, Japan 111: Study of high adaptability in 1 to 3 MW class micro pilot gas engine for co-generation field through its development work & field experience, by S. Goto, T. Hashimoto, Y. Nishi, Niigata Power Systems Co., Ltd., Japan 167: New gas engines from MAN Diesel SE, by A. Hanenkamp, N. Boeckhoff, S. Terbeck, S. Koebler, MAN Diesel SE, Germany 239: Field experience with the Wärtsilä 50DF dual-fuel engine, by I. Nylund, Wärtsilä Corporation, Finland	98: Development of a reference experiment for large diesel engine combustion system optimisation, by K. Herrmann, Swiss Federal Institute of Technology (ETH) Zurich, R. Schulz, G. Weisser, Wärtsilä Switzerland Ltd, Switzerland 139: Bench test techniques to assess the efficacy of marine fuel additives to improve combustion, by M. Vermeire, Chevron Technology Gent, Belgium, J. Spencer, W. Ang, Infineum International Ltd., UK 199: The ignition & the combustion quality by FIA (Fuel Ignition Analyser) of actual MFO & the countermeasure against the MFO with inferior quality, by A. Takeda, F. Hirata, A. Otsuka, A. Hagiwara, H. Miyano, Nippon Yuka Kogyo Co., Ltd., H. Nakatani, E. Shimizu, T. Ura, T. Kato, D. Suzuki, NYK Line, Japan 177: Experimental analysis on the combustion rate due to interference of the burned gas in slow-speed diesel engine with a side fuel injection nozzle system, by T. Imahashi, E. Tomita, T. Kimoto, Okayama University, Japan	279: Evaluation of combustability of bunker fuel oil using Optic Combustion Analyser (OCA), by E. Tomita, T. Imahashi, Y. Maeda, Okayama University, H. Morinaka, Eiwa-Giken, T. Sasaki, Mitsui O.S.K. Lines Ltd., Japan 262: Effect of nozzle flow & cavitation structures on spray development in low-speed 2-stroke diesel engines, by A. Andriotis, M. Spathopoulou, M. Gavaises, The City University, UK 18: Performance monitoring of slow-speed diesel engines by dynamic exhaust gas temperature measurement & oxygen concentration measurement of blow down exhaust gas, by S. Nandam, A. P. Roskilly, University of Newcastle upon Tyne, UK 253: Upgrading of lubrication oil for hydraulic use in fuel injection systems by automatic filtration, by S. Schmitz, T. Vogel, Boll & Kirch Filterbau GmbH, Germany	200: Design of radial compressor wheels by of simplified, discrete exfunctions, by T. Winter, G. Rieder, F. Werdecker, J. Woyke, MAN Diesel SE Germany 166: Development of a wide operating range turbocharger compress with a low solidity vaned diffuser, by S. Ibaraki, H. Ogita, T. Yamada, Min Heavy Industries, Ltd., Jaj 121: Study on axial-radia turbocharger with press ratio 4.5, by Zhang Junya China North Engine Reseatinstitute, PR China

T E	CHNICAL PR	OGRAMME T	UESDAY, 22 no	M A Y 2007
Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"
10:30	(1–4) High-speed diesel engines	(3–4) Diesel engines — Fuels	(2–4) Piston engines — Structural mechanics	(9–2) Turbochargers — Applications & field experiences
	Chairman: A. Ludu, AVL List GmbH, Austria	Chairman: C. Van Geeteruyen, Chevron Technology Gent, Belgium	Chairman: H. S. Soyhan, Sakarya University, Turkey	Chairman: C. Roduner, ABB Turbo Systems Ltd., Switzerland
	156: Future potential of series 4000 marine engines, by L. Czerny, I. Wintruff, U. Schmid, J. Baumgarten, MTU Friedrichshafen GmbH, Germany 50: Utilising multiple injections for optimised performance & exhaust emissions with the MTU series 2000 common rail marine engines, by G. Stiesch, H. Baumann, V. Wachter, J. Schmitz, C. Teetz, MTU Friedrichshafen GmbH, Germany 60: Development & field introduction of the highspeed 4-stroke diesel engine MAN RK280, by F. Koch, T. Seidl, MAN Diesel SE, Germany, R. Dean, S. Johnson, J. Floyd, MAN Diesel Ltd., UK	198: The effects of a changing oil industry on marine fuel quality & how new & old analytical techniques can be used to ensure predictable performance in marine diesel engines, by K. Steernberg, Shell Global Solutions International B.V., The Netherlands, S. Forget, Shell Marine Products Ltd., UK 234: Alternative fuels experiences for mediumspeed diesel engines, by R. Ollus, K. Juoperi, Wärtsilä Finland Oy, Finland 196: Application study of waste-vegetable oils as a bio-fuel for diesel engine by high-density cavitation, by T. Ohgawara, Toshiba Plant Systems & Services Co., H. Okada, T. Tsukamoto, K. Iuasawa, K. Ohe, Tokyo University of Marine Science and Technology, Japan 107: A model for ignition & combustion quality of heavy fuel oil, by L. Goldsworthy, Australian Maritime College, Australia, H. Tajima, Kyushu University, Japan	251: Prediction of stress, strain & fatigue of combustion engines in the high & low cycle domain, by H. Dannbauer, B. Unger, MAGNA POWERTRAIN, Engineering Center Steyr GmbH & Co. KG, M. Maderboeck, G. Herdin, GE Jenbacher GmbH & Co. OHG, Austria 249: Dynamic fatigue analysis of power train components, by S. Trampert, D. Besselink, FEV Motorentechnik GmbH, Germany, P. Flynn, S. Napierkowski, GE Transportation Systems, USA 159: Non-ideal adiabatic analysis of gamma type Stirling engines, by N. Parlak, H. S. Soyhan, University of Sakarya, Turkey, M. Elsner, A. Wagner, University of Applied Sciences Regensburg, Germany	Short presentation of CIMAC WG 13 "Turbocharger Efficiency" 176: Contamination — a challenge for turbochargers in HFO operation, by W. Gizzi, M. Jung, P. Cellbrot, V. Haueisen, ABB Turbo Systems Ltd., Switzerland 221: Application & field experience of the new MAN Diesel turbocharger series TCR, by H. Schmuttermair, L. Hilgenfeld, K. Bartholomae, S. Kneip, MAN Diesel SE, Germany 30: Development & application of MET-MA turbochargers, by K. Shiraishi, M. Kimura, T. Teshima, Mitsubishi Heavy Industries, Ltd., Japan 102: HPR range in series use — ongoing development of KBB radial turbine type turbochargers, by I. Lehmann, K. Buchmann, S. Kaeseberg, Kompressorenbau Bannewitz GmbH, Germany
12:00	Lunch break			



TECHNICAL PROGRAMME TUESDAY, 22 nd MAY 2007

Т	Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"
1	15:30	(7–2) Gas engine developments	(3–6) Diesel engines — Particulates	(2–6) Piston engines — Dynamics & vibration	(9–4) Turbochargers — Product development & future trends
		Chairman: D. Chvatal, GE Jenbacher GmbH & Co. OHG, Austria	Chairman: C. Beiner, MTU Friedrichshafen GmbH, Germany	Chairman: JF. P. Chapuy, S.E.M.T. Pielstick, France	Chairman: T. Winter, MAN Diesel SE, Germany
		270 Advances in engine technology as a part of the Advanced Reciprocating Engine System (ARES) program at the Oak Ridge National Laboratory (ORNL), by T. Theiss, J. Parks, R. Wagner, H. T. Lin, M. Brady, K. D. Edwards, Oak Ridge National Laboratory (ORNL), USA 248: Development of new DAIHATSU 2 MW class gas engine, by T. Yamada, S. Shimomura, Daihatsu Diesel Mfg. Co. Ltd., Japan 135: Development of the 1,000 kW-class gas engine (MD20G), by M. Kondo, A. Sakane, Mitsui Engineering & Shipbuilding Co., Ltd., Japan 278: The first new gas engine to come from Korea, by J. T. Kim, J. S. Kim, Hyundai Heavy Industries Co., Ltd., Korea, T. Baufeld, AVL List GmbH, Austria, S. G. Dexter, Consultant, UK	129: Measures to reduce smoke & particulate emissions from marine diesel engines using compact common rail injectors, by B. Buchholz, M. Niendorf, University of Rostock, R. Pittermann, WTZ Rosslau GmbH, Germany 56: Particulate emissions of residual fuel operated diesel engines — background, particulate size distributions, measurement methods & potential abatement measures, by G. Hellén, J. Ristimäki, Wärtsilä Finland Oy, Finland 59: Physical characteristics of particulate matter emission from medium-speed marine diesel engine, by S. Okada, K. Tsujimoto, K. Kitagawa, Yanmar Co., Ltd., J. Senda, Doshisha University, Japan	143: Diesel engine design — virtual product development with focus on NVH, by C. Steffens, FEV Motorentechnik GmbH, Germany 264: Numerical investigation in the dynamic behavior of engine and power train with respect to the vibration of the ship structure, by N. Naranca, M. Basic, AVL-AST d.o.o., Croatia, T. Resch, AVL List GmbH, Austria, T. Gosch, Flensburger Schiffbau-Gesellschaft mbH & Co. KG (FSG), Germany 82: Increased speed of container vessels in case of one cylinder misfiring, by P. Rønnedal, M. Rogild, MAN Diesel A/S, Denmark, S. Kajihara, Mitsui Engineering & Shipbuilding Co, Ltd., Japan	123: Utilisation of excessive turbocharger efficiency, by M. Ohtsu, K. Shimada, Mitsui Engineering & Shipbuilding Co., Ltd., Japan 51: The role of CFD in turbocharger performance improvement, by P. Roach, Siemens Industrial Turbomachinery Ltd., UK 49: A study on precise analysis of the turbocharger rotor, by Wu Chang-hua, Lu Yu-zhen, Liao Ai-hua, Dalian University of Technology, PR China
1	17:00	End of Technical Sessions for	or Tuesday		



