



2011

3rd
INTERNATIONAL CONFERENCE

**on Hot Sheet Metal Forming
of High-Performance Steel**



FINAL PROGRAM

June 13th to 17th 2011 – Kassel, Germany

**U N I K A S S E L
V E R S I T Ä T**

SCOPE

The third international conference on hot sheet metal forming of high-performance steel – also known as press hardening or hot stamping – will be held in Kassel, Germany. The demand for hot sheet metal forming technology has steadily increased and, pulled by strong international driving forces such as environment and safety, we are now experiencing an unprecedented growth in automotive applications. The

research concerning hot forming processes, micro-structure evolution, deformation, failure, thermal properties and issues such as coatings, heat transfer, high temperature tribology and functional gradation is intense and a strong research community is under development. This third international conference takes off from where the first two conferences in Kassel 2008 and Luleå 2009 were closed. The scientific

and industrial community will be further strengthened and new results and developments from the growing international research programs will be displayed. The conference program highlights multiple aspects from a scientific as well as an industrial viewpoint. The City of Kassel welcomes all participants to a town called „Capital of the German Fairy Tale Route“ where art and nature are equally important.

Magnificent parks, internationally renowned art treasures and cultural institutions invite millions of visitors every year to this attractive city. Kassel, situated in the heart of Germany, is easily accessible by train or car and located only 200km from the Frankfurt International Airport.

Kurt Steinhoff,
Mats Oldenburg,
Braham Prakash



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CONFERENCE FEE

Early registration until 31 st of March 2011:	825.00 Euro
Regular registration from 1 st of April 2011:	915.00 Euro
Presenting authors & board members:	530.00 Euro

The conference fee includes the participation in the lectures, exhibition and the social events as well as the proceedings.

Accompanying persons:	295.00 Euro
Technical Tour:	126.00 Euro
Online registration is available. Please refer to www.chs2.eu .	

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ORGANIZED BY

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NETWORK



VENUE

JUNE 13th

Kongress Palais Kassel – Stadthalle

Holger-Börner-Platz 1
34119 Kassel, Germany

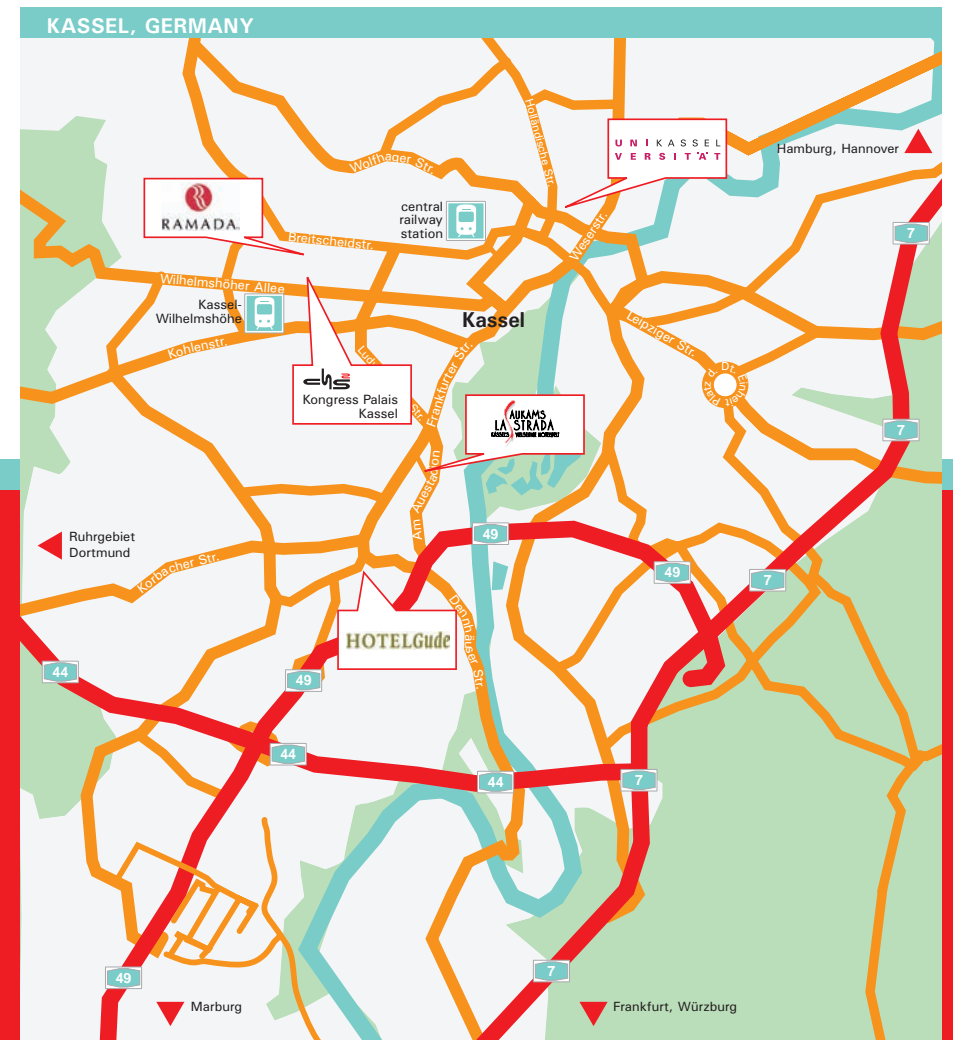
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18:00 Early Registration (Ramada Hotel)

