



# Program

European Conference  
**ON HEAT TREATMENT 2016**

and

**3<sup>rd</sup> International Conference on Heat Treatment and  
Surface Engineering in Automotive Applications**

**11 – 13 May 2016**

**Prague, Czech Republic, Břevnov Monastery**



**ASMET<sup>®</sup>**



**ASSOCIAZIONE  
ITALIANA DI  
METALLURGIA**



**SESSION A - THERESIAN HALL**

Quenching technology, quenching distortion and stresses Vacuum heat treatment of metals and alloys

**SESSION B - ABBOTS ROOM**

Steel grades for automotive industry, heat treated materials, mechanical properties, phase transformations, microstructure and properties relationships

**SESSION A - THERESIAN HALL**

Thermochemical heat treatment in series production (carburizing, nitriding) Design and construction of industrial heat treatment equipment for series production

**SESSION B - ABBOTS ROOM**

Surface hardening technology (induction hardening, laser, electron beam), coating technology (thermal spraying, coating, PVD, CVD, plasma,...)

**THERESIAN HALL, ABBOTS ROOM**

Improved modelling capabilities and simulation of heat treatment and surface engineering Reliability and process control, series production control, measurement

**WEDNESDAY**

- 08:00 Registration
- 09:30 Opening Ceremony  
- Theresian Hall, Abbots Room
- 10:00 Keynote lectures  
- Theresian Hall, Abbots Room
- 12:00 🍴 Lunch
- 13:20 **SESSION A - THERESIAN HALL**  
**SESSION B - ABBOTS ROOM**
- 15:10 ☕ Coffee Break
- 15:30 **SESSION A - THERESIAN HALL**  
**SESSION B - ABBOTS ROOM**
- 18:00 🍷 Walking Welcome Drink
- 19:10 Visit of St. Margaret Church,  
History of Brevnov Monastery,  
Organ Concert

**THURSDAY**

- 09:00 **SESSION A - THERESIAN HALL**  
**SESSION B - ABBOTS ROOM**
- 10:40 ☕ Coffee Break
- 11:00 **SESSION A - THERESIAN HALL**  
**SESSION B - ABBOTS ROOM**
- 12:40 🍴 Lunch
- 14:00 **SESSION A - THERESIAN HALL**  
**SESSION B - ABBOTS ROOM**
- 15:20 ☕ Coffee Break
- 15:40 **SESSION A - THERESIAN HALL**  
**SESSION B - ABBOTS ROOM**
- 19:00 🍷 Gala Dinner

**FRIDAY**

- 09:00 **THERESIAN HALL, ABBOTS ROOM**
- 10:40 Announcement of the Poster Award  
winner, sponsored by Burgdorf GmbH  
& Co.KG
- 10:50 Announcement of the Aichelin Young  
Speakers Award winner, sponsored by  
Aichelin
- 11:00 Announcement of the European  
Conference on Heat Treatment 2017
- 11:10 Closing Ceremony
- 11:30 🍴 Lunch
- 13:00 Excursion to Škoda Auto a.s., Vrchlabí

**Chairmen of the Conference**

**Schneider Reinhold**  
IFHTSE, Austria

**Stolař Pavel**  
ATZK, Czech Republic

**International Committee**

**Bruchet Pierre**  
A3TS, France

**Dubach Roland**  
ASTT, Switzerland

**Felde Imre**  
IFHTSE, Hungary

**Haase Brigitte**  
AWT, Germany

**Hock Stefan**  
IFHTSE, Italy

**Jacquot Patrick**  
A3TS, France

**Kolozsváry Zoltán**  
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**Kuntzmann Bernard**  
Listemann AG, Switzerland

**Löser Klaus**  
AWT, Germany

**Petta Danilo**  
AIM, Italy

**Vandewiele Bernard**  
VWT, Belgium

**Conference Secretary**

ATZK Office  
K Vodárně 531, 257 22 Čerčany, Czech Republic  
Phone/Fax: +420 317 777 772-5  
E-mail: [conference2016@asociacetz.cz](mailto:conference2016@asociacetz.cz)  
[www.htconference-prague2016.cz](http://www.htconference-prague2016.cz)

**Scientific Committee**

**Altena Herwig**  
AICHELIN Holding GmbH, Austria

**Denis Sabine**  
Université Henri de Poincaré, Nancy, France

**Dlouhý Ivo**  
VUT Brno, Czech Republic

**Jurčí Peter**  
STU Trnava, Slovak Republic

**Kříž Antonín**  
ZČU v Plzni, Czech Republic

**Lohrman Michael**  
AWT, ZF, Germany

**Lübben Thomas**  
IWT Bremen, Germany

**Troell Eva**  
Sverea IVF, Sweden

**Zenker Rolf**  
Zenker Consult, Germany

**Zoch Hans-Werner**  
IWT Bremen, Germany

**Local Organizing Committee**

**Musilová Alexandra**  
ATZK, Czech Republic

**Podroužková Lucie**  
ECOSOND s.r.o., Czech Republic

**Vráblík Filip**  
ECOSOND s.r.o., Czech Republic

**Payment - Via Bank Transfer**

Bank: Komerční Banka, a.s.  
Number of Account: 115-1025660237 / 0100  
IBAN Format: CZ85 0100 0001 1510 2566 0237  
BIC: KOMBCZPP  
Details of payment: ECHT2016 + „name of participant“

8:00 REGISTRATION

**THERESIAN HALL**

**Opening Ceremony**

**9:30 Welcome addresses by:**

Pavel Stolař, *ATZK President*  
 Reinhold Schneider, *IFHTSE past-President*

Representative of Automotive Industry Association

Introduction of Mr. Dr. Thomas Lübben as a Fellow of IFHTSE presented by  
 President of IFHTSE Patrick Jacquot

**Keynote lectures**

**Chairpersons:** Reinhold Schneider, *IFHTSE*, Pavel Stolař, *ATZK*

**10:00 Automotive Engineering - Driving force for the heat treatment technology**  
 H.W.Zoch, *Stiftung Institut für Werkstofftechnik, Germany*