POSTER SESSION FOR TUESDAY, 22 nd MAY 2007

Session 2

185: New progress in heat rejection management in heavy diesel engines, by S. A. Jazayeri, M. Bazargan, K. Ebrahimi, K.N. Toosi University of Technology, Iran

228: CFD analysis of combustion & emissions to study the effect of compression ratio & hydrogen substitution in a diesel engine with experimental verification, by M. Masood, I Mirzana, A. S. Reddy, Muffakham Jah College Of Engg & Technology, India

267: A torsional vibration analysis methodology for large-scale 2-stroke diesel engines used for power generation, by V. Lamaris, E. Karangelos, D. Hountalas, National Technical University of Athens, Greece

Session 3

- 15: Effects of injection systems on the exhaust particle number & size distributions of non-road diesel engines, by S. A. Niemi, H. Nenonen, T. P. J. Paanu, M. Lauren, K. Ekman, T. Karhu, Turku University of Applied Sciences, Finland
- 20: Stability of heavy petroleum stock formulations a case study, by A. A. Gupta, Indian Oil Corporation Ltd., India
- 90: Fundamental study on heavy fuel reformulation through sonochemistry & chemical thermodynamics, by J. Senda, K. Ueda, S. Hanada, Y. Watanabe, Doshisha University, S. Okada, Yanmar Co., Ltd., Japan
- 108: Acceptable region on FIA characteristic in marine heavy oil, by T. Kurosawa, H. Shiihara, Nippon Kaiji Kyokai (Class NK), Japan
- 183: The effect of cylinder process variation on total nitrogen oxides emission for large bore slow-speed marine engines, by T. Borkowski, Maritime University Szczecin, Poland
- 192: Homogenous charge compression ignition (HCCI) engines in electrical power generating systems, by S. A. Jazayeri, M. Keshavarz, N. Shahangian, K.N. Toosi University of Technology, Iran
- 193: Experimental study on water particles action in the combustion of marine 4-stroke diesel engine operated with emulsified fuels, by Zhang Tao, Mitsubishi Heavy Industries Ltd., PR China, H. Okada, T. Tsukamoto, K. Ohe, Tokyo University of Marine Science & Technology, Japan

Transfer by bus from all major hotels.

19:00 ABB Evening: Transfer by bus from air major noters.

For details, please see your personal invitation included in your congress bag.



TECHNICAL PROGRAMME WEDNESDAY, 23rd MAY 2007

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Congress	07

TECHNICAL PROGRAMME WEDNESDAY, 23rd MAY 200

' '- '	CHNICAL PRO	OKAWWE WE	DNESDAY, 23	WAT 2007	1 L	CHNICAL PRO	GRAMME WE	DNL3DAI, 23	WAT 200
Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"	Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"
08:30	(13–1) User aspects marine — Predictive maintenance	(3–7) Diesel engines — Aftertreatment	(2–7) Diesel engines — Fundamentals & materials	(6–1) Electronic control systems & monitoring	10:30	(13–2) User aspects marine — Field experiences	(7–3) Gas engine technology	(12) Integrated systems — Piston engines & turbines	(5–2) Components — Crankshaft & bearings
	Chairman: F. Stadelmann, MTU Friedrichshafen GmbH, Germany	Chairman: M. Kawakami, Niigata Power Systems Co., Ltd., Japan	Chairman: J. C. Hedrick, Southwest Research Institute (SwRI), USA	Chairman: CE. Rösgren, Wärtsilä Corporation, Finland		Chairman: H. Niven, Humphrey Niven Engines Ltd., UK	Chairman: S. Laiminger, GE Jenbacher GmbH & Co. OHG, Austria	Chairman: H. Pleimling, FEV Motorentechnik GmbH, Germany	Chairman: R. Aufischer, MIBA Gleitlager GmbH, Austria
	64: From condition monitoring via condition based maintenance to condition based survey, by J. Rebel, Germanischer Lloyd AG, H. P. Behrens, Dr. E. Horn GmbH, K. Langer, Peter Doehle Schiffahrts-KG, K. Wehner, EUB-Institut, Germany, N. H. Nojgaard, MAN Diesel A/S, Denmark 21: A practical fact driven approach to solve & prevent damages, excessive wear & non-conformity to specifications of propulsion systems by a combination of metallurgical damage investigations, field measurements & advanced calculations, by P. Kloppenburg, Techno Fysica B.V., The Netherlands 275: Precise real-time fuel consumption measurement, by M. Schrittwieser, C. Schneider, KRAL AG, Austria 161: The differences of commercial cylinder oil performances for marine low-speed diesel engine between 70BN & 40BN for low sulphur content marine fuel oil, by T. Sasaki, T. Moriwaki, T. Noge, Mitsui O.S.K. Lines Ltd., S. Shirahama, N. Arimoto, Nippon Oil Corporation, Japan	222: Comparative diesel particulate trap performance assessment: impact of catalyst loading & feed gas characteristics in a modern CI engine, by A. Sappok, V. Wong, Massachusetts Institute of Technology, Y. Choi, M. Pope, N. Singh, Süd-Chemie Inc., USA 122: Development of a charge air moisturiser system for NO _x reduction of a medium-speed diesel engine, by H. K. Park, J. S. Ha, S. H. Ghal, B. S. Kim, K. H. An, Hyundai Heavy Industries Co., Ltd., Korea 95: A comparative study of mixed oxides catalysts to improve SCR efficiency at low temperature, by Y. Xiao, P. Zhou, University of Strathchyde, UK, Zhang Wenping, Liu Zhigang, Harbin Engineering University, PR China	76: Fretting fatigue in diesel engineering, by R. Rabb, Wärtsilä Finland Oy, P. Hautala, Helsinki University of Technology, A. Lehtovaara, Tampere University of Technology, Finland 184: An innovative glassmetal coating to provide corrosion resistance and a thermal barrier for highly loaded engine components, by R. Stanglmaier, T. Gross, G. Moormann, Märkisches Werk GmbH, V. Verlotski, R. Conradt, RWTH-Aachen, Germany 105: Study of inlet air parameter effects on variation of peak cylinder bulk temperature of compression-ignition engine, by G. Chen, Gannon University, USA	142: Reliable & economical diesel engine installation operation by utilising CBM (Condition Based Maintenance), by B. Stärkle, Wärtsilä France s.a.s., France, I. Ahlqvist, J. Pellas, Wärtsilä Finland Oy, Finland 71: Online services, by M. Diessner, A. Marzinek, MAN Diesel SE, Germany 187: Engine management & automation, keeping pace with changes, by J. Pensar, Wärtsilä Finland Oy, Finland		57: Service experience of MAN 2-stroke diesel engines, by S. B. Jakobsen, CE. Egeberg, MAN Diesel A/S, Denmark 274: Some common field experience with large bore 2-stroke engines, by Ø. Toft, Bergesen Worldwide Gas ASA, Norway, J. Thomsen, A.P. Moller, Denmark, 240: Field experiences with MTU 20V 8000 engines in various marine applications, by S. Müller, MTU Friedrichshafen GmbH, Germany 259: Enhanced classification requirements for engine safety, by N. Rattenbury, Lloyds Register, UK	162: Potential of HCCI for large natural gas fuelled engines, by G. Kogler, A. Wimmer, LEC — Large Engines Competence Center, Austria 173: Investigation on the combustion characteristics of the compression ignition divided chamber combustion system of the natural gas engine, by Zhang Huiming, Zhang Defu, Zhent Qingping, Tianjin University, PR China 261: Gas fuelled ships, by P. M. Einang, MARINTEK — Norwegian Marine Technology Research Institute, Norway 182: LPG as auxiliary fuel for gensets, by P. Frederiksen, MAN Diesel AIS, Denmark	63: New application fields for marine waste heat systems by analysing the main design parameters, by Z. Hou, I. Vlaskos, K. Fusstetter, M. Kahi, P. Neuenschwander, ABB Turbo Systems Ltd., Switzerland 72: High efficient combination of 2-stroke direct propulsion drives with diesel-electric drives via recovery of thermal energy, by K. Tigges, Siemens AG, Germany 78: Combined power, heat & cooling plants for air conditioning in mines, by J. Schöer, A. Hümbert, STEAG Saar Energie AG, Germany 170: Isoengine test experience & proposed design improvements, by K. Sugiura, M. Kunimitsu, Mitsui Engineering & Shipbuilding Co., Ltd., Japan, M. Coney, RWE npower, UK	42: Accurate measurement of oil film thickness using LIF method to improve load carrying capacity of crosshead bearings, by T. Kitahara. Kyushu University, D. Nakahan Daido Metal Co., Ltd., Japan 110: Experimental study on the effectiveness of monitoring techniques for main bearings of marine diesel engines, by Y. Song, H. Shiihara, Y. Nagayama, D. Shiraki, Nippon Kaiji Kyoka (Class NK), Japan 138: A study considering the influence of the connecting rod structure on big end bearing performance, by M. Fooks, J. Harrison, Daido Industrial Bearings Europe Limited, D. Bell, Ricardo Software, H. Govett, Ricardo UK Ltd., UK 127: Reliability assessment of cast steel crankshaft for stationary engine, by E. Otsuk Y. Hanawa, T. Hamada, H. Kubo, Kobe Steel, Ltd., S. Kajihara, Mitsui Engineering & Shipbuilding Co., Ltd., Japan
10:00	30 minutes coffee break				12:00	Lunch break			

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TECHNICAL PROGRAMME WEDNESDAY, 23rd MAY 2007

Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"	
13:30	(13–3) User aspects marine — Fuels & oils	(8) Gas engines — Component technology	(4) Tribology — Diesel engines	(5–3) Components — Injection	
	Chairman: Ø. Toft, Bergesen Worldwide Gas ASA, Norway	Chairman: E. Gust, ZOLLERN BHW Gleitlager GmbH & Co. KG, Germany	Chairman: H. Gehring, MAN Diesel SE, Germany	Chairman: Y. Itoh, Niigata Power Systems Co., Ltd., Japan	
	276: Consequences of fuel oil variations on marine booster pumps, by C. Schneider, T. Flauger, KRAL AG, Austria 213: Drip oil analysis for marine diesel engines — resume from two years of experience, by S. Bots, Wearcheck GmbH, Germany 74: Problem in the near future — low sulphur & low grade bunker fuel, by K. Takasaki, H. Tajima, Kyushu University, J. Hirata, Japanese Marine Equipment Association, K. Sugiura, Mitsui Engineering & Shipbuilding Co., Ltd., T. Kurosawa, T. Hashimoto, Nippon Kaiji Kyokai (Class NK), H. Miyano, A. Takeda, Nippon Yuka Kogyo Co., Ltd., D. Suzuki, NYK Line, T. Hayashi, Nippon Oil Corporation, Japan 149: The assured safe reduction of cylinder oil feed rates, by J. Smythe, G. Hitchings, Infineum International Ltd., UK	n14: MAHLE piston designs for state of the art gas engines, by R. Schmidt, C. Geissler, J. Kortas, MAHLE GmbH, Germany 7: High temperature- & intelligent pressure sensors based on thin film technology including modular electronic concept of data acquisition & processing for closed loop control on gas engines, by S. Neumann, M. Bienwald, IMES GmbH, Germany 179: Engine control system development using rapid prototyping hardware & software, by M. Flory, J. Hiltner, Hiltner Combustion Systems, USA	Short presentation of CIMAC WG 8 "Marine Lubricants 61: Advanced applied research unravelling the fundamentals of 2-stroke engine cylinder lubrication — an innovative on-line measurement method based on the use of radio-active tracers, by V. Doyen TOTAL France, France, R. K. Drijfholt, Wärtsilä Switzerland Ltd., Switzerland, T. Delvigne, Delta Services Industriels (DSi), Belgium 91: Base oil trend creates challenge for trunk piston engine oil additive technology, by C. H. M. Boons, Chevron Oronite LLC, USA, D. J. E. Vrolijk, W. P. A. van Houten, Chevron Oronite Technology b.v., The Netherlands 145: Safe engine operation using a single TBN cylinder lubricant with high & low sulphur content fuels, by T. Garner, Infineum International Ltd., UK, L. Voss, Hapag-Lloyd Container Linie GmbH, Germany, C. Rojgaard, MAN Diesel A/S, Denmark 246: Application oriented bearing testing, by C. Forstner, G. Mairhofer, Miba Gleitlager GmbH, Austria	137: Advanced technology for HFO injection systems developed for medium-speed engines, by C. Senghaas, O. Altmann, M. Schwalbe, L'Orange GmbH, Germany, D. Jay, K. Lehtonen, Wärtsilä Corporation, Finland 23: Durability & longtime stability in operation of EFI systems for diesel, HFO & gas engines, by M. Stöckli, P. Affolter, H. O. Geisser, DUAP AG, Switzerland 70: New common rail systems suited for diesel engines from 1 to 5 MW: modeling simulations & hardware results, by M. Ganser, U. Moser, L. Hauger, Ganser CRS AG, Switzerland 191: Effects of rounding-off inlet hole in fuel nozzle on spray & combustion characteristics under high-pressure & high-temperature, by T. N. Tuan, H. Okada, T. Tsukamoto, K. Ohe, K. Iwasawa, Tokyo University of Marine Science and Technology, Japan	
15:00	30 minutes coffee break				
15:30	Room "Festsaal" Panel: "Extended Time Between O Chairman: N. Hansen, Hanseatic Lloyd Schiffe Panelists: G. Bjørndalen, Odfjell ASA, A. Thon P. Kloppenburg, Techno Fysica B.V., The Nether Switzerland, H. Rolsted, MAN Diesel A/S, Den Germany	ıhrt GmbH & Co. KG, Germany esen, Høegh Fleet Services AS, Norway, ılands, K. Huber, Wärtsilä Switzerland Ltd.,	Room "Zeremoniensaal" Panel: "Alternative fuels & gas quality — the main parameters on emissions & reliability" Chairman: L. M. Nerheim, Ricardo UK Ltd., UK Panelists: R. Marquard, MAN Diesel SE, Germany, G. Hellén, Wärtsilä Corporation, Finland, G. Herdin, GE Jenbacher GmbH & Co. OHG, Austria, D. B. Olsen, Colorado State University, USA		
17:00	End of Technical Sessions for	or Wednesday			



POSTER SESSION FOR WEDNESDAY, 23rd MAY 2007

Session 4

117: A study of wear phenomenon of piston rings & cylinder liners of large bore low-speed marine diesel engines, by Y. Saito, H. Ukai, T. Yamada, Ishikawajima-Harima Heavy Industries Co., Ltd., T. Nakashima, Diesel United Co., Ltd., Japan

144: Meeting the challenge of new base fluids for the lubrication of medium-speed marine engines — an additive approach, by P. Watts, D. Adams, J. Dodd, P. Dowding, A. Doyle, Infineum International Ltd., UK

150: Use of on-line sensor technology for oil & machinery condition monitoring — case studies on real world applications & their use to predict machinery failure & extend oil change interval, by I. Lamont, Kittiwake Developments Ltd., UK

186: Investigation of cylinder liner lacquers in the North Sea & Norwegian Sea regions, by \emptyset . Buhaug. MARINTEK — Norwegian Marine Technology Research Institute, Norway

220: Studies on tribology of valve trains & engine oils in diesel engines, by M. Soejima, Y. Wakuri, Kyushu Sangyo University, T. Hamatake, Oita University, Japan

254: Aluminium-base bearings — performance, limitations, new developments, by R. Mergen, G. Gumpoldsberger, F. Langbein Miba Gleitlager GmbH, F. Gruen, I. Godor, University of Leoben, Austria

281: Analysis based solutions for engine bearing related problems, by V. Fridman, Technical Mechanics and Electronics, I. Piraner, C. Musolff, Cummins, Inc., USA

Session 5

16: Requirements to condition monitoring systems in condition based maintenance environments, by O. Dossing, Rousing Dynamics AIS, Denmark

54: Study on crankshaft strength of engines with multi-academic subjects, by Sun Jun, Gui Changlin, Hefei University of Technology, PR China



TECHNICAL PROGRAMME THURSDAY, 24th MAY 2007

08:30			"Souterrain"	"Schatzkammer"
06:30	(14–1) User aspects land based applications — Power generation	(5–4) Components — Shaft alignment	(5–5) Components — Monitoring	(6–2) Electronic control systems — Low-speed engines
	Chairman: G. Hellén, Wärtsilä Corporation, Finland	Chairman: FG. Cantow, Federal Mogul Burscheid GmbH, Germany	Chairman: S. Fritz, Southwest Research Institute (SwRI), USA	Chairman: T. Tanaka, Mitsui Engineering & Ship- building Co., Ltd., Japan
	265: Optimisation of supercharged lean mixture gas Otto engines for independent operation, by R. Henn, K. Stellwagen, C. Drexel, G. Appel, DEUTZ Power Systems GmbH & Co. KG, Germany 62: Development of large scale DME diesel power generation plant — NOx reduction technology by large amount of EGR & DME use SCR, by A. Shimizu, M. Yoshida, N. Konoshima, JFE Engineering Corporation, A. Todoroki, JFE Technos Corporation, H. Hayashi, JFE R&D Corporation, K. Nakao, Daihatsu Diesel Mfg. Co. Ltd., Japan 58: The development & application of Chinese railway locomotive diesel engine lube, by Yu Jun, Liu Jianxin, Petro-china Lubricant Company, PR China 14: Economical & environ- mental advantages of using natural gas as a fuel for inland water transport, by A. Radwan, M. Morsy, A. Elbadan, Faculty of Engineering, Egypt	94: The importance of alignment for an engine builder, by W. Schiffer, Wärtsilä Switzerland Ltd., Switzerland 160: Optimisation of both engine & shaft alignment for hull deflection, by I. Sugimoto, Hitachi Zosen Corporation, T. Nakao, Hitachi Zosen Diesel & Engineering Co., Ltd., Japan 236: Effect of the hull deflections on propulsion system bearing loading, by D. Sverko, American Bureau of Shipping (ABS), Canada 244: Contamination & consumption of crank case system oil in slow-speed engines, by U. Müller, MT Sealing Technology, Inc., Switzerland	169: Engine monitoring and safety — a new generation of oil mist detectors certified for diesel, gas and dual fuel engines, by W. Kuhn, Sybille Schaller & Dr. Kuhn GmbH, Germany 172: Evaluation of complete support system for maintenance in an engine room, by Y. Isozaki, K. Imai, Mitsui Engineering & Shipbuilding Co., Ltd., M. Kaibara, Daihatsu Diesel Mfg. Co. Ltd., Japan 215: Self-learning torsional vibration monitoring system for detection of misfiring & malfunction in diesel engine plants, by JG. Park, SP. Seo, KS. Oh, STX Engine Co., Ltd., Korea 79: Cylinder pressure measurement via indicating cock, by R. Turunen, O. Kaario, VTT, G. Liljenfeldt, Wärtsilä Finland Oy, Finland	77: Common rail Wärtsilä 2-stroke engines in practice, by H. Brunner, M. Betschart, S. Fankhauser, Wärtsilä Switzerland Ltd., Switzerland 75: Creating a whole range of benefits with the MITSUBISHI UEC eco-engine, by M. Sugihara, K. Edo, T. Tanida, Mitsubishi Heavy Industries, Ltd., Japan 44: Electronic engine control for ice operation of tankers, by G. Livanos, G. Papalambrou, N. P. Kyrtatos, A. Christou, National Technical University of Athens, Greece



