

June 6, 2016

CIMAC World Congress – 35 years before and 35 years going forward!

Today marks the beginning of the 28th CIMAC World Congress – the biggest triennial event in the large internal combustion engines industry. Over the next five days (June 6-10, 2016) the engine industry will be hosted in Helsinki, Finland to review and discuss technical, environmental and regulatory trends, developments, opportunities and challenges faced today by the industry and the operators.

The Congress is historical to CIMAC's association with the city of Helsinki as well, since exactly 35 years ago, the 14th Congress was held here in 1981, and now CIMAC returns to the same venue that hosted 687 participants the last time with over 850 participants this time around, a force that is indicative of the importance of the event.

This also provides us with a good timescale to measure the progress and development of the internal combustion engine from the 14th Congress in 1981 to today, which marks exactly twice the number of CIMAC Congresses. The development on technological fronts and consequently the deliberations at the CIMAC Congress have come a long way during this time.

History – Going back 35 years

Looking back at engine technology three decades ago to the development up until today, the internal combustion engines has easily seen some of the biggest advances in terms of performance, efficiency, and emissions. The engine industry as we know it today has evolved through leaps and bounds and just some of the pointers to the same are a comparison of the specific output increases, the maximum firing pressure gains, the turbocharging pressure ratio increases and reductions in black smoke, not to mention the overall emissions reduction of NO_x, and unburnt hydrocarbons. Drastic fuel consumption reductions in this time have brought the Total Cost of Ownership for the end-customer down and this trend bodes very well for the future. Also, because fuel consumption is directly proportionate to CO₂ emissions. Increasingly stringent emission regulations have been and will continue to remain one of the significant driving factors that shape engine development as we stand today.

Today - The CIMAC Congress

The CIMAC Congress proceedings this week are a worthy indicator to the present day's state-of-the-art and the future when it comes to the internal combustion engines relevant to the large engine industry.

Evidently, 220 high-quality technical papers are to be presented at the event addressing the newest technologies and development trends focusing on all aspects of the energy conversion process as well as the user's experience with engines and plants in operation. Some of the important areas to be discoursed at the event include Product Development with Diesel, Gas and Dual Fuel Engines, Emissions Control and Exhaust Gas Aftertreatment, Turbochargers & Air/Exhaust Management, System Integration & Optimization as well as Users' Aspects, Maintenance & Monitoring for various applications.



The Congress will also feature, in a first of its kind, the 'Users Day' that will set the stage for the Users to present, discuss and deliberate challenges and issues related to user experience in the industry. Such a platform will be hugely collaborative for ship-owners, ship operators, power station and rail operators to meet engine manufacturers, researchers, engineers and scientists from the engine industry to fill in the missing gaps to translate offerings from the creators to value for the end-users.

And lastly, one of the most important sessions to culminate the grand week in Helsinki is the 'final panel discussion', where we have eminent personalities from the industry take center-stage to discuss the most talked about commotion in the world of transportation and power generation today – the falling oil price and its impact for the future. The final panel discussion is titled "The Lowest Oil Price in a Decade – A Game Changer for Ship Operators and Engine Makers?"

Future - The Congress as a worthy indicator

The ever increasing demand for unprecedented levels of engine efficiency and performance coupled with demands for environmental sustainability are continuously putting engine developers and researchers to their sternest tests to better the already bettered and to explore uncharted territories seeking physical perfection in performance and efficiency. Nobody could have imagined two-stage turbocharged engines, electronically controlled common rail fuel injected engines, engines with variable valve timings etc. or a 0.1% Sulfur emission limit three decades ago and therefore, to believe in the trend that the challenges faced by the industry today will be overcome is given.

Regulations such as EEDI and IMO Tier 3 are what the industry is fervently looking to tackle in the coming years but the industry is looking to the regulatory bodies and authorities to give clear directives, and regulations with regards to contentious topics such as CO₂ reductions. Practical solutions are needed and global enforcement of regulations is a must. CIMAC supports the resolution of these important issues through its many Working Groups co-operating and counseling actively with the regulatory bodies. Engine certification and measurement standardization at an international level is yet another pressing topic CIMAC is working on.