**10:30 Controlled atmosphere furnaces and process technology in Automotive Industry - state of the art and outlook**  
 H.Altena, *AICHELIN Holding G.m.b.H., Austria*

**11:00 Vacuum heat treatment processes and systems - state of the art and trends**  
 K.Löser, *ALD Vacuum Technologies GmbH, Germany*

**11:30 Electron beam surface treatment in automotive industry - History, state of the art and prospects**  
 R.Zenker, *TU Bergakademie Freiberg, Germany*

**Opening of the Exhibition**

🚪 12:00 - 13:20 Lunch 🚪  
 Brevnov Monastery Basement

**ABBOTS ROOM**

LIVE BROADCAST FROM THE THERESIAN HALL TO ABBOTS ROOM



🚪 12:00 - 13:20 Lunch 🚪  
 Brevnov Monastery Basement

## WEDNESDAY - AFTERNOON SESSION A - THERESIAN HALL

11. 5. 2016

Quenching technology, quenching distortion and stresses Vacuum heat treatment of metals and alloys

Chairpersons: Václav Hošek, *ECOSOND s.r.o.*, Patrick Jacquot, *BODYCOTE*

- 13:20 **Properties and range of application of liquid quenchant with particular emphasis on the car manufacturing industries**  
R.Braun, *BURGDORF GmbH & Co. KG, Germany*
- 13:50 **Vacuum heat treatment with over pressure gas quenching and cryogenic process of large scale series production parts made of lower alloyed steel 1.2067 = 100Cr6**  
A.Dappa, *IVA Schmetz GmbH, Germany*
- 14:10 **Care and maintenance of oil quenchant used for quenching automotive components**  
D.S.MacKenzie, *Houghton International, Inc., USA*
- 14:30 **New trends in heat treating and quenching**  
J.Kowalewski, *Ipsen International GmbH, Germany*
- 14:50 **Intermetallics for automotive industry**  
P.Novák, *University of Chemical Technology in Prague, Czech Republic*
- ☞ 15:10 – 15:30 Coffee Break ☞  
Brevnov Monastery Courtyard
- 15:30 **Distortion of heat treated components – basics and examples for reduction**  
T.Lübben, *Stiftung Institut für Werkstofftechnik, Germany*
- 16:00 **Distortion of grooved steel cylinders due to high speed quenching**  
F.Frerichs, *Stiftung Institut für Werkstofftechnik, Germany*
- 16:20 **Experimental study and modeling of quenching processes of ultra high strength low alloy steel**  
Wei Shi, *Tsinghua University, China*
- 16:40 **CFC and carbon in heat-treatment of steel**  
M.Barthelmie, *GTD Graphit Technologie GmbH, Germany*
- 17:00 **Carbon/Carbon materials for heat treatment applications**  
B.Groos, *Schunk Carbon Technology, Germany*
- 17:20 **Heat treatment of a stainless bearing steel for special purposes**  
P.Šuchmann, *COMTES FHT a.s., Czech Republic*
- 17:40 **END of the first day**
- 18:00 **☎ WALKING WELCOME DRINK (BREVENOV MONASTERY COURTYARD)**
- 19:10 **Visit of St. Margaret Church, History of Brevnov Monastery, Organ Concert**
- 19:50 **END**

## WEDNESDAY - AFTERNOON SESSION B - ABBOTS ROOM

11. 5. 2016

Steel grades for automotive industry, heat treated materials, mechanical properties, phase transformations, microstructure and properties relationships

Chairpersons: Pavel Novák, *VŠCHT Praha*, Eva Troell, *Swerea IVF*

- 13:20 **Close relations between metallic materials, heat treatment and thermochemical treatment on the microstructure: contribution of metallographic examinations performed on automotive parts in through several case studies**  
P.Jacquot, *BODYCOTE, France*
- 13:50 **Improved materials and enhanced fatigue resistance for gear components**  
V.Heuer, *ALD Vacuum Technologies GmbH Germany*
- 14:10 **In-line heat treatment of flat products**  
M.Chabičovský, *Heat Transfer and Fluid Flow Laboratory Brno University of Technology, Czech Republic*
- 14:30 **Effect of conditions of cryogenic treatment on the properties of the selected tool steels for cold work**  
J.Sobotová, *Czech Technical University in Prague, Czech Republic*
- 14:50 **Study of the properties and structure of the selected tool steels for cold work depending on the parameters of heat treatment**  
M.Kuřík, *Czech Technical University in Prague, Czech Republic*
- ☞ 15:10 – 15:30 Coffee Break ☞  
Brevnov Monastery Courtyard
- 15:30 **Subzero treatment of cold work tool steels – metallurgical background and effect on microstructure and properties**  
P.Jurčí, *Slovak University of Technology in Trnava, Slovak Republic*
- 16:00 **The mechanism causing the surface hardness instable after quenching used by 60SiCrV steel**  
Jang Heng-Shuoh, *China Steel Corporation, China*
- 16:20 **Lifetime increase of tools for fine blanking of steel sheet**  
G.Claus, *SIRRIS, Belgium*
- 16:40 **Investigation of the mesoscale behavior of heterogenous steels concerning fracture initiation**  
D.Said Schicchi, *Stiftung Institut für Werkstofftechnik, Germany*
- 17:00 **Effects of deep cryogenic treatment on properties of aluminium bronze**  
A.Kříž, *University of West Bohemia, Czech Republic*
- 17:20 **An investigation of the tribological behavior of high-speed tool steels at elevated temperatures**  
M.Walter, *Ruhr-Universität Bochum, Lehrstuhl Werkstofftechnik, Germany*
- 17:40 **END of the first day**

## THURSDAY - MORNING SESSION A - THERESIAN HALL

12. 5. 2016

Thermochemical heat treatment in series production (carburizing, nitriding)  
Design and construction of industrial heat treatment equipment for series production