TECHNICAL PROGRAMME THURSDAY, 24th MAY 2007

Time	Room "Festsaal"	Room "Zeremoniensaal"	Room "Souterrain"	Room "Schatzkammer"	
10:30	(14–2) User aspects land based applications — Emissions & lubricants	(5–6) Components — Noise & vibration	(5–1) Components — Design	(6–3) Electronic control systems — Medium & high-speed engines	
	Chairman: D. Plohberger, DEUTZ Power Systems GmbH & Co. KG, Germany	Chairman: K. Sugiura, Mitsui Engineering & Ship- building Co., Ltd., Japan	Chairman: F. Koch, MAN Diesel SE, Germany	Chairman: K. Heim, Wärtsilä Corporation, Switzerland	
	73: Plume visibility & emission management in a large size heavy fuel oil fired diesel engine power station in Macau, by J. F. P. Amorim, J. J. Valente, Companhia Electricidade de Macau (CEM), PR China 41: Fuel consumption & exhaust emissions from a 1,500 KW hybrid road-switcher locomotive, by S. Fritz, J. Hedrick, R. Honc, Southwest Research Institute (SwRI), A. Bennett, M. Schell, A. Tarnow, Railpower Hybrid Technologies, Inc., USA 146: A holistic view on Indian heavy fuel quality and power plant emission scenario — a technical report of CIMAC INDIA Working Group activities, by S. S. V. Ramakumar, R. K. Malhotra, Indian Oil Corporation Ltd., A. Shah, Wärtsilä India Ltd., India, R. Sarin, Wärtsilä Corporation, Finland 141: A field test comparison of two engine oils in North American railroad service, by F. W. Girshick, Infineum USA, L.P., USA	130: Parameter identification of torsional vibration dampers by modern measurement & calculation methods, by T. Philipp, Geislinger GmbH, Austria 203: Engine dynamics & vibration control, by H. Tienhaara, H. Mikonaho, Wärtsilä Finland Oy, Finland 257: Anti-vibration design system for HiMSEN engines, by SM. Lee, WH. Kim, HS. Kim, JG. Bae, Hyundai Heavy Industries Co., Ltd., Korea 113: Effect of microstructural characteristics on the mechanical & wear properties of grey cast iron cylinder liner for marine diesel engine, by JH. Hwang, Hyundai Heavy Industries Co., Ltd., Korea	83: Progressive development of 2-stroke engine tribology, by K. Räss, M. Amoser Wärtsilä Switzerland Ltd., Switzerland 247: Integration & modularisation in engine design, by M. Vaarasto, Wärtsilä Finland Oy, Finland 84: Development of a novel 2-stroke exhaust valve with a mechanical valve rotator to achieve three-year TBO's, by H. Fellmann, R. Stanglmaier, Märkisches Werk GmbH, Germany	188: Caterpillars electronically controlled injection systems for medium-speed engines, by F. Starke, Caterpillar, Inc., USA, U. Hopmann, Caterpillar Motoren GmbH & Co. KG, Germany 233: Common rail experiences & new developments — 4-stroke Wärtsilä engines, by D. Jay, A. Järvi, K. Ehrstrom, Wärtsilä Finland Oy, Finland 152: ADEC — the new MTU off-highway engine management, by O. Schnelle-Werner, J. Remele, H. Weidele, MTU Friedrichshafen GmbH, Germany	
12:00	Lunch break				
13:30	Room "Festsaal" The Collin Trust Lecture: "Fuel for Tomorrow — Future availability and acceptability of world energy resources suitable for the marine, power generation and locomotive applications covered by CIMAC" by Prof. Dr. H. List, AVL List GmbH, Austria Presentation of the Collin Trust Lecture Award, by Prof. Lars Collin, Sweden				
14:30	Room "Festsaal" Panel: "25 CIMAC Congresses — driving source for future engine developments" Chairman: CE. Egeberg, MAN Diesel AlS, Denmark Panelists: N.N., T. Nishikawa, Mitsui O.S.K. Lines Ltd., Japan, J. Hammett, Shell Marine Products Limited, UK, J. Schramm, Technical University of Denmark, Denmark, A. Ludu, AVL List GmbH, Austria				
16:00	End of Technical Sessions for Thursday				



POSTER SESSION FOR THURSDAY, 24th MAY 2007

Session 5 (continued)

238: Feed rate characteristics of motor-driven cylinder lubricator with electronic control quill in a large 2-stroke marine diesel engine, by M.-W. Bae, Gyeongsang National University, H. Jung, Jinju Campus of Korea Polytecnic VII Colleges, I.-D. Kim, Y.-H. Jung, Graduate School of Gyeongsang National University, C.-H. Kang, Engineering Research Institute of Gyeongsang National University, Korea 250: The development of the device for measuring crankshaft deflection by using the wireless communication, by J. K. Kim, Doosan Engine Co., Ltd., Korea

Session 6

226: Approach for condition monitoring as integral part of engine & auxiliary systems, by H. Mohr, H. Hülser, E. Korsunsky, N. Mayrhofer, R. Teichmann, AVL List GmbH, Austria

227: The use of diesel engine simulation models in ship propulsion plant design & operation, by H. Grimmelius,Delft University of Technology, P. Schulten, Ministry of Defence, D. Stapersma, Netherlands Defence Academy, The Netherlands, E. Mesbahi, University of Newcastle upon Tyne, UK

Session 7

33: Reducing emissions from gas engines through partial stratification, by R. L. Evans, The University of British Columbia, Canada

Session 14

211: Availability analysis of CHP systems & its application to electrical power generation, by G. Javadirad, M. Javanian, Iran Heavy Diesel Engine Mfg. Co., M. Mirsalim, Amirkabir University of Technology, Iran

Gala Dinner at the Orangerie Schönbrunn

For details please see the invitation in your congress bag Evening dress is not required, but formal business dress would be much appreciated



POSTER SESSION FOR THURSDAY, 24th MAY 2007

The Technical Programme Committee

The recimical Programme Committee	
Dr. R. Aufischer, MIBA Gleitlager GmbH, Austria	A. Ludu, AVL List GmbH, Austria
C. Beiner, MTU Friedrichshafen GmbH, Germany	L. M. Nerheim, Ricardo UK Ltd., UK
Dr. R. Beran, AVL List GmbH, Austria	H. Niven, Humphrey Niven Engines Ltd., UK
Dr. T. Bouché, AVL List GmbH, Austria	Dr. P. S. Pedersen, MAN Diesel SE, Germany
T. J. Callahan, Southwest Research Institute (SwRI), USA	M. Pelzer, CIMAC Central Secretariat, Germany
FG. Cantow, Federal Mogul Burscheid GmbH, Germany	Prof. Dr. S. Pischinger, FEV Motorentechnik GmbH, Germany
JF. P. Chapuy, S.E.M.T. Pielstick, France	H. Pleimling, FEV Motorentechnik GmbH, Germany
D. Chvatal, GE Jenbacher GmbH & Co. OHG, Austria	D. Plohberger, DEUTZ Power Systems GmbH & Co. KG, Germany
S. Fritz, Southwest Research Institute (SwRI), USA	Dr. A. Rippl, MAN Diesel SE, Germany
Dr. H. Gehring, MAN Diesel SE, Germany	Dr. C. Roduner, ABB Turbo Systems Ltd., Switzerland
E. Gust, ZOLLERN BHW Gleitlager GmbH & Co. KG, Germany	CE. Rösgren, Wärtsilä Corporation, Finland
Dr. V. Haueisen, ABB Turbo Systems Ltd., Switzerland	Dr. M. Sato, Central Research Institute of Electric Power Industry, Japan
J. C. Hedrick, Southwest Research Institute (SwRI), USA	Dr. H. S. Soyhan, Sakarya University, Turkey
K. Heim, Wärtsilä Corporation, Switzerland	F. Stadelmann, MTU Friedrichshafen GmbH, Germany
G. Hellén, Wärtsilä Corporation, Finland	K. Sugiura, Mitsui Engineering & Shipbuilding Co., Ltd., Japan
M. Heseding, CIMAC Central Secretariat, Germany	Prof. K. Takeishi, Osaka University, Japan

Dr. R. Holtbecker, Wärtsilä Switzerland Ltd., Switzerland T. Tanaka, Mitsui Engineering & Shipbuilding Co., Ltd., Japan Dr. P. Hupperich, FEV Engine Technology, Inc., USA Dr. C. Teetz, MTU Friedrichshafen GmbH, Germany

Ø. Toft, Bergesen Worldwide Gas ASA, Norway Y. Itoh, Niigata Power Systems Co., Ltd., Japan

Prof. Dr. H. Jericha, Technical University of Graz, Austria P. Vacra, CIMAC Central Secretariat, Germany Dr. M. Kawakami, Niigata Power Systems Co., Ltd., Japan C. Van Geeteruyen, Chevron Technology Gent, Belgium

Dr. F. Koch, MAN Diesel SE, Germany Prof. Dr. G. Wachtmeister, Technical University of Munich, Germany

Prof. Dr. N. P. Kyrtatos, National Technical University of Athens, Greece Dr. H. E. Wettstein, ALSTOM (Switzerland) Ltd., Switzerland

J. Kytölä, Wärtsilä Corporation, Finland T. Winter, MAN Diesel SE, Germany

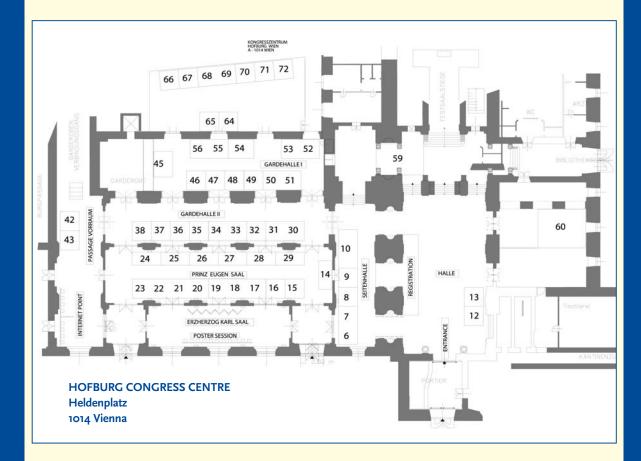
Dr. S. Laiminger, GE Jenbacher GmbH & Co. OHG K. Wojik, AVL List GmbH, Austria



EXHIBITION

Together with the congress, a technical exhibition will be held in the Hofburg Congress Center on the ground floor (for details please see exhibition plan enclosed).