19:00 Welcome Reception (Gartensaal, Ramada Hotel)



ACCOMMODATION

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09:15	Opening Session / Welcome Notes	
09:30	Chances and Challenges for Small and Medium-sized Enterprises in a Rapidly Growing Market Hans Eichel, German Federal Minister of Finance ret'd., GER	
09:40	Press Hardening – Chances and Changes Dr. Armin Plath, MBA, MSc, Head of Materials Research and Manufacturing Processes, Group Research, Volkswagen AG, Wolfsburg, GER	
10:00	Refreshment Break	
	Conference Room A: Blauer Saal (Blue Room) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 24px;">A</div>	Conference Room B: Gesellschaftssaal (Function Hall) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 24px;">B</div>
10:45	Tailored Properties I CHAIRMAN: Taylan Altan (Ohio State University, USA) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">A1</div>	Materials Testing & Failure Prediction CHAIRMAN: Daniel Casellas (CTM Centre Tecnològic, ESP) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">B1</div>
10:45	Tailored Properties – A Pivotal Question for Hot Forming Banik, J.; Lenze, F.J.; Sikora, S.; Laurenz, R. (ThyssenKrupp Steel Europe AG, Dortmund, GER)	Failure Model Evaluation for Varying Micro-structure Based on Material Hardness Östlund, R.; Oldenburg, M.; Häggblad, H.-Å. (Division of Solid Mechanics, Luleå University of Technology, SWE); Berglund, D. (Gestamp R&D, Luleå, SWE)
11:10	Tailored Tempering – Heat Transfer and Resulting Properties in Dependency of Tool Temperatures Svec, T.; Merklein, M. (Chair of Manufacturing Technology, University Erlangen-Nuremberg, GER)	Local Characterization of Mechanical Properties of Hot Formed Parts Maikranz-Valentin, M. (METAKUS GmbH, Baunatal, GER); Clobes, J.; Alsmann, M. (Development & Innovation, Volkswagen AG, Baunatal, GER); Schulz, M. (Technology-Management, Volkswagen AG, Wolfsburg, GER); Kulp, S. (Strukturplanung, Volkswagen AG, Wolfsburg, GER); Steinhoff, K. (Chair of Metal Forming Technology, University of Kassel, GER)