Chairpersons: Jiří Stanislav, *Bodycote HT s.r.o.*, Bernard Vandewiele, *BVDW Consultancy VOF*

- 9:00 **Answers to seven frequently asked questions regarding cleaning and heat treatment**  
B.Haase, *Hochschule Bremerhaven, Germany*
- 9:30 **Opportunities and challenges with the next generation high efficiency burners and radiant tubes**  
J.G. Wüning, *WS Wärmeprozess Technik GmbH, Germany*
- 9:50 **Integration of heat treatment into the production line**  
H.Altena, W.Goy\*, *AICHELIN Holding G.m.b.H., Austria*, \*EMA-Indutec GmbH, Germany
- 10:20 **Accelerated carburizing in atmosphere furnaces avoiding intergranular oxidation**  
G.Plicht, *Air Products GmbH, Germany*

☕ 10:40 – 11:00 Coffee Break ☕  
Brevnov Monastery Courtyard

- 11:00 **Low temperature carburizing of stainless steel – an alternative to hard chrome plating**  
U.Oberste-Lehn, *Bodycote Hardiff GmbH, Germany*
- 11:20 **Low pressure carbonitriding with methylamine**  
R.Reimert, *Karlsruhe Institute of Technology, Engler-Bunte-Institut, Germany*
- 11:40 **Heat treatment integrated in the machining process**  
P.Pouloux, *ECM Technologies, France*
- 12:00 **UniCase Master®- in-line, low-distortion, precision case hardening for automotive, transmission & bearing industries**  
M.Korecki, *SECO/WARWICK Europe Sp. z o.o., Poland*
- 12:20 **The use of production-integrated vacuum heat treatment for serial production of transmissions in an automotive plant**  
P.Anděl, *ŠKODA AUTO a.s., Czech Republic*

🍴 12:40 – 14:00 Lunch 🍴  
Brevnov Monastery Basement

## THURSDAY - MORNING SESSION B - ABBOTS ROOM

12. 5. 2016

Surface hardening technology (induction hardening, laser, electron beam), coating technology (thermal spraying, coating, PVD, CVD, plasma,...)

Chairpersons: Peter Jurčí, *STU Trnava*, Jiří Hájek, *ZČU Plzeň*

- 9:00 **Mobile laser hardening system for industrial application**  
E.Hensel, *ALOTec Dresden GmbH, Germany*
- 9:20 **One step ahead - Innovative usage of laser beam in vacuum for automotive applications**  
F.Vráblík, *ECOSOND s.r.o., probeam, Czech Republic, Germany*
- 9:40 **Process development and control for serial production with the VHM and HHM type induction hardening equipments**  
G.Molnár, *AAGES Ltd., Romania*
- 10:00 **Process optimization by multiple frequency design of induction hardening processes for automotive parts**  
A.Ulferts, *Inductoheat Europe, Germany*
- 10:20 **Investigation on the effect of short heat impulses on the microstructure and mechanical properties of peak aged AW-6082**  
B.de Graaff, *Karlsruher Institut für Technologie, Institut für angewandte Materialien – Werkstoffkunde, Germany*

☕ 10:40 – 11:00 Coffee Break ☕  
Brevnov Monastery Courtyard

- 11:00 **Efficient Process Control for Induction Hardening**  
E.Niessner, *LumaSense Technologies GmbH, Germany*
- 11:20 **Performance and properties of an additive manufactured coil for MHZ-application in inductive heat treatment**  
M.Habschied, *KIT IAM-WK, Germany*
- 11:40 **Utilization of PVD hard coating after electron beam surface treatment for highly loaded cast iron components**  
A.Buchwalder, *TU Bergakademie Freiberg, Germany*
- 12:00 **Tribological advantages of DLC coatings for highly loaded applications: Bearings**  
P.F.Cardey, *CETIM, France*
- 12:20 **Oxidation resistance and structural stability of superhard PVD coatings**  
M.Haršáni, *Slovak University of Technology in Trnava, Slovak Republic*

🍴 12:40 – 14:00 Lunch 🍴  
Brevnov Monastery Basement

## THURSDAY - AFTERNOON SESSION A - THERESIAN HALL

12. 5. 2016

**Chairpersons:** Filip Vráblík, *ECOSOND s.r.o.*, Klaus Löser, *ALD Vacuum Technologies GmbH*

- 14:00** **Advanced modular and continuous heat treatment concepts**  
R.Wethmar, *IVA Schmetz GmbH, Germany*
- 14:20** **Influence of the base material hardenability on effective case depth and core hardness**  
B.Vandewiele, *BVDW Consultancy VOF, Belgium*
- 14:40** **Optimization of carburizing treatment for Nb-modified SAE 1022 carbon steel**  
Hsu Hsiao-Hung, *China Steel Corporation, China*
- 15:00** **Properties of nitrided surfaces including post processes**  
E.Troell, *Swerea IVF, Sweden*

☞ **15:20 – 15:40 Coffee Break** ☞  
Brevnov Monastery Courtyard

- 15:40** **NITROPULS© - A new technology of sensor controlled gas nitriding with variable nitriding potential**  
A.Dalke, *TU Bergakademie Freiberg, Germany*
- 16:00** **Towards the in-line control of the active screen plasma nitrocarburizing using infrared laser absorption spectroscopy**  
I.Burlacov, *TU Bergakademie Freiberg, Germany*
- 16:20** **Increasing the service life of the extrusion dies for hot extruding of aluminum profiles through controlled gas nitriding ZeroFlow**  
L.Małdziński, *University of Technology / SECO/WARWICK Europe Sp. z o.o., Poland*
- 16:40** **END of the second day**
- 19:00** 🍷 **GALA DINNER**  
Brevnov Monastery Basement  
Welcome Toast on the Courtyard