The exhibition occupies about 700 m² 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 coffee breaks. Integrated in the exhibition is the CIMAC technical poster session.





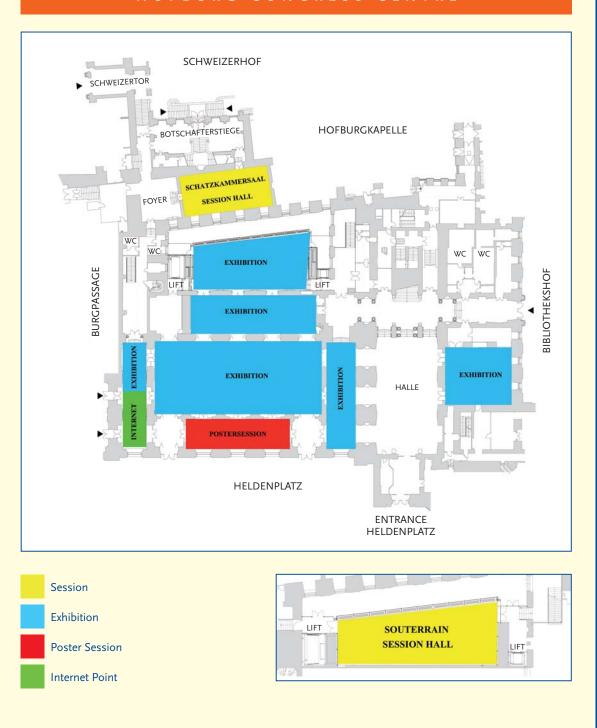
EXHIBITION

OMPAN	IY	COUNTRY	BOOTH NUMBER
ABB	Automation Technologies - Cylmate	Sweden	24
ABB	Turbo Systems Ltd	Switzerland	60
AVAT	Automation GmbH	Germany	26
AVL	List GmbH	Austria	59
Chev	ron	USA	70
Chev	ron Oronite S.A.	France	64
CIMA	AC 2010 - BERGEN - NORWAY	Norway	42
Deut	z Power Systems	Germany	52+53
	el & Gas Turbine Worldwide	USA	13
Duap	g AG	Switzerland	37
	ral-Mogul Friedberg GmbH	Germany	45
	Motorentechnik GmbH	Germany	30+31
	ech AS	Norway	71
	inger GmbH	Austria	9
	nbacher GmbH & Co. OHG	Austria	6+7
	nanischer Lloyd AG	Germany	·
	Engineering Ltd.	United Kingdom	33+34 65
	lensen Lubricators A/S	Denmark	-
	zmann GmbH & Co. KG		27
		Germany	46
	biger Ventilwerke GmbH & Co. KG	Austria	43
	pa, Ltd. 6 GmbH	Japan	16
		Germany	35
Infine		United Kingdom	14
	spec Marine Specialities - (Innospec Limited)	Germany	72
	erg & Hennemann GmbH & Co. KG	Germany	54
KRAL		Austria	10
	nann & Michels GmbH	Germany	55+56
Leute		Germany	29
	ange GmbH	Germany	49
	rgensen GmbH & Co. KG	Germany	47
_	na Powertrain Engineering Center Steyr GmbH & Co. KG	Austria	25
	Diesel A/S	Denmark	20+21+22+23
Mari	ne Propulsion & Auxiliary Machinery	United Kingdom	36
	isches Werk GmbH	Germany	48
Miba	Gleitlager GmbH	Austria	8
Mits	ubishi Heavy Industries, Ltd.	Japan	16
Mits	ubishi Kakoki Kaisha, Ltd.	Japan	16
MTU	Friedrichshafen GmbH	Germany	50+51
Nand	Nord A/S	Denmark	66
Niiga	ta Power Systems Co. Ltd.	Japan	16
Nova	Werke AG	Switzerland	38
Peter	Fuchs Technology Group AG	Switzerland	17+18+19
Petro	bras	Brazil	68+69
Schif	f & Hafen	Germany	12
Trafa	g AG	Switzerland	15
Wärts	silä Corporation	Finland	28
	Vogel AG	Germany	67
	nar Co., Ltd.	Japan	16
	rn BHW Gleitlager GmbH & Co. KG	Germany	32

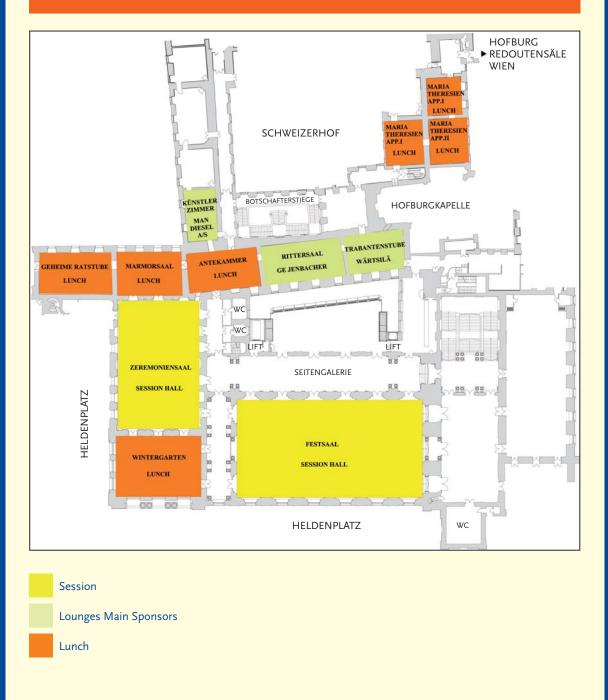


Congress 07

HOFBURG CONGRESS CENTRE



HOFBURG CONGRESS CENTRE





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ABB is the world leader in turbocharging diesel and gas engines in the 500 kW plus power range. Worldwide, more than 175,000 ABB turbochargers are in operation – on ships, in power stations and gensets, on diesel locomotives and in large off-highway trucks. A global network of more than 80 service stations ensures close proximity to our customers and fast, top-quality service around the clock. For further information please call your nearest service station or contact: ABB Turbo Systems Ltd, Baden/Switzerland.





Optional Tours Monday, 21st May 2007

A varied choice of optional tours and activities for accompanying persons have been developed to provide a long lasting impression of Austria.

All tours and activities will be accompanied by an English-speaking guide and are based on a minimum number of 20 participants. All tours start and end at the Hofburg Congress Centre.

The prices are quoted in Euro/per person and may be subject to change for reasons beyond the control of Congress Secretariat (AIMS International Congress Services).

Cancellation terms of the optional tours and accompanying persons activities:

A full refund minus \in 5,— will be granted if written notice is received prior to 15th April 2007. Cancellations after that date will not be refunded, unless the activity is cancelled due to lack of participation.



VIENNA HIGHLIGHTS (Bus tour) Monday, 21st May 2007 (14:00-17:00)

During this city bus tour you will receive a first impresssion of Vienna. The tour starts on the Ringstraße, which was built between 1858 and 1865 after the destruction of the city wall. In the subsequent decades hundreds of private and public buildings were constructed, which reflect the respective styles of the different eras. Some examples are: the Hofburg (Imperial Castle), the Volksgarten (Public Garden), the Kunsthistorisches Museum (Art History Museum) and the Naturhistorisches Museum (Natural History Museum), the Parliament, the Rathaus (City Hall), the Burgtheater, etc.

Price per person including bus ride: EUR 25,00

LIECHTENSTEIN MUSEUM (Tour & Activity) Monday, 21st May 2007 (14:00-17:00)

With the opening of the Liechtenstein Museum on 29th March 2004 a part of the art treasures of the baronial collections were returned to the Viennese Garden Palace, where it had already been on show for the public until 1938.



The Liechtenstein family, one of Europe's oldest families of noble lineage, were famous for collecting beautiful works of art over many generations. Painting, sculpture and artwork are presented in the Liechtenstein Museum as a complete work of art in which the building itself, with its furnishings and the collection pieces become a classical temple.

Artistic Production

Guests who are interested in setting their artistic talents free, have the opportunity to visit the Liechtenstein art studio and become creative themselves. This visit takes place after the guided tour through the permanent or special exhibition. The guests will then be served sparkling wine and sandwiches.

Price per person including admission to the Liechtenstein Museum, guided tour, art workshop, sparkling wine and sandwiches: **EUR 70,00**

www.abb.com/turbocharging



At the end of the 1800's many young artists felt that the Viennese galleries were far too conservative and decided to found a new art scene. And so the "Secession" was born. In the years 1897 to 1898 Josef Olbrich constructed the "Secession" Art-Nouveau gallery, which was financially supported by the government. The famous "Beethoven Frieze" was created by Klimt for the Beethoven Exhibition in 1902 and is still on display in the museum. The domed roof consists of golden leaves and is often referred to as "the golden cabbage" by the Viennese.