11:35	Hot Forming of a Lab-Scale B-Pillar with Tailored Properties – Experiment and Modeling George, R.; Bardelcik, A.; Worswick, M.J. (University of Waterloo, Ontario, CAN)	Numerical Prediction of Failure in High Temperature Formblowing and Hardening Lindkvist, G.; Häggblad, H.-Å.; Oldenburg, M. (Division of Solid Mechanics, Luleå University of Technology, SWE)
12:00	Lunch	
13:30	Tools & Dies <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">A2</div> CHAIRMAN: Edward Schleichert (Magna Automotive Services GmbH, GER)	Flow Behaviour & Formability <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">B2</div> CHAIRMAN: Marion Merklein (University of Erlangen-Nuremberg, GER)
13:30	Integrated and Competitive Tooling Solutions for the Production of Tailored Components and Cutting of UHSS Ingebrand, A.; Valls Anglès, I.; Laumann, T. (Roalma, S. A., Terrassa, ESP)	Draw-Bending Formability of Steel Sheets in Hot Stamping Process Kusumi, K.; Nomura, N.; Yamamoto, S.; Suehiro, M. (Steel Research Laboratories, Technical Development Bureau, Nippon Steel Corporation, Chiba, JPN)
13:55	The Effect of Die Constructions on the Formability of Hot Stamped Automobile Parts Ha, S.Y.; Seo, P.K. (Shinyoung Co., Ltd., Yeongcheon-City, Korea); Kim, B.M.; Kang, C.G. (School of Mechanical Engineering, Pusan National University, Pusan, Korea)	Investigations on the Flow Behavior of Boron-Manganese Steels at Elevated Strain Rates Stoehr, T.; Merklein, M. (Chair of Manufacturing Technology, University Erlangen-Nuremberg, GER)
14:20	Effect of the Cutting Process in the Mechanical and Fatigue Properties of Press Hardened 22MnB5 Steel Picas, I.; Muñoz, R.; Lara, A.; Hernández, R.; Casellas, D. (Department of Materials Technology, CTM Technological Centre, Manresa, ESP)	Stretch-Flange Formability of Boron Steel in Hot Stamping Nakata, M.; Ito, Y.; Uematsu, K.; Hikita, K.; Suzuki, T.; Kojima, N. (Corporate R&D Labs., Sumitomo Metal Industries Ltd., JPN)
14:45	Investigations into the Failure Mechanisms of Form Fixture Hardening Tools Pelcastre, L.; Hardell, J.; Herrera, N.; Prakash, B. (Luleå University of Technology, Department of Applied Physics and Mechanical Engineering, SWE)	Study of Influence of Forming Velocity and Friction Coefficient on Formability of Hot Stamping by FEM Simulation Nomura, N.; Kusumi, K.; Suehiro, M. (Steel Research Laboratories, Technical Development Bureau, Nippon Steel Corporation, Chiba, JPN)
15:10	Refreshment Break	

JUNE 14th



JUNE 15th

JUNE 15th

15:40	Coatings & Corrosion I CHAIRMAN: Kazuhisa Kusumi (Nippon Steel Corporation, JPN)	A3	Industrial Applications I CHAIRMAN: Fabian Loges (IOG Industrieofenbau GmbH, GER)	B3
15:40	Zinc-Coated Boron Steel, ZnX[®]: Direct Hot Forming for Automotive Applications van Genderen, M. J.; Verloop, W. C. (Tata Steel Strip Products, IJmuiden, NED); Loiseaux, J.; Hensen, G. C. (Tata Steel Research Development & Technology, IJmuiden, NED)		Developments in the Field of Schwartz Heat Treatment Furnaces for Press Hardening Industry Lehmann, H. (Schwartz GmbH, Simmerath, GER)	
16:05	Corrosion Resistance of Zinc Based and Aluminized Coatings on Press-Hardened Steels for Automotive Allély, C.; Petitjean, J. (ArcelorMittal Global Research and Development, Maizières-les-Metz, FRA); Vietoris, T. (ArcelorMittal Global Research and Development, Berlin, GER)		Compact Line Conception for Hot Forming Lines Gamboa, E.; Agirretxe, X.; Martin, J. M.; Gorostiza, K. (HOTTEKNIK, Amorebieta, ESP)	
16:30	A Ductile Aluminide Coating for Hot Stamping Fan, D. W.; De Cooman, B. C. (Graduate Institute of Ferrous Technology, Pohang University of Science and Technology, KOR)		Continuous Improvement of Hot Forming Technology Hund, R. (BRAUN-CarTec GmbH, Schwalbach, GER)	
16:55	End of Day 1			
20:00	Conference Banquet			