Big data and System Integration is a huge topic today. At the CIMAC Congress we will dive into the depths of this topic. It finally allows to move from engine efficiency and performance improvements to overall system optimization of the entire drive. The challenge remains though – how do we achieve this?

Internal combustion engines also have a huge role to play in the power generation grid compared to the years gone by, as the engines are now operating more and more in the intermediate load ranges. Also, to incorporate the renewable energy sources, and help the advent of these unstable sources into the grid will be what the future holds to the power plants regime.

Internal combustion engine technology in many applications will be with us for decades to come, CIMAC and its Congress help that the technology is continuously improved, as it has been from its invention more than a century ago. This CIMAC Congress may have answers to some of these brewing questions over the course of the week.

CIMAC takes this opportunity to welcome one and all and wishes all the participants a very pleasant stay in Helsinki and a successful CIMAC World Congress.



CIMAC

INTERNATIONAL COUNCIL
ON COMBUSTION ENGINES

About CIMAC

Originally founded in Paris in 1951, CIMAC is the leading global association of the internal combustion machinery industry. It is a non-profit association bringing together and representing the large engines industry to regulators and standardizing bodies. In addition to promoting the work of National Member Associations, CIMAC supports and facilitates information exchange and understanding across the global community involved in the development and sustenance of large engines.

For further information about CIMAC please contact CIMAC Central Secretariat at info@cimac.com

Or visit the CIMAC website at www.cimac.com.

For information about the CIMAC Congress 2016 please visit www.cimaccongress.com.

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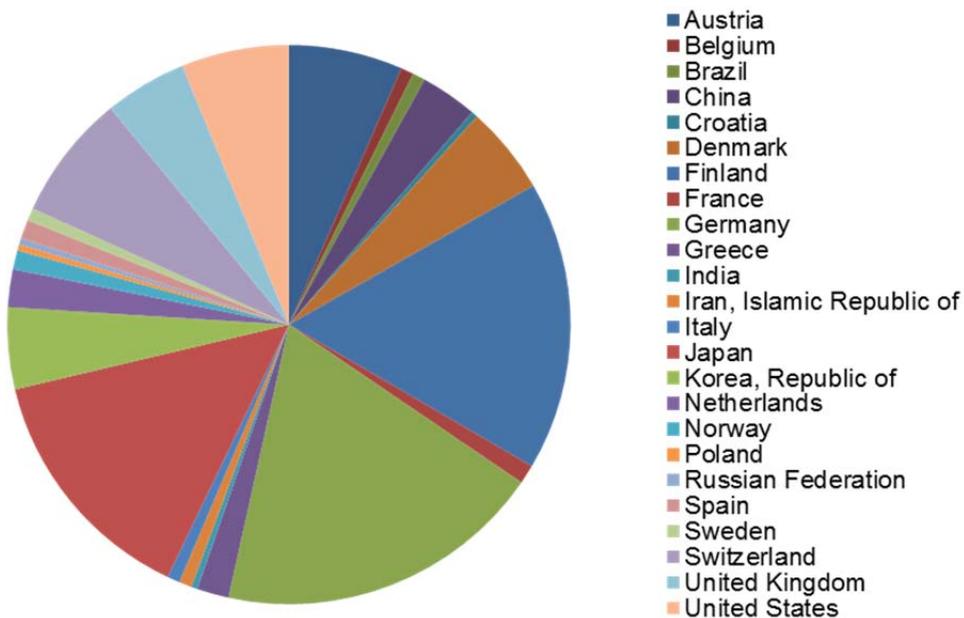
Welcome – by **Axel Kettmann**