## THURSDAY - AFTERNOON SESSION B - ABBOTS ROOM

12. 5. 2016

**Chairpersons:** Thomas Lübben, *Stiftung Institut für Werkstofftechnik*, Pavel Šuchmann, *COMTES FHT a.s.*

- 14:00** **The principles of creation and selection of hardmetal consisting hardfacings for different abrasive wear conditions**  
P.Kulu, *Tallinn University of Technology, Estonia*
- 14:20** **Neural network assisted design and optimization of hot work tool steel heat treatment**  
B.Podgornik, *Institute of Metals and Technology, Slovenia*
- 14:40** **Estimation of temporospatial heat transfer coefficients by parallelized PSO approach**  
I.Felde, *Óbuda University, Hungary*
- 15:00** **Numerical modelling of steel quenching**  
B.Smoljan, *University of Rijeka, Croatia*

☞ **15:20 – 15:40 Coffee Break** ☞  
Brevnov Monastery Courtyard

- 15:40** **A combined finite element - phase field model approach on the bainitic transformation**  
D.Said Schicchi, *Stiftung Institut für Werkstofftechnik, Germany*
- 16:00** **Utilizing the internet of things to enhance lean manufacturitrn in gear heat treatment**  
J.Kowalewski, *Ipsen International GmbH, Germany*
- 16:20** **Electrochemical boronizing of medium carbon DIN CK45 steels and its effects on corrosion behavior**  
Ç.Bolat, *Istanbul Technical University, Turkey*
- 16:40** **END of the second day**
- 19:00** 🍷 **GALA DINNER**  
Brevnov Monastery Basement  
Welcome Toast on the Courtyard

## FRIDAY - MORNING THERESIAN HALL

13. 5. 2016

Improved modelling capabilities and simulation of heat treatment and surface engineering Reliability and process control, series production control, measurement

Chairpersons: Herwig Altena, AICHELIN Holding G.m.b.H., Miloslav Kouřil, VUT Brno

- 9:00 In-situ monitoring of the microstructure evolution**  
O.Bruchwald, *Leibniz Universität Hannover, Institut für Werkstoffkunde, Germany*
- 9:20 Total quality in heat treatment: a global view and critical points for the future**  
B.Vandewiele, *BVDW Consultancy VOF, Germany*
- 9:40 RQP1: Heat treatment system survey and quality control**  
P.F.Cardey, *CETIM, France*
- 10:00 Information about quality system management requirements from heat treatment processes**  
S.Rašková, *Czech Republic*
- 10:20 Failure analysis of an automotive crankshaft**  
D.S.MacKenzie, *Houghton International, Inc., USA*
- 10:40 Announcement of the Poster Award winner, sponsored by Burgdorf GmbH & Co.KG**
- 10:50 Announcement of the Aichelin Young Speakers Award winner, sponsored by Aichelin**
- 11:00 Announcement of the European Conference on Heat Treatment 2017**
- 11:10 Closing Ceremony**
- 11:20 End of the Conference**

🍴 11:30 – 12:30 Lunch 🍴  
Brevnov Monastery Basement

- 13:00 EXCURSION TO SKODA AUTO A.S., VRCHLABI**  
Place to meet: in front of the front-gate of Brevnov monastery at 12:45

## FRIDAY - MORNING ABBOTS ROOM

13. 5. 2016

LIVE BROADCAST FROM THE THERESIAN HALL TO ABBOTS ROOM



🍴 11:30 – 12:30 Lunch 🍴  
Brevnov Monastery Basement

- 13:00 EXCURSION TO SKODA AUTO A.S., VRCHLABI**  
Place to meet: in front of the front-gate of Brevnov monastery at 12:45

## POSTER SESSION

### Optimizations of hardmetal reinforcement content in Fe-based hardfacings for abrasive-impact wear conditions

A.Surzhenkov, *Tallinn University of Technology, Estonia*

### In-Line X ray residual stress measuring on shot peening process

Y.Kobayashi, *SINTOKOGIO, LTD., Japan*

### Investigation of grain boundaries in alloy 263 after special heat treatment

I.Slatkovský, *Slovak University of Technology in Bratislava, Slovak Republic*

### Preparation of high entropy alloy for wear resistant applications by powder metallurgy route

I.Moravčík, *Institute of Materials Science and Engineering, Czech Republic*

### Protective paints for heat treatment - New developments in regards to requirements of health and safety as well as environmental regulations

R.Braun, *NÜSSLE GmbH & Co. KG, Germany*

### Investigation of fracture resistance of subzero-treated Cr-V cold work tool steel

J.Ptačinová, *Slovak University of Technology in Bratislava, Slovak Republic*

### Influence of heat treatment on the thermal conductivity of copper infiltrated tool steels

S.Klein, *Ruhr-Universität Bochum, Lehrstuhl Werkstofftechnik, Germany*

### Local electron beam heat treatment of forging dies

J.Matlák, *Institute of Materials Science and Engineering, NETME centre, Brno University of Technology, Czech Republic*

### Posters will be displayed for the entire period to the conference.

Possible changes to the program will be communicated during the conference.

# ECHT PRAGUE 2016 EXCURSION TO ŠKODA AUTO A.S., VRCHLABÍ MAY 13<sup>TH</sup>, 2016

DEPARTURE: **13:00**, BREVNOV MONASTERY

ARRIVAL: **19:00**, BREVNOV MONASTERY

The short presentation will include the history and products of the company Škoda Auto a.s., it will be followed by a guided tour of the hardening shop, heat treatment lines 1 and 2, quenching press station, control methods, installation and assembly of gearboxes. The quality of selected types of tests will be demonstrated in the laboratory.

**Place to meet: in front of the front-gate of Brevnov Monastery** (in the main car park) **on Friday, May 13<sup>th</sup>, 2016 at 12:45.** Transport by bus is provided.