	Conference Room A: Blauer Saal (Blue Room)	A	Conference Room B: Gesellschaftssaal (Function Hall)	B
09:00	Tailored Properties II CHAIRMAN: Markus Pfestorf (BMW Group, GER)	A4	Industrial Applications II CHAIRMAN: Ralf Hund (BRAUN CarTec GmbH, GER)	B4
09:00	Tool Thermal Cycle Design for Manufacturing of Components with Tailored Material Properties Oldenburg, M.; Lindkvist, G. (Department of Applied Physics and Mechanical Engineering, Luleå University of Technology, SWE)		Process Optimization of Laser Cutting and in the Heating Process Fritz, M. (Industry Management Automotive, Hotforming, TRUMPF Laser und Systemtechnik, GER)	
09:25	Numerical Optimization of Temporally and Spatially Varying Temperature Distributions for the Production of Functionally Graded Materials with Tailored Microstructural Properties Clobes, J.; Alsmann, M.; Watermeier, H.-J.; Becker, H.-H. (Volkswagen AG, Baunatal, GER); Fuß, D.; Steinhoff, K. (University of Kassel, Chair of Metal Forming Technology, GER)		HotPHASE – Press Hardening Automotive Solutions by EBNER Ebner, F. J. (Ebner Industrieofenbau GmbH, Leonding, AUT)	
09:50	An Impact Model of a Hot Stamped Lab-Scale B-Pillar with Tailored Properties Bardelcik, A.; Ghavam, K.; George, R.; Worswick, M. J. (Department of Mechanical and Mechatronics Engineering, University of Waterloo, Ontario, CAN)		Past and Future for Taylor-Made Hot Stamping Lines Berasategi, J. M.; Garbalena, C.; Irazu, G. (Loire Safe, Hernani, ESP); González, B. (Tecnalia, Derio, ESP)	



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10:15	Enhancement of Process Stability and Part Quality for the Press Hardening of Sheet Metal Neugebauer, R.; Göschel, A.; Schieck, F. (Fraunhofer-Institute for Machine Tools and Forming Technology IWU, Chemnitz, GER); Rautenstrauch, A.; Mosel, A.; Cai, H. (Chemnitz University of Technology, Professorship for Machine Tools and Forming Technology, GER)	Press Hardening – Process Design Eriksson, K. (AP&T Advanced Automation)
10:40	Refreshment Break	
11:10	Case Studies I A5 CHAIRMAN: Martin Jonsson (Gestamp HardTech AB, SWE)	Parts & Processes I B5 CHAIRMAN: Franz-Josef Lenze (ThyssenKrupp Steel Europe AG, GER)
11:10	Market Development and Technological Perspectives in Press Hardening of UHSS Schupfer, M.; Steinhoff, K. (Chair of Metal Forming Technology, University of Kassel, GER)	Experimental Estimation of Heat Transfer Coefficients in the Hot Stamping Process of Usibor®1500P Dessain, C.; Wilsius, J.; Brun, G. (ArcelorMittal Global Research and Development, Montataire, FRA); Abdulhay, B.; Bourouga, B. (Laboratoire de Thermocinétique de Nantes, Nantes Cedex, FRA)
11:35	Extensive Use of Hot-Formed Steel in Car Body Structures Johansson, R.; Fermér, M.; Jergéus, J.; Larsson, J.K. (Volvo Car Corporation Advanced Body & Exterior Engineering, Gothenburg, SWE)	Process Development for Manufacture of an Automotive Structural Part by means of Applasting Technology Vadillo, L.; Zarazua, J.I.; Pérez, I.; Varela, S.; San José, J. (Tecnalia Research & Innovation, Derio, ESP); Yamamoto, D. (Honda Engineering Europe Ltd., Swindon, GBR); Hori, I. (Honda Engineering Co. Ltd., Hagan, JPN); Berlanga, R. (Metalsa, S. A. de C. V., Apodaca, MEX)
12:00	Lunch	