Price per person including admission to the Beethoven Frieze: EUR 15,00



TOUR OF SCHÖNBRUNN PALACE & APPLE STRUDEL SHOW (Tour & Activity) Tuesday, 22nd May 2007 (13:00-17:00)

Every room in this world famous palace has its own history. The anecdotes which combine with the important historical events are characteristic of the life style, atmosphere and international impression of the Emperor's time.

This tour will transport you into this wonderful world and grant you a deeper insight into the history of Schönbrunn.

After the tour of the palace, you are invited to visit the renowned apple strudel demonstration in the Café Residenz in the main courtyard of the Schönbrunn Palace. The former imperial bakery with its open display area, is the ideal place for the experienced baker to prepare and bake the original hand made Viennese apple strudel.



You will learn more about the exact preparation of this typical Viennese specialty and have the opportunity to enjoy a piece of the fresh apple strudel together with a cup of good coffee. The imperial bakery with its coffee house tables provides the perfect setting.

Price per person including guided tour of Schönbrunn and apple strudel show: EUR 75,00



Optional Tours Wednesday, 23rd May 2007

VIENNESE COOKERY COURSE (Activity) Wednesday, 23rd May 2007 (09:00-14:00)

Vienna is famous for its good food and wine, so what better way to learn more about the Viennese culture than with a private cookery course.

All the guests in the group will have the possibility of preparing an individually composed menu and will then sit down to enjoy the meal and the appropriate

A professional chef will demonstrate the diverse dishes and show the participants how to prepare it themselves. After the meal all the guests will then be presented with a certificate as a souvenir.

Price per person cookery course including chef's hat & apron: **EUR 156,00**



DANUBE VALLEY (Bus tour) Wednesday, 23rd May 2007 (09:00-17:30)



This tour will take you west of Vienna, to the beautiful part of the Danube Valley known as the Wachau. The full day's journey includes a visit to the magnificent Benedictine abbey of Melk, which is one of the best examples of Baroque architecture in Austria. Lunch will be served in nearby Emmersdorf and will be followed by a boat ride on the Danube past some of the most romantic scenery, such as steep vine-yards, apricot orchards and castle ruins. A stop in the picturesque village of Dürnstein, where King Richard the Lionheart of England was held prisoner until rescued by his faithful minstrel Blondel, will round the day off. After this the bus will return along the valley to Vienna.

Price per person including bus ride, tours in Melk, lunch and boat ride: EUR 122.00

Optional Tours Thursday, 24th May 2007

LEOPOLD MUSEUM (Walking tour) Thursday, 24th May 2007 (9:30–12:00)

The Museums Quartier opened in June 2001 and is one of the ten largest cultural complexes in the world. It is also a progressive, inner-city cultural district that will have an enormous impact on future trends. The Museums Quartier combines baroque buildings, new architecture, cultural institutions of all sizes, different types of art and recreational facilities in one single spectacular location.

After a short walk through the Museums Quartier, the tour will continue to the Leopold Museum. The Leopold collection, which encompasses well over 5,000 pieces of art, was compiled by Rudolf and Elisabeth Leopold in the course of five decades and was transferred to the Leopold Museum private foundation in 1994. This museum houses the most extensive Egon Schiele



collection as well as work by Gustav Klimt, Oskar Kokoschka and Richard Gerstl. These famous Austrian artists contributed significantly to the international art scene and share the museum with many other Austrian artists and important objects from the Austrian arts & crafts movement designers, such as Otto Wagner, Adolf Loos and Josef Hoffmann.

Price per person including admission to Leopold Museum: EUR 17,00



HISTORY OF VIENNESE COFFEE HOUSES (Walking tour) Thursday, 24th of May 2007 (10:00–12:00)

Follow the tradition and history of the Viennese Coffee Houses/Shops, the Coffee House culture, and the preparation of the "kleiner Schwarzer" (small black coffee) the "Melange" (milk coffee) and the "Einspänner" (typical Viennese coffee). A stroll through Vienna and a visit to some of the most famous Coffee houses, such as Griensteidl, Landtmann, Cafe Central, combined with a reading from the books of the 'Coffee House Writers' such as Altenberg, Torberg or Weigl, who spent most of their lives in their favourite Coffee House.

Price per person including coffee and cake in 2 coffee houses: **EUR 29,00**



Optional Post Congress Tours/Technical Visits Friday, 25th May 2007

A variety of technical visits to Austrian manufacturers and institutions linked with the visit of sights will be offered to all participants and accompanying persons on Friday, 25th May 2007, just after the end of the congress.

Note: For each of the following tours a minimum number of **50 participants** is required. Due to the limited number of participants the registration will be done on "first come — first serve" basis.

GUIDED TOUR HOERBIGER VENTILWERKE GUIDED TOUR SIEMENS TRANSPORTATION SYSTEMS

09:15h: Departure Hofburg Congress Centre

09:45h: Welcome address and guided tour

at Hoerbiger & Siemens
12:45h: Departure for lunch

13:15h: Lunch

16:00h: Guided tour Steam Railway Museum — Boiler House

17:30h: Departure

18:00h: Arrival Hofburg Congress Centre

HOERBIGER VENTILWERKE GmbH & Co KG





SIEMENS TRANSTORTATION SYSTEMS GmbH





GUIDED TOUR AVL LIST & LEC GRAZ

o8:45h Departure Hofburg Congress Centre

11:30h Welcome address AVL

11:50h-12:30h Lunch at AVL

12:30h-13:30h Guided tour AVL

13:30h Departure to LEC

13:50h-14:10h Welcome address LEC

14:10h-14:50h Guided tour LEC

14:50h Departure to Historic City Centre of Graz

incl. guided tour

16:45h Departure to Vienna

19:00h Arrival at Hofburg Congress Centre





EC GMBH





MIBA AC





MAGNA GmbH & Co KG





GUIDED TOUR MIBA GLEITLAGER & MAGNA POWERTRAIN

o8:00h Departure Hofburg Congress Centre

11:00h Welcome address MIBA

11:00h Guided tour MIBA

12:30h Lunch

13:15h Departure to MAGNA

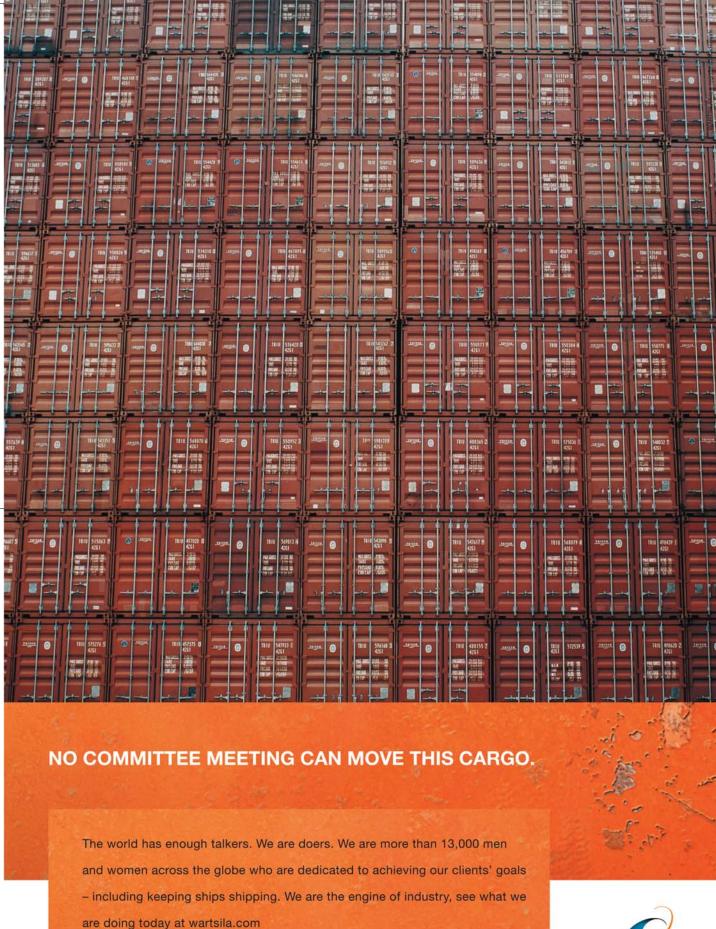
13:45h Welcome address MAGNA

14:00h Guided tour MAGNA
15:00h Departure to St. Florian

15:45h Guided tour at the Baroque Abbey of St. Florian

16:45h Departure to Vienna

19:30h Arrival at Hofburg Congress Centre



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Optional Post Congress Tours/Technical Visits Friday, 25th May 2007

OPEN HOUSE GE Jenbacher FROM 9:00am-4:00pm

GE Jenbacher GmbH & Co OHG Achenseestrasse 1–3 6200 Jenbach Tirol



GE's Jenbacher gas engine division is one of the world's leading manufacturers of gas-fueled reciprocating engines, packaged generator sets and cogeneration units for power generation as well as gas engines for mechanical drive applications. It is one of the only companies in the world focusing exclusively on gas engine technology.

GE's Jenbacher gas engines range in power from 0.25 to 3 MW and run on either natural gas or a variety of other gases (e.g., biogas, landfill gas, coal mine gas, sewage gas, combustible industrial waste gases).

A broad range of commercial, industrial, and municipal customers use Jenbacher products for on-site generation of power, heat, and cooling. Patented combustion systems, engine controls, and monitoring enable its power generation plants to meet stringent emission standards, while offering high levels of efficiency, durability, and reliability.