1. Škoda Auto a.s.,  
Vrchlabí - history



2. Hardening shop 1  
- Modultherm



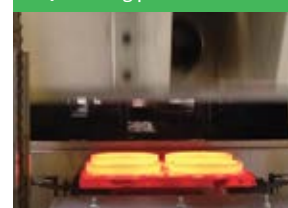
3. Control methods



4. Hardening shop 2  
- Modultherm



5. Hardening shop 3  
- Quenching press



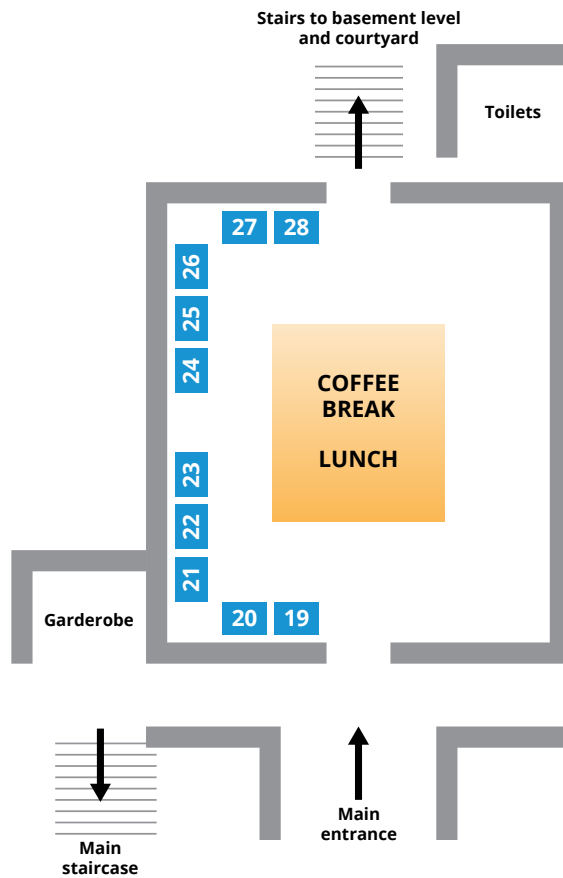
6. Laboratory



FOR MORE INFORMATION: PETR ANDEL, [PETR.ANDEL@SKODA-AUTO.CZ](mailto:PETR.ANDEL@SKODA-AUTO.CZ)



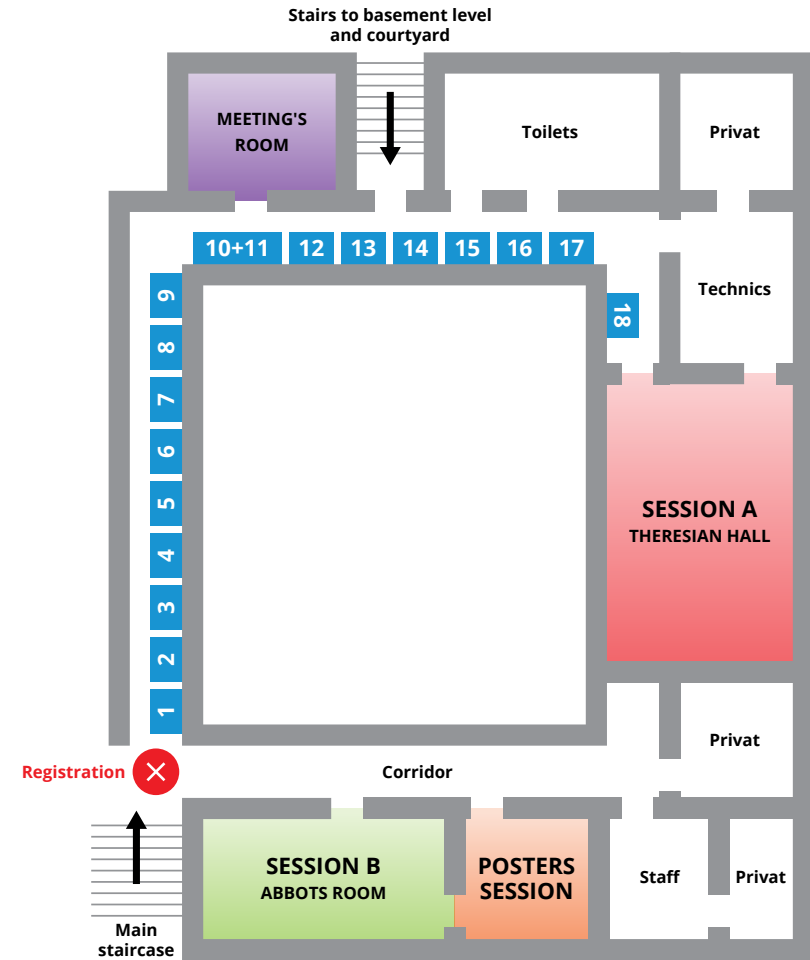
## Courtyard



## Exhibition Courtyard

- |                             |                                 |
|-----------------------------|---------------------------------|
| 19 WPX Faserkeramik GmbH    | 24 ALD Vacuum Technologies GmbH |
| 20 COMTES FHT a.s.          | 25 Graphite Materials GmbH      |
| 21 ECM Technologies         | 26 EMO Oberflächentechnik GmbH  |
| 22 Linde Gas a.s.           | 27 TAVENGINEERING S.p.A.        |
| 23 Schunk Carbon Technology | 28 Ipsen International GmbH     |

## 1st Floor



## Exhibition 1st Floor

- |                                      |                                 |
|--------------------------------------|---------------------------------|
| 1 ECOSOND s.r.o.                     | 10+11 AICHELIN Holding GmbH     |
| 2 MDL s.r.o.                         | 12 CODINA                       |
| 3 LAC, s.r.o.                        | 13 Cronite CZ                   |
| 4 Foerster Tecom s.r.o.              | 14 AIR Products spol. s r.o.    |
| 5 Struers GmbH                       | 15 Realistic a.s.               |
| 6 Houghton CZ s.r.o.                 | 16 Stange Elektronik GmbH       |
| 7 TAV VACUUM FURNACES SPA            | 17 GTD Graphit Technologie GmbH |
| 8 Rotaneo s.r.o. + Kompozitum s.r.o. | 18 Tenova                       |
| 9 Thermo-Calc Software AB            |                                 |

## Exhibition Catalogue

### Stand 1



**ECOSOND s.r.o.**  
[www.ecosond.cz](http://www.ecosond.cz)

ECOSOND is a specialized company for the services, expertise, training and supplies in the field of heat treatment of steel. Supply of quenching media, furnaces and devices for temperature measurement and control. Production of O2 probes, accredited calibration laboratory.