13:30	Modeling & Simulation A6 CHAIRMAN: Ma Dolors Riera Colom (CTM Centre Tecnològic, ESP)	Friction & Wear & Lubrication B6 CHAIRMAN: Andreas Reiter (OC Oerlikon Balzers AG, LIE)
13:30	Progress on the Finite Element Simulation of the Hot Stamping Process Naganathan, A.; Sartkulvanich, P.; Ravindran, D.; Pierschel, N.; Altan, T. (Center for Precision Forming, The Ohio State University, Columbus, USA)	Application of Lubricant in Hot Stamping of Aluminum Coated High Strength Steel Azushima, A.; Yanagida, A. (Department of Mechanical Engineering, Graduate School of Engineering, Yokohama National University, Kanagawa, JPN); Uda, K. (Research & Development Department, Daido Chemical Industry Co., Ltd. Nara, JPN)
13:55	About the Simulation of Microstructure Evolution in the Hot Sheet Stamping Process and the Correlation of Resulting Mechanical Properties and Crash-Performance Graff, S.; Lenze, F.-J.; Sikora, S. (Research and Development, FuE-A Forming Technology, ThyssenKrupp Steel Europe AG, Duisburg, GER); Gerber, T. (Research and Development, FuE-E Conventional Steel, ThyssenKrupp Steel Europe AG, Duisburg, GER)	Wear Behavior of Uncoated and Coated Tools with Respect to Different Loading Conditions Wieland, M.; Merklein, M. (Chair of Manufacturing Technology, University Erlangen-Nuremberg, GER)
14:20	Research on Tailored Microstructure Material in Hot Forming and its Application Ma, N.; Hu, P. (State Key Laboratory of Structural Analysis for Industrial Equipment, School of Automotive Engineering, Dalian University of Technology, CHN); Zhang, Z. (Shanghai Institute of Satellite Engineering, Shanghai, Dalian, CHN)	Effect of Surface Roughness of Die and Scale Thickness on Coefficient of Friction of Boron Alloyed Quenchable Steel in Hot Stamping Yanagida, A.; Tanaka, Y.; Azushima, A. (Department of Mechanical Engineering, Graduate School of Engineering, Yokohama National University, JPN)

JUNE 15th

JUNE 16th

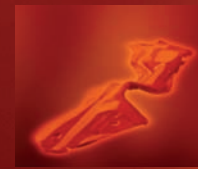
JUNE 16th

14:45	Formability Simulation or Cooling Simulation – or both? Skrikerud, M.; Köser, O.; Megahead, M. (ESI Group, SUI/GER)	Wear Mechanism Identification on Hot Stamping Tools Pujante, J.; Vilaseca, M.; Casellas, D. (Department of Materials Technology, CTM Technological Centre, Manresa, ESP); Eriksson, K. (Research & Development, Gestamp HardTech AB, Luleå, SWE); Clobes, J.; Alsmann, M. (Development & Innovation, Volkswagen AG, Baunatal, GER)
15:10	Refreshment Break	
15:40	Case Studies II CHAIRMAN: Kaj Fredin (Volvo Car Cooperation, SWE)	Parts & Processes II CHAIRMAN: Per Hansson (SSAB AB, SWE)
15:40	Development of Structural Components in Indian Automotive Industry through Hot Forming Kumar, D. (KLT Automotive & Tubular Products Ltd., Pune, IND)	Novel Approach of Thermo-Mechanical Forming Technology for Development of Multi-Laminated Composite Parts Barbakadze, N.; Wagner, S.; Weidig, U.; Steinhoff, K. (Chair of Metal Forming Technology, University of Kassel, GER); Ademaj, A. (METAKUS GmbH, Baunatal, GER)
16:05	Humans Love Progress but Hate Change – from Vision to Reality Scheurer, S. (GRUNDIG AKADEMIE, Academy for Business and Technology non-profit Foundation e.V., Nuremberg, GER)	New Applications of Press Hardening Technology: Skin Outer Parts García, I.; Redondo, M.; Zarauzua, J. I.; Fernández, B. (DieDe Die Development S. L., Derio, ESP)
16:30	End of Day 2	
18:00	Evening Event: “Exploring the Countryside of Kassel”	