ABB Turbo Systems, Switzerland, **CIMAC Vice President Communication**

Information about the 28th CIMAC World Congress 2016 – by **Christoph Teetz**

MTU Friedrichshafen, Germany, **CIMAC President**

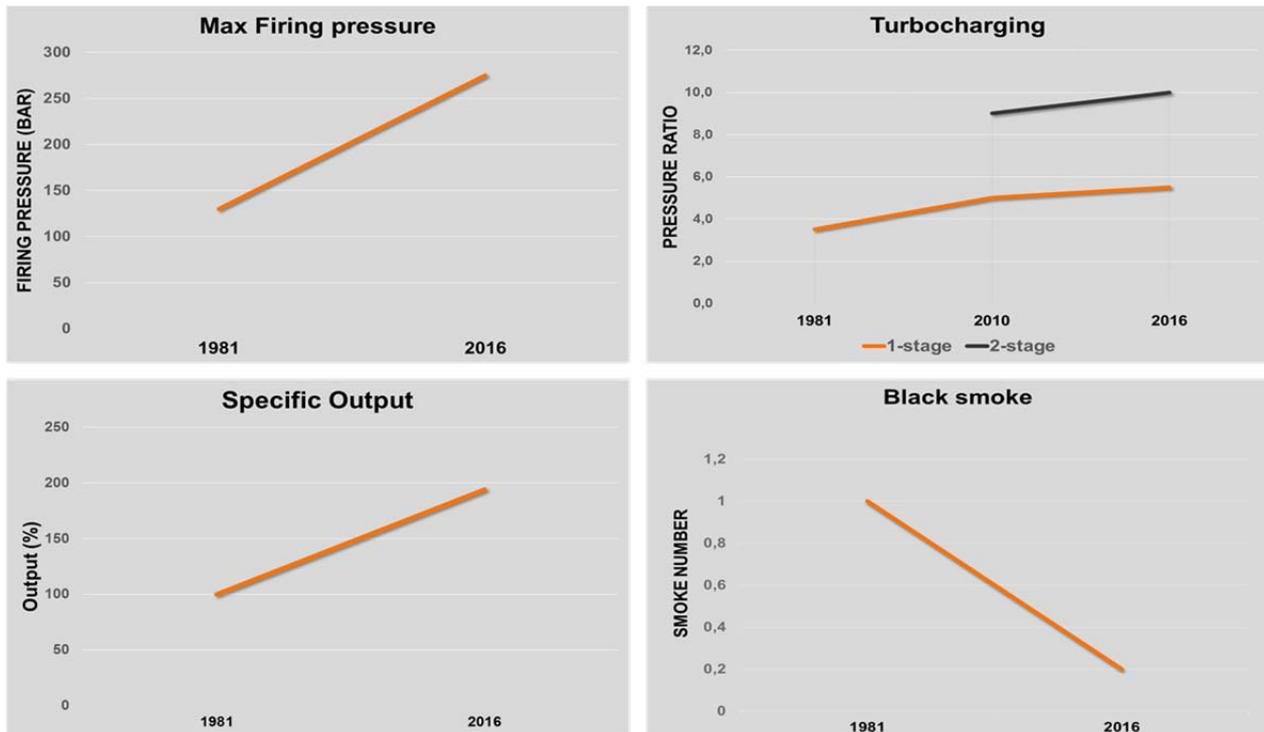
- About 850 Participants
- 12 state-of-the-art topics
- 220 papers from 24 countries
- 188 papers in 47 sessions
- Additional 32 posters
- 53 exhibitors from 13 countries
- covering an area of 800 sqm
- Users Day including Keynote Speech
- Final Panel discussion on Thursday



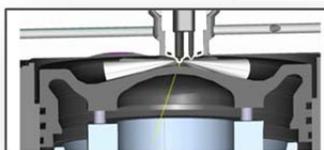
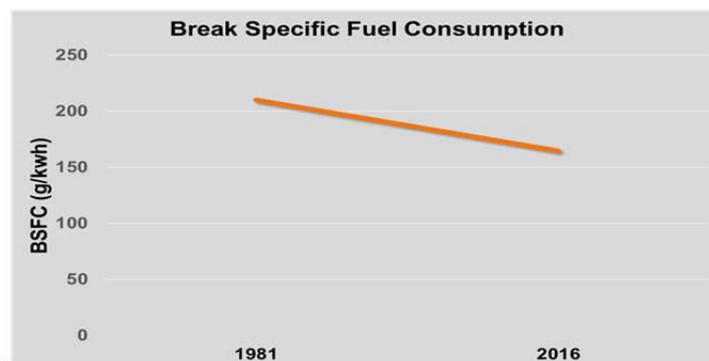