**GALTEX, spol. s r.o.**  
[www.galtex.sk](http://www.galtex.sk)

GALTEX offers: Design, supply, assembly; Service and repair of machines and equipment for hardening plants; Used equipment reconstruction and renovation; Modernizing of heat treatment facilities; Repairs and changes of lining inside heat treatment equipment; Supply and assembly.

### Stand 2



**MDL s.r.o.**  
[mdl.cz](http://mdl.cz)

The MDL company can offer you optimum wire cloth designed, welded mesh, precrimped wire mesh and pressed mesh, filters, curouts and moldings, wire baskets, fence parts, architecture, furniture, stitching wire, wires, insect mesh and mesh fencing.

### Stand 3



**LAC, s.r.o.**  
[www.lac.cz](http://www.lac.cz)

Since establishment in 1992, LAC company has manufactured more than 13,000 furnaces. Our furnaces and dryers are designed for applications in a wide range of heat treatment and technological processes. Our manufacture program includes a complete standard range of furnace and dryer lines, and also accommodates the individual requirements through the design of tailor-made projects.

### Stand 4



**Foerster Tecom s.r.o.**  
[www.foerstergroup.cz](http://www.foerstergroup.cz)

Non-destructive Testing, Metal Detection, Magnetics – FOERSTER stands for highest quality standards. No ifs, ands or buts. For precision and performance. For commitment and dependability. For the best and technologically most advanced range of products. Our highest goal is the satisfaction of our customers - worldwide.

### Stand 5



**Struers GmbH**  
[www.struers.com](http://www.struers.com)

Today, Struers is the world's leading manufacturer of equipment and consumables for materialographic surface preparation of solid materials and supplier of entire range of hardness testers including equipment for image analysis. Struers has affiliates in 24 countries, qualified service personnel, experienced metallographers and a worldwide network of dealers."

### Stand 6



**Houghton CZ s.r.o.**  
[www.houghton.cz](http://www.houghton.cz)

Houghton company was founded in 1856 in the United States and currently is part of an international group which owns factories and offices in more than 35 countries worldwide.

Company main focus is development, production and distribution of products for metalworking. An integral part of a broad portfolio of Houghton products are products for thermal treatment. In this area products are splitted into the groups according to application as hardening polymers - AQUA- QUENCH and quenching oils - VOLUTA, HOUGHTO - QUENCH, MAR-TEMP, VACU- QUENCH.

### Stand 7



**TAV VACUUM FURNACES SPA**  
[www.tav-vacuumfurnaces.com](http://www.tav-vacuumfurnaces.com)

Vacuum furnaces for sintering, brazing, heat treatment, UHV; advanced ceramics; aluminizing and diffusion bonding.

### Stand 8



**Rotaneo s.r.o.**  
[ww.rotaneo.sk](http://ww.rotaneo.sk)

Our company supply spare parts for hotzones of vacuum furnaces (graphite, insulation, CFC, molybdenum and ceramic parts). Main production program of company ROTANEO s. r. o. is the production of technical ceramics, special siliciucarbide products and spare parts production - mechanical seals component of various manufacturers.



**Kompozitum s.r.o.**  
[www.kompozitum.sk](http://www.kompozitum.sk)

KOMPOZITUM Ltd. is a manufacturer of carbon and graphite products including their impregnations by various mediums like resins or metals. By manufacturing of graphite parts KOMPOZITUM focuses on all segments of heat-treatment industries. Products include mainly graphite elements for vacuum furnaces, sintering pads for PVD/CVD, continual casting moulds and mandrels, graphite parts for the glass industry, mixers and moulds for aluminum degassing, crucibles and moulds for precious metals casting.

### Stand 9



**Thermo-Calc Software AB**  
[www.thermocalc.com](http://www.thermocalc.com)

Thermo-Calc Software is a developer of software for calculations involving computational thermodynamics and diffusion controlled transformations in complex alloys. Applications to heat treatment include predicting furnace gas chemistry, formation and growth/dissolution of precipitate phases, multicomponent phase diagrams, kinetics of carburization, nitriding, homogenization and more.

### Stand 10 and 11



**Aichelin GmbH**  
[www.aichelin.com](http://www.aichelin.com)

AICHELIN Group is leading supplier of plants for thermal and thermochemical treatment of metals.

### Stand 12



**Bandas Metalicas Codina S.L.**  
[www.codinametal.com](http://www.codinametal.com)

Established more than one century ago, Barcelona-based CODINA manufactures all kind of product that comes from the metal wire. Mainly, CODINA produces Conveyor belts, Woven wire cloths, Knitted wire mesh, Filters and Demisters among others.

CODINA's commitment to the most modern technology and customer service is always the motivation to maintain the company in a privileged position within the European and world-wide markets, exporting to more than fifty countries.

### Stand 13



**Cronite CZ**  
[www.safe-industry.com/en/safe-cronite/cronite-cz-brno](http://www.safe-industry.com/en/safe-cronite/cronite-cz-brno)

The world leader in design and manufacture of heat treatment fixtures and furnace spare parts.

### Stand 14



**Air Products s.r.o.**  
[www.airproducts.cz](http://www.airproducts.cz)

Air Products (NYSE:APD) is a world-leading Industrial Gases company celebrating 75 years of operation.

### Stand 15



**REALISTIC a.s.**  
[www.realistic.cz](http://www.realistic.cz)

Today the company is an important worldwide manufacturer of high-end industrial electric and gas furnaces. The portfolio of its products are devices for the technology: heat treatment and chemical heat treatment of metals; firing porcelain and ceramics; preheating before the forging and post processing; melting of nonferrous metals; drying or special warmings.