	Conference Room A: Blauer Saal (Blue Room)	A	Conference Room B: Gesellschaftssaal (Function Hall)	B
09:00	Tailored Properties III CHAIRMAN: Dirk Stahl (Kirchhoff Automotive GmbH, GER)	A8	Heating & Cooling CHAIRMAN: Reiner Kelsch (voestalpine Polynorm GmbH & Co. KG, GER)	B8
09:00	Invited Presentation: Press Hardening Technology Developments and Research Challenges Jonsson, M. (Gestamp HardTech AB, Luleå, SWE)		Influence of Different Heating Technologies on the Coating Properties of Hot-Dip Aluminized 22MnB5 Siebert, P.; Alsmann, M.; Watermeier, H.-J. (Research and Development Press-Shop, Volkswagen AG, Baunatal, GER)	
09:25	Experimental and Numerical Investigation of Various Hot Stamped B-Pillar Concepts Based on Usibor®1500P Wilsius J.; Tavernier B.; Abou-Khalil D. (ArcelorMittal R&D Automotive Applications, Montataire Cedex, FRA)		Effect of Rapid Heating on Evolution of Microstructures and Coating Layers in Hot Stamping Processes Senuma, T.; Takemoto, Y. (Graduate School for Nature Science, Okayama University, JPN)	
09:50	Tailor Strategies in Press Hardening Fernández, B.; Zarate, J.; García, I. (DieDe Die Development S. L., Derio, ESP); Varela, S. (Tecnalia R&D, Derio, ESP)		Fluidized Bed Heating of Blanks for the Hot Forming Process Marten, T.; Tröster, T. (University of Paderborn, GER); Adelbert, S. (Benteler Automobiltechnik GmbH, Paderborn, GER); Kadim, A. (Schwing Fluid Technik GmbH, Neukirchen-Vluyn, GER)	
10:15	A Thermo-Mechanical-Metallurgical FE Approach for Simulation of Tailored Tempering Ertürk, S.; Sester, M.; Selig, M. (AutoForm Development GmbH, Zurich, SUI); Feuser, P.; Roll, K. (Daimler AG, Sindelfingen, GER)		Induction Heat Treatment for Press Hardening Process Schülbe, H.; Jestremski, M.; Nacke, B. (Institute of Electrotechnology, Leibniz University of Hanover, GER)	
10:40	Refreshment Break			

JUNE 16th



JUNE 17th

JUNE 17th

11:10	Coatings & Corrosion II CHAIRMAN: Kiyoyuki Fukui (Sumitomo Metal Industries, JPN)	A9	Microstructure & Phase Transformation CHAIRMAN: Wico Verloop (TataSteel, NL)	B9
11:10	Trends and Developments in the Usability and Production of Press-Hardened Components with Cathodic Corrosion Protection Kurz, T.; Rosner, M.; Manzenreiter, T. (voestalpine Stahl GmbH, AUT); Hartmann, D.; Sommer, A.; Kelsch, R. (voestalpine Polynorm GmbH & Co.KG, Schwäbisch-Gmünd, GER); Ademaj, A. (METAKUS GmbH, Baunatal, GER)		Metallurgical Behaviour of Uncoated and Galvannealed Boron Steels in Hot Stamping Process Kojima, N.; Nishibata, T.; Imai, K.; Akioka, K.; Hikita, K.; Hayashi, K. (Corporate R&D, Sumitomo Metal Industries, Amagasaki, JPN); Kikuchi, H. (Kashima Steel Works, Sumitomo Metal Industries; Kashima, JPN)	
11:35	Effect of Heating Condition and Hot Forming on Corrosion Resistance of Hot Stamped Aluminized Steels Maki, J.; Kurosaki, M.; Kusumi, K.; Abe, M. (Nippon Steel Corp., Tobata-ku Kitakyusyu, JPN)		Bainitic Transformation under Compressive Stress in Low Alloy 51 CrV 4 Steel Holzweißig, M. J.; Lambers, H.-G.; Maier, H. J. (Department of Material Science, University of Paderborn, GER)	
12:00	Closing Session / Closing Remarks			
12:30	Lunch			
14:00	End of Conference			

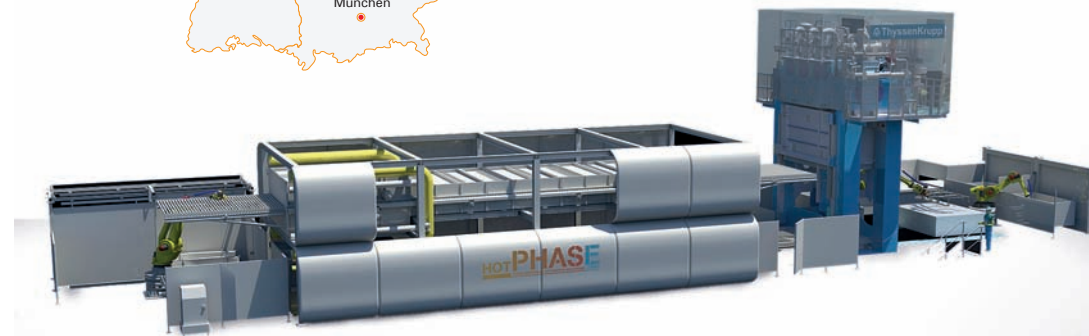
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