GE's Jenbacher product team has its headquarters, production facilities, and 1,200 of its more than 1,500 worldwide employees in Jenbach, Austria.

OPEN HOUSE GEISLINGER FROM 9:00am-4:00pm

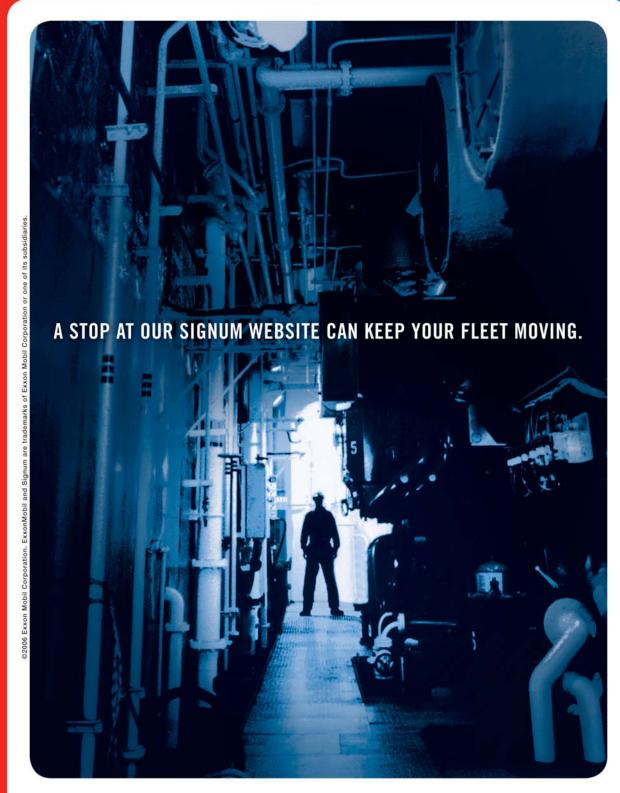
Geislinger GmbH Hallwanger Landesstrasse 3 5300 Hallwang Salzburg



Geislinger is the world's leading supplier for torsional vibration dampers and elastic couplings for high-output diesel and gas

engines. With its worldwide subsidiaries and vast know-how, Geislinger is acknowledged as development partner and problem solver close to the market. This innovative environment permanently leads to refined solutions like the Gesilco fibre composite products.

For further information on how to get there please contact one of our registration counters.



With Signum Oil Analysis from ExxonMobil, enhanced equipment reliability and uptime is just a click away. $Our new, enhanced website \, makes \, it \, easier \, than \, ever for \, you \, to \, take \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, backed \, advantage \, of \, our \, detailed \, oil \, analysis, \, our \, our$ by decades of marine lubricant data and a team of experts. Learn more at www.exxonmobil.com/lubes/marine.

ExonMobil

Marine Lubricants moving AHEAD



Optional Post Congress Tours/Technical Visits Friday, 25th May 2007

OPEN HOUSE MIBA GLEITLAGER FROM 9:00am-1:00pm

Miba Gleitlager GmbH Dr. Mitterbauerstrasse 3–5 4663 Laakirchen Upper Austria



With headquarters in Laakirchen, Upper Austria, Miba is a strategic partner of the international engine and automotive industry. At twelve

sites around the world, it manufactures sintered components, engine bearings and friction materials for vehicles, trains, ships, aircraft and power plants. Miba's products make vehicles more efficient, safer and more environmentally friendly. The group has 2,850 employees, approximately half of whom work at its Austrian sites in Laakirchen, Vorchdorf and Roitham. In the 2006/07 business year, the sales of the company — listed on the Vienna stock exchange — amounted to 367 million euros.

OPEN HOUSE MAGNA POWERTRAIN FROM 9:00am-4:00pm

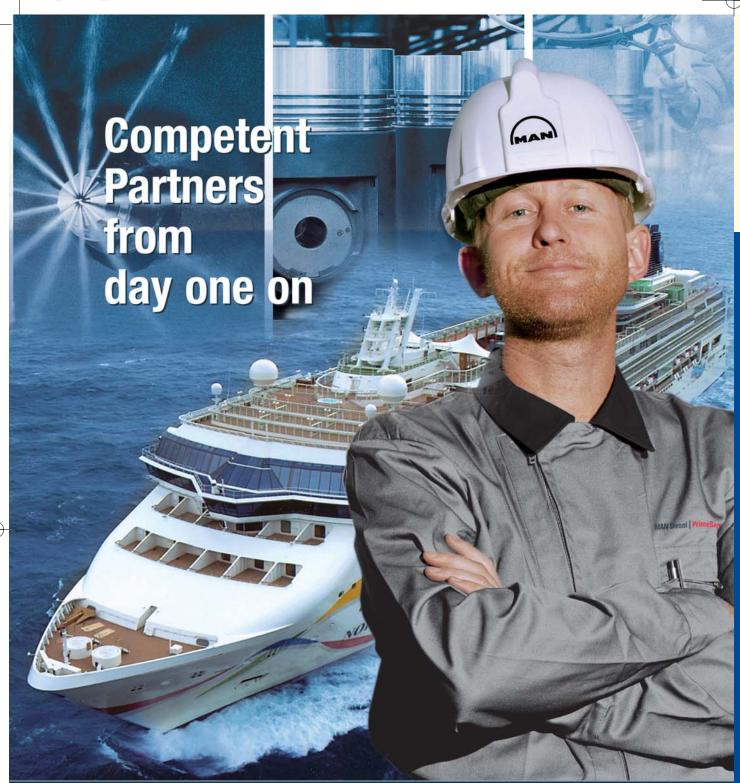
Magna Powertrain Engineering Center Steyr Steyrer Strasse 32 4300 St. Valentin Upper Austria



The Engineering Center Steyr in St. Valentin/Lower Austria (ECS) is a company of Magna International, the third biggest automotive supplier worldwide.

ECS, with over 320 highly-qualified employees, is a global "full service" engineering partner for a multitude of customers working in automotive and non automotive areas covering the entire spectrum of engineering services from engine- and drive train components, commercial vehicle development, CAE and simulation software up to special small series production in the powertrain sector. In addition, the ECS offers substantial test and evaluation facilities on site, e.g.16 engine and 2 drive train test benches, a large fatigue test laboratory with servo-hydraulic testing equipment combined with an extensive off/on road proving ground.

For further information on how to get there please contact one of our registration counters.



As a supplier and designer of complete propulsion systems, MAN Diesel offers tailor-made solutions from a single source. Our packages usually consist of the engine, coupling, gearbox, propeller and associated control system. The engines have outputs ranging from 450 kW to almost 100 MW. When service is required, the MAN Diesel PrimeServ network kicks in to organise assistance with the fastest response possible. Remote or on-site. This guarantees rapid completion of maintance work and high availability of MAN Diesel products in operation.

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AUSTRIA

Austria is situated in southern Central Europe, covering a part of the eastern Alps and the Danube region and, although land-locked, it borders on the Mediterranean area. The country has a wide range of different landscapes, vegetation and climate and, situated as it is in the heart of a continent, it has always been an integral point for communication links between the trade and cultural centres of Europe.

Austria is a popular travel destination for guests from all over the world who appreciate the beautiful landscape, the rich culture, delicious food, hospitality and safety.

The Austrian landscape consists of high mountain regions, hill country and plains. The Alpine region stretches from the West to the South and East to the Vienna Basin, and takes up approximately two thirds of the country's surface area. The western part of the country is mountainous while the eastern part has hills and flatlands. The highest mountain is the Grossglockner (3,797m) and the main river is the Danube.

The population of Austria is as diverse as the landscape. Due to its central location in the heart of Europe and its vibrant history, a cross-section of cultures flow together here. Austria has a great number of impressive and culturally historical buildings, for example churches, monasteries, castles, palaces, and functional buildings such as museums, administration buildings and many more. The development of architecture and Austria's varied history have brought forth buildings in various styles.

Facts and Figures

GENERAL DATA:

Capital: Vienna

Population: 8.05 million

Total Area: 83,835 km²

Currency: EURO

Languages: German

National holiday: October 26

International Dialing Code: +43

Time Zone: Central European Time (C.E.T.)

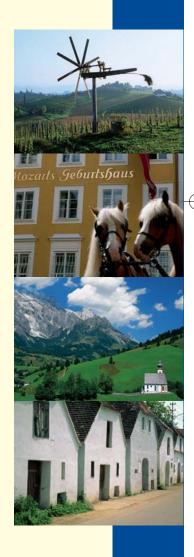
Religion: Roman Catholic (78%), Protestant (5%), Other (17%)

Climate: Central European climate influenced by Atlantic climate

POLITICAL DATA:

Type of State: Federal Republic

Type of Government: Parliamentary Democracy



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VIENNA

Vienna, the former capital of a multi-cultural empire in the heart of Europe, has become an international meeting point, European economy and culture cross-road and a gateway between East and West Europe. Vienna's stimulating atmosphere is the perfect place in which thoughts, ideas and theories can grow and mature.

Vienna has a long tradition of hosting international events: The Vienna Congress was held in 1814/15, when the new European Order after the victory over Napoleon I was established.

Vienna also has important characteristics needed to qualify as one of the best congresscities. The city offers a wide range of cultural highlights (theatres, cabarets, historical and modern museums); musical entertainment (the Vienna Boys Choir, the Viennese Philharmonic Orchestra, the Vienna Opera Ball); typical Viennese specialities (Vienna coffee houses, Sacher Torte, Mozartkugeln) as well as breathtaking architecture (Romanticist monuments, Baroque palaces and Art Nouveau buildings).