### Stand 16



**STANGE Electronic GmbH**  
[www.stange-elektronik.com](http://www.stange-elektronik.com)

The company was established in 1976. For more than three decades, we develop and manufacture innovative products in the automation and process technology. The product range has evolved from simple digital setpoint generators to today's sophisticated regulation and control systems.

### Stand 17



**GTD Graphit Technologie GmbH**  
[www.gtd-graphit.de](http://www.gtd-graphit.de)

Innovations with graphite and C/C materials from Toyo Tanso. GTD Technology GmbH is responsible for the distribution and the refinement of graphite and C/C materials from Toyo Tanso in Germany, Great Britain, Austria, Hungary, Poland, Czech Republic, Slovakia, and German speaking Switzerland. The product portfolio for heat treatment applications includes: heaters, connection elements, plates, insulating material, C/C racks, etc..

### Stand 18



**IVA Schmetz GmbH**  
[www.schmetz.de](http://www.schmetz.de)

The portfolio of its products: Horizontal and vertical high temperature vacuum furnaces for gas quenching, tempering, brazing, annealing and sintering.

[www.iva-online.com](http://www.iva-online.com)



The portfolio of its products: Horizontal retort furnaces, Sealed quench furnaces, Pit type furnaces, Box-type furnaces, Rotary hearth furnaces.



**Fours Industriels BMI**  
[www.bmi-fours.com](http://www.bmi-fours.com)

The portfolio of its products: High temperature vacuum furnaces for gas or oil quenching, tempering, annealing, brazing, sintering, low pressure nitriding, low pressure carburising, plasma nitriding.

### Stand 19



**WPX Faserkeramik GmbH**  
[wpx-faserkeramik.de](http://wpx-faserkeramik.de)

WHIPOX is a thermal shock proof, non-corrosive oxide fiber ceramics material (OCMC). It is used for charge carriers in heat treatment, avoiding contact reactions of steel with CFC grids.

### Stand 20



**COMTES FHT a.s.**  
[www.comtesfht.cz](http://www.comtesfht.cz)

COMTES FHT is a private research organization dealing with applied research of metallic materials and their processing technologies (melting, casting, forming, heat treatment). The company runs an experimental metallurgical plant equipped with VIM furnace, forging press, rolling mill and hardening shop. The laboratories of COMTES FHT offer complex services in mechanical testing, measurement of thermo-physical properties and metallographic analyzes.

### Stand 21



#### ECM Technologies

[www.ecm-furnaces.com](http://www.ecm-furnaces.com)

ECM TECHNOLOGIES is a high-tech manufacturer of industrial furnaces. The company is appreciated worldwide for its unquestionable leadership and its continuous research in heat treatment solutions. As ECM's well-known ICBP® Low Pressure Carburizing technology.

### Stand 22



#### Linde Gas a.s.

[www.linde-gas.cz](http://www.linde-gas.cz)

The Linde Group is a world leading supplier of industrial, process and speciality gases and is one of the most profitable engineering companies. Linde products and services can be found in nearly every industry, in more than 100 countries.

### Stand 23



#### Schunk Carbon Technology

[www.schunk-group.com](http://www.schunk-group.com)

We develop customized high-tech products and equipment in the areas of carbon technology and ceramics, environmental simulation technology and climate technology, sintered metal technology and ultrasonic welding technology.

### Stand 24



#### ALD Vacuum Technologies GmbH

[web.ald-vt.de](http://web.ald-vt.de)

ALD is a worldwide leading supplier of vacuum systems for melting, coating and heat treatment of metals.

### Stand 25



#### Graphite Materials GmbH

[www.graphite-materials.com](http://www.graphite-materials.com)

Graphite Materials GmbH is a manufacturing company for graphite components, a system supplier for high temperature applications as well as a distribution partner for graphite electrodes used in electric arc furnaces by the steel industry and a trading company for the materials natural graphite, graphite coating and foil as well as sepiolite.

### Stand 26



#### EMO Oberflächentechnik GmbH

[www.emo-ot.de](http://www.emo-ot.de)

EMO Oberflächentechnik is your competent partner when it comes to parts cleaning – from design and planning to manufacture and commissioning and finally service and maintenance of the systems.

### Stand 27



#### TAVENGINEERING S.p.A.

[www.tav-engineering.com](http://www.tav-engineering.com)

Since 1999 TAVEngineering is fully dedicated to provide technical assistance and spare parts for the maintenance, renewal and repair of vacuum furnaces of any type and brand. Routine maintenances and emergency services are performed on site in the shortest possible time. TAVEngineering is a solid and reliable partner which can count on a motivated and highly qualified staff of engineers and technicians.

### Stand 28



#### Ipsen International GmbH

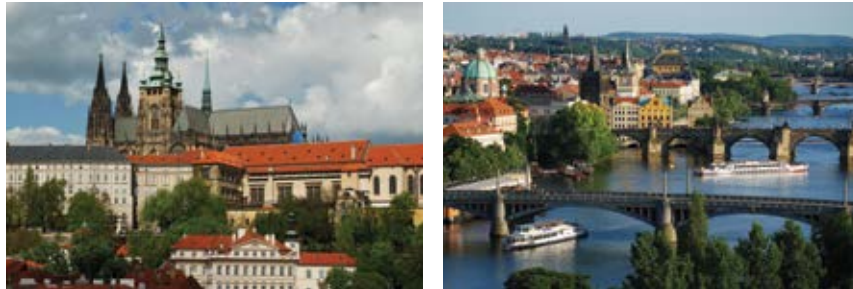
[www.ipsen.de](http://www.ipsen.de)

High quality standards and increasing raw material costs require us to be passionately committed to developing new heat treatment solutions. The outcome of our work: energy-efficient Ipsen furnaces and plant systems, as well as unrivaled products that are in demand all over the world and used by leading companies in the Automotive, Aviation and Aerospace sectors, to name a few.