Development of the Combustion Engine over the past decades – by **Robert Ollus**

Wärtsilä Corporation, Finland, **Congress President CIMAC 2016**



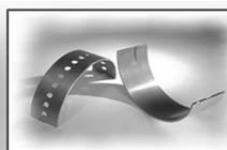
High efficiency and low total cost of ownership



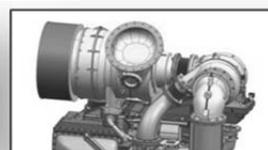
Combustion shape in combination with fuel injection & use of higher max. cyl. pressure



Reduced heat transfer – in cylinder and in exhaust, variable valve train



Reduced friction & parasitic losses e.g. pumps

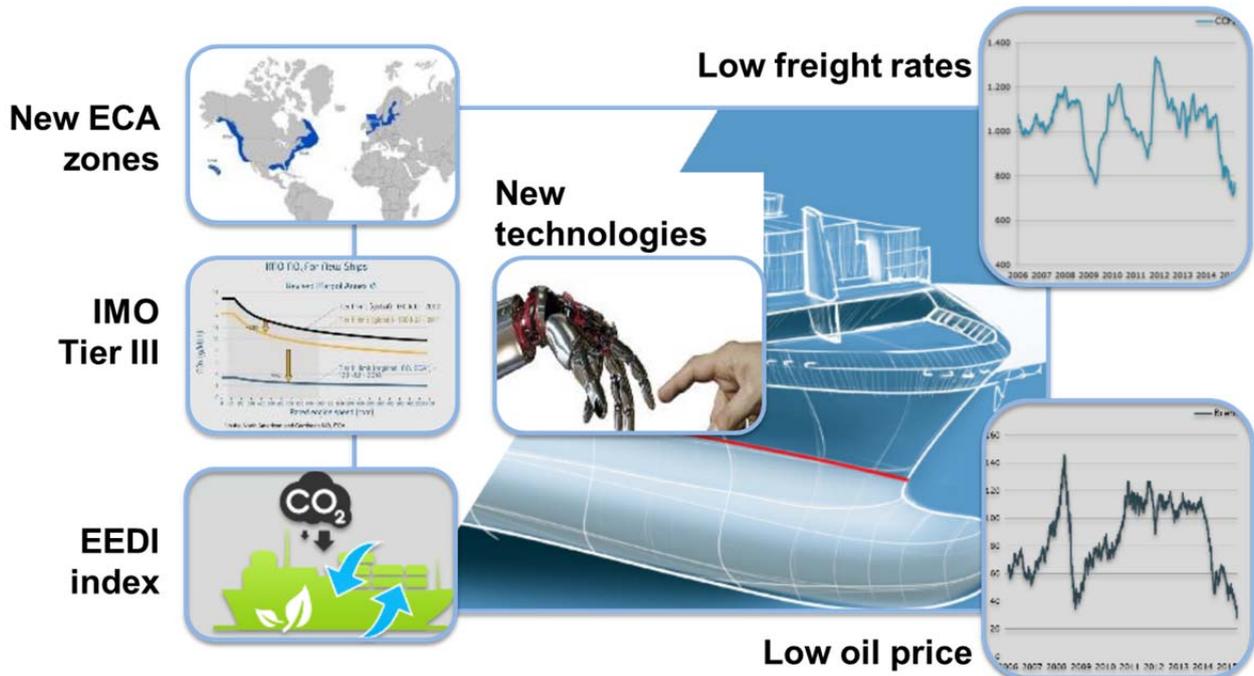


Reduced flow losses & use of 2-stage turbo charging



Future Challenges – by **Paolo Tonon**, Maersk Maritime Technology, Denmark,
and **Marko Dekena**, AVL List, Austria,
CIMAC Vice-Presidents Technical Programme

Shipping industry is challenged in multiple directions



Fuel & operational flexibility for grid stability enabled with engines