Area: 414 km²
No. districts: 23
Population: 1,6 million
Altitude: 171 m above sea level

GENERAL INFORMATION

Bank and Exchange

Banks are generally open from Monday to Friday, from 08:00 to 12:30 and from 13:30 to 15:00 (Thursday from 08:00 to 12:30 and from 13:30 to 17:00). Most Austrian Banks have currency exchange facilities available during opening hours and can also change Traveller's cheques. Please ask about charges before changing money, as these may vary considerably. Automated cash dispenders are located outside most banks, where cash can be withdrawn 24 hours a day.

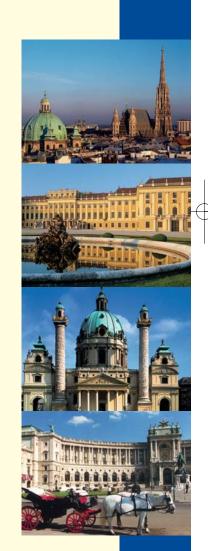
Business Hours and Shopping

Shopping hours are Monday to Friday 09:00 to 18:00 and Saturday 09:00 to 17:00. The shops are closed on Sundays. Luxury shops and cafés for elegant clientele can be found in the pedestrian zone of Vienna's 1st district. Another well known shopping area is Mariahilferstrasse. Visitors from non-EU countries should ask for VAT refunds when purchasing goods.

Climate

Vienna has a moderate continental climate: cold winters and warm summers, without excessive rain fall. It rains or snows, on average, not more than nine and not less than seven days a month.

On average, 2,000 hours of sunshine are registered annually, and it can get quite hot at times during the summer. The best time to travel is spring, the beginning of summer and autumn.



Fasten your seatbelt – and loosen that tie.

Travel in comfort with us to your meeting in Austria.





Information and booking at www.austrian.com, in our sales offices or at your travel agency. Earn miles with Miles&More.

Congress 07

VIENNA / GENERAL INFORMATION

Credit Card

National and foreign Maestro cards as well as MasterCard, American Express, Visa and Diners are accepted. Credit cards are also accepted by numerous hotels, restaurants, shops and gas stations.

Currency

The official currency in Austria is the Euro.

Electricity

The standard voltage in Austria is 220 V. The Austrian network supplies a frequency of 50Hz. Plugs are continental-style two-pins.

Insurance

The conference 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. The registration does not include insurance. It is strongly recommended that you arrange insurance when you register for the congress and book your travel arrangements. The insurance should be purchased in your country of origin.

Tip

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

anguage

The official language of the Congress is English and all presentations are to be made in English. There is no translation service, but one of the chairmen at each Congress Session is German/Austrian native speaker. At the Post Congress Tours and Accompanying Persons Tour, there are guides speaking both English and German.

Congress Proceedings

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

The Congress Proceedings can be ordered (for delivery after the Congress) in electronic form directly from: CIMAC Central Secretariat, Lyoner Strasse 18, 60528 Frankfurt, Germany Phone: +49 69 6603 1567, Fax: +49 69 6603 1566, E-mail: cimac@vdma.org Internet: www.cimac.com

Badges

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.

Lunche

Lunch after the Opening Ceremony on Monday, 21^{st} May is included in all delegates' and accompanying persons' fees. Lunches from Tuesday, 22^{nd} May to Thursday, 24^{th} May are included in the delegate registration fee but not in the accompanying persons' fee.



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A STAR ALLIANCE MEMBER



Hotel Overview

	5-Star Hotels	Address	Telephon	Access to Congress Venue
1	De France	Schottenring 3, 1010 Vienna	+43 (0) 1 31368	approx. 10-15 min. walk
2	Hilton Stadtpark	Am Stadtpark, 1030 Vienna	+43 (0) 1 71 700	approx. 10 min. by tram
3	Hilton Vienna Plaza	Schottenring 11, 1010 Vienna	+43 (0) 1 313 90	approx. 10 min. walk
4	InterContinental	Johannesgasse 28, 1037 Vienna	+43 (0) 1 711 220	approx. 10-15 min. walk
5	Le Meridien	Opernring 13, 1010 Vienna	+43 (0) 1 588 90	approx. 5 min. walk
6	Marriott	Parkring 12a, 1010 Vienna	+43 (0) 1 51518	approx. 10 min. by tram
	4-Star Hotels			
7	Am Stephansplatz	Stephansplatz 9, 1010 Vienna	+43 (0) 1 53 405 9	approx. 10 min. walk
8	Astoria	Kärntner Strasse 32–34, 1015 Vienna	+43 (0) 1-51577	approx. 10 min. walk
9	Falkensteiner am Schottenfeld	Schottenfeldgasse 74, 1070 Vienna	+43 (0) 1 546 86 150	approx. 5 min. by tram
10	Kummer	Mariahilfer Strasse 71a, 1060 Vienna	+43 (0) 1 588 950	approx. 10 min. by subway
- 11	Mercure Josefshof	Josefsgasse 4–6, 1080 Vienna	+43 (0) 1 814 34 10	approx. 5–10 min. walk
12	Nh Atterseehaus	Mariahilfer Strasse 78, 1070 Vienna	+43 (0) 1 524 560	approx. 15 min. walk
13	Nh Wien	Mariahilfer Strasse 32–34, 1070 Vienna	+43 (0) 1 521 72	approx. 5 min. walk
14	Rathauspark	Rathausstrasse 17, 1010 Vienna	+43 (0) 1 40412	approx. 5 min. walk
15	Regina	Rooseveltplatz 15, 1090 Vienna	+43 (0) 1 404 46 0	approx. 7 min. walk
16	Royal	Singerstrasse 3, 1010 Vienna	+43 (0) 1 515 68 0	approx. 5–10 min. walk
	3-Star Hotels			
17	Admiral	Karl-Schweighofer-Gasse 7, 1070 Vienna	+43 (0) 1 521 41 0	approx. 10 min. walk
18	Fürst Metternich	Esterhazygasse 33, 1060 Vienna	+43 (0) 1 523 13 45 0	approx. 10 min. by subway
19	Ibis Mariahilf	Mariahilfer Gürtel 22–24, 1060 Vienna	+43 (0) 1 814 34 10	approx. 10 min. by subway
20	Post	Fleischmarkt. 1010 Vienna	+43 (0) 1 515 830	approx. 10–15 min. walk
21	Wandl	Petersplatz 9, 1010 Vienna	+43 (0) 1 534 55 0	approx. 5 min. walk



For detailed hotel information and booking conditions please visit the congress webpage www.cimac.com



Underground Map

A number of rooms in different hotel categories have been booked at attractive rates. All the hotels are located in the city centre as this is more convenient for transport, sightseeing and dining. There will be no organized shuttle service to the congress venue, as the Hofburg Congress Centre is located in the city centre and can easily be reached on the foot or by public transport. You can make use of the public transportation ticket which will be handed out to you at the registration desk. This ticket is valid for all public transports within Vienna for the duration of the Congress.





Members of CIMAC

National Member Associations (NMAs):

Austria

FMMI Wiedner Haupstraße 63 1045 Vienna Phone: +43 590 900 3440 Fax: +43 15051020 E-mail: krafft@fmmi.at Internet: www.fmmi.at

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E-mail: thorsten.herdan@vdma.org

Greek CIMAC Member Association c/o NTUA 9, Iroon Politechniou 15710 Athens-Zografos Phone: +30 210 77 21 119 Fax: +30 210 77 21 120 E-mail: npk@gracimac.org Internet: www.lme.naval.ntua.gr/cimac_gr

CIMAC INDIA c/o Indian Oil Corporation Ltd. Research & Development Centre, Sector 13, Haryana St. Faridabad 121 007 Phone: +91 129 5 28 56 11 Fax: +91 129 5 28 62 21 E-mail: ramakumarssv@iocrd.co.in

IRAN-CIMAC c/o Iran Heavy Diesel Engine Mfg. Co. No. 83th Vahid Dastjerdi, Tehran-Zafar 19395-1855 Phone: +98 21 2 26 19 02 Fax: +98 21 2 26 19 03 E-mail: javadirad@gmail.com

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, Kimura Building 6-6, Shinbashi 1-chome Minato-ku 105-0004 Tokyo Phone: +81 335 747 882 Fax: +81 335 747 883 E-mail: tayama@jicef.org

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Secretariat of KOFCE c/o Korea Marine Equipment Research 1125-22, Dongsam-dong Youngdo-Gu Busan 606-806 Phone: +82 51 4 05 21 00 Fax: +82 51 4 05 68 82 E-mail: jrkim@komeri.re.kr

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Swissmem (ASM/VSM) Kirchenweg 4 8032 Zürich Phone: +41 44 3 84 48 52 Fax: ++41 44 3 84 48 45 E-mail: b.waernier@swissmem.ch Internet: www.swissmem.ch

United Kingdom

Humphrey Niven Engines Ltd. 20 Ashurst Drive GORING-BY-SEA, WEST SUSSEX BN12 4SW Phone: +44 1903 24 00 01 Fax: +44 1903 60 06 21 E-mail: h.niven@ntlworld.com

National Member Groups (NMGs):

ASME

Three Park Avenue, 22W3 New York, NY 10016-5990 Phone: +1 212 591 7055 Fax: +1 212 591 7671 E-mail: bendoj@asme.org Internet: www.asme.org



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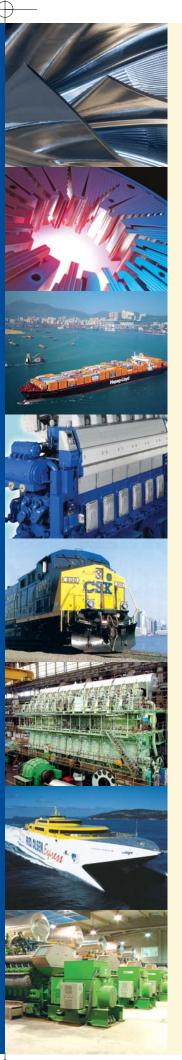
















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