## Program for Accompanying Persons

### Explore Prague in two half-day tours

The Vltava River as a silver ribbon divides Prague into two parts, which makes it easy to explore Prague in this way as well. By dividing the sightseeing of Prague into two parts, you will be able to see more details - and be sure you will show many of them! Each sightseeing tour takes 4 hours and includes lunch.



### Wednesday, 11th May Lesser Town, Prague Castle and Hradcany (Castle District)

- 10:00** Pick-up at Brevnov Monastery  
**10:00 - 10:15** Transfer by tram to Castle district  
**10:15 - 13:00** Tour of the Castle district, Prague Castle and Lesser town  
- Strahov Monastery + viewing point  
- Loreto Church  
- Prague Castle (St. Vitus Cathedral, castle garden)  
- Wallenstein garden
- 🍴 13:00 - 14:00 Lunch 🍴**
- 14:00 - 14:30** Short walk in the Kampa Island - Kampa Island, Lennon Wall, Infant of Prague  
**14:30** Transfer by tram back to the Brevnov Monastery

### Thursday, 12th May Old Town, New Town, Jewish Quarter

- 10:00** Pick-up at Brevnov Monastery  
**10:00 - 10:25** Transfer by tram to Charles Bridge  
**10:25 - 13:30** Tour of the Charles Bridge, Old Town and Jewish Town
- 🍴 13:30 - 14:30 Lunch 🍴**
- 14:30 - 15:00** Transfer by tram back to Brevnov Monastery

### What will we see?

**Strahov Monastery**  
is a Premonstratensian abbey founded in 1143

**Charles Bridge - open air gallery**  
the oldest bridge in Prague dating back to 14th century with number of baroque statues of different saint.

**Powder Gate**  
one of the very few remains of the medieval fortification of the Old Town

**Municipal House**  
most beautiful art-nouveau building in Prague

**St. James Church**  
stunning baroque church with one of the largest organ in Prague

**Ungelt**  
charming courtyard of a former medieval custom office

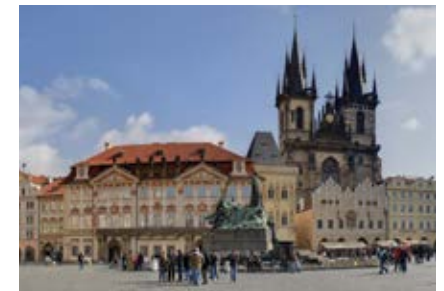
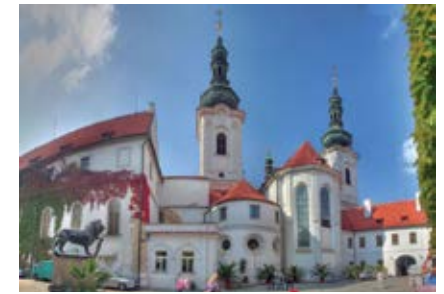
**Old Town Square**  
large historical square with many historical building and great importance in Prague history

**Astronomical Clock**  
one of the „must-sees“ in Prague - march of the Apostols and much more, real technical jewel which is more then 600 years old!

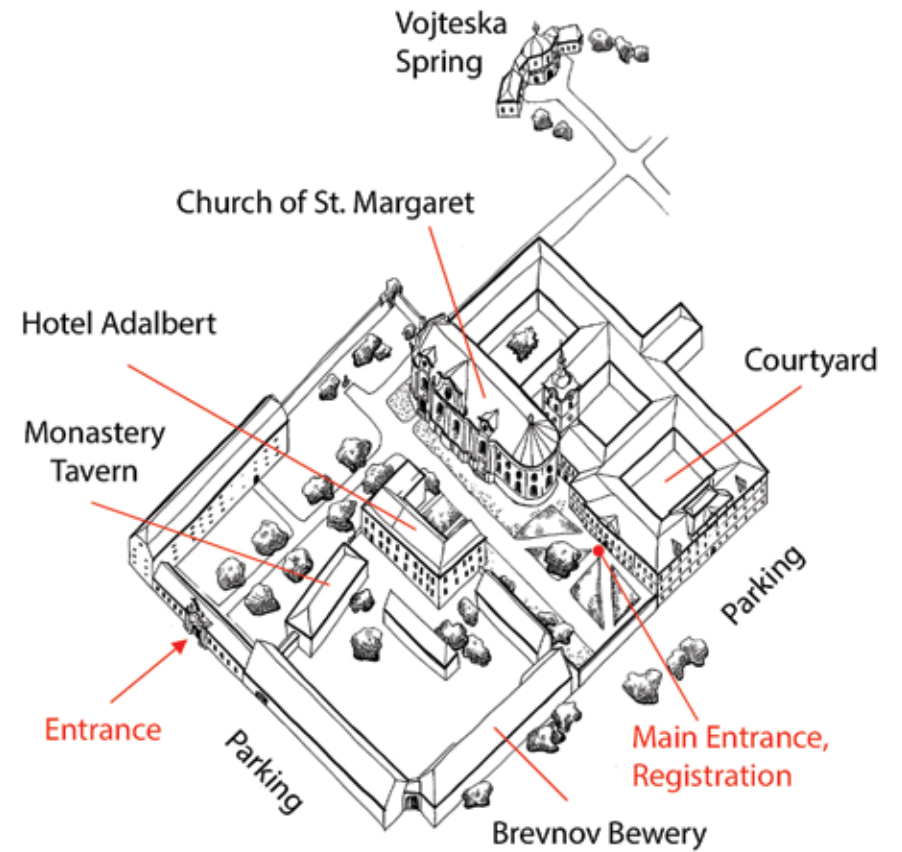
**Old-New Synagogue**  
oldest synagogue in Central and Eastern Europe, which is still active.

**Jewish Cemetery**  
and other synagogues of the Jewish Quarter

**Wenceslas Square**  
vibrant modern center of Prague.



## Map



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## Conference sponsored by



Conference organisers  
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