ForTech Bulk 2022

Forming Technology Network of Bulk Metal Forming
ForTech *Bulk* 2022

May 18-19, 2022
Institute for Metal Forming Technology
Stuttgart, Germany

Conference Proceedings

University of Stuttgart
Germany

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Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA

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70174 Stuttgart / Germany

Conference Proceedings of selected papers prepared for the

Forming Technology Network Bulk "ForTech Bulk" 2022 is intended to be held on **May 18th -19th, 2022** in Stuttgart-Vaihingen, Germany, on the research campus "ARENA2036".

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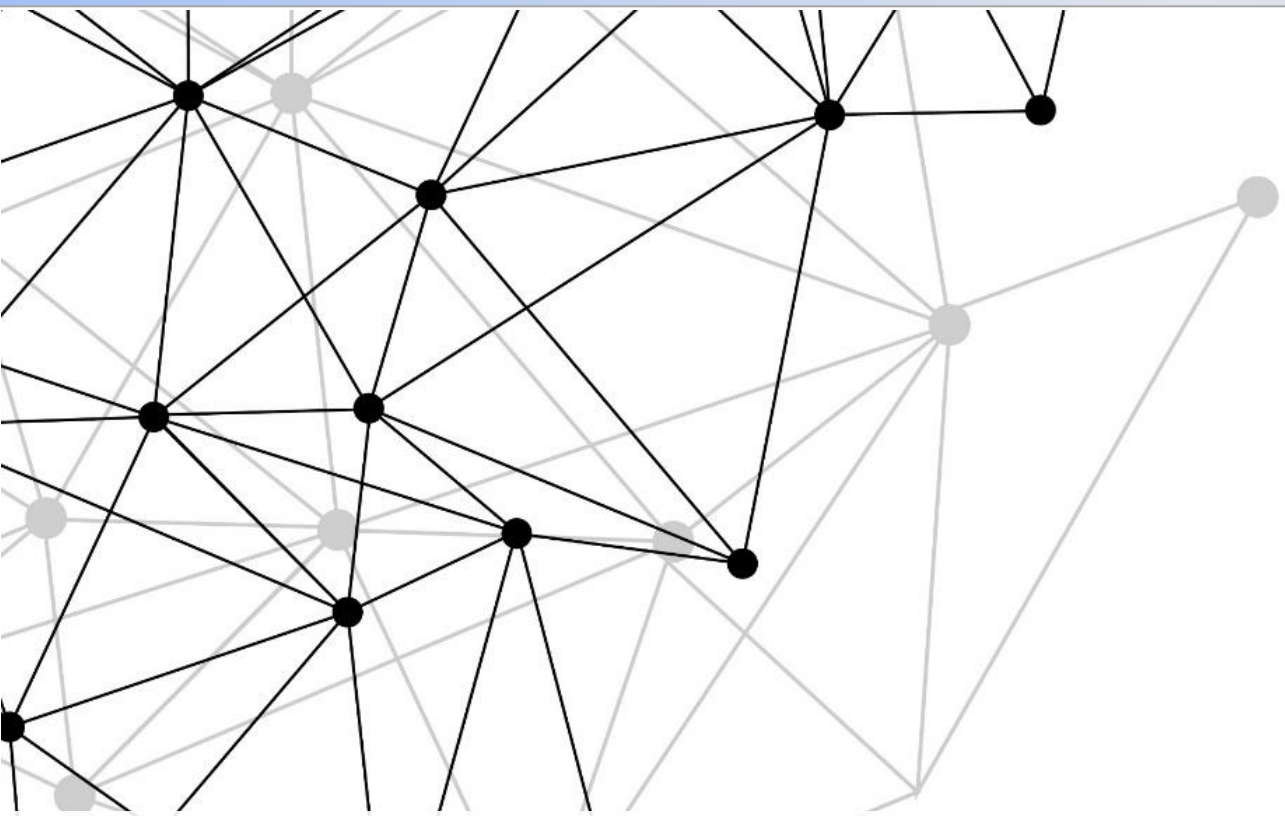
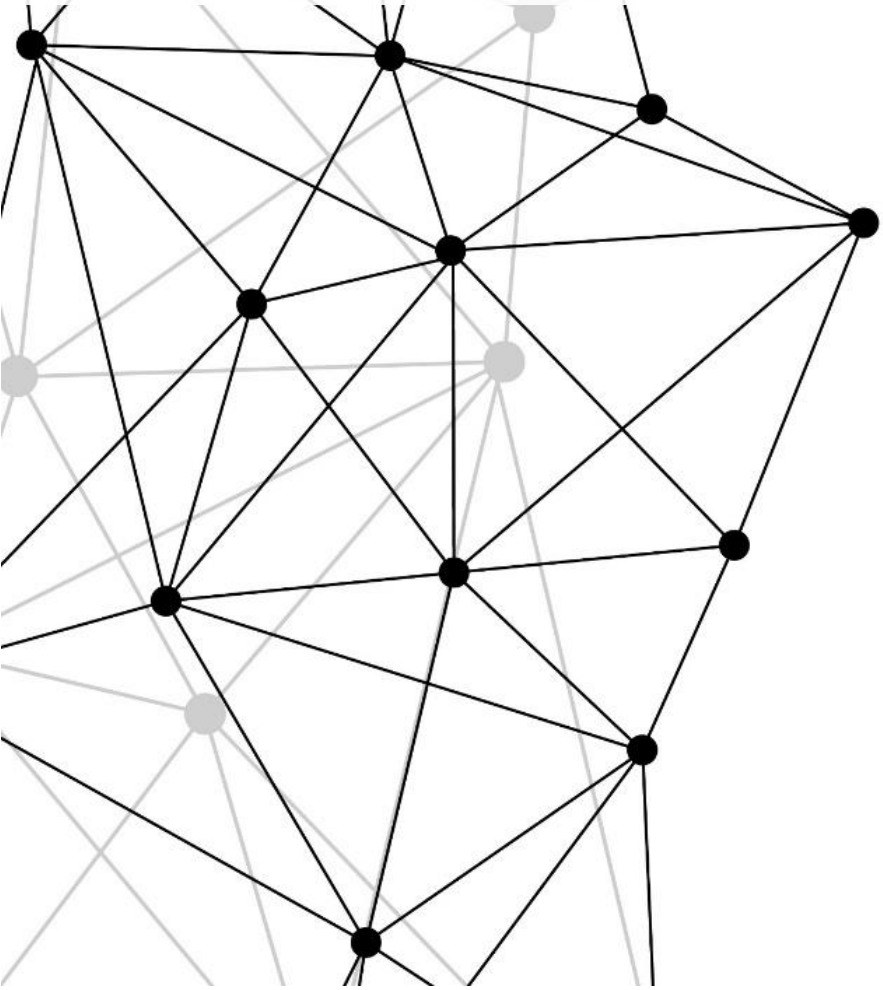


Networking on a new level.



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ForTech Bulk 2022

Forming Technology Network of Bulk Metal Forming

Welcome Message

Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA
Head of Institute
Institute for Metal Forming Technology
University of Stuttgart
Chair of the ForTech Bulk 2022

Dear Colleagues, Dear Members of the Bulk Metal Forming Community, Dear Friends,

I feel deeply honored to invite you to join the International hybrid conference "Forming Technology Network Bulk - ForTech Bulk 2022" being organized on May 18th -19th 2022 in Stuttgart, Germany. The venue is succeeding the very well-known International Conference "NEW DEVELOPMENTS IN FORGING TECHNOLOGY", which in the past was held in a two years period in Fellbach near Stuttgart/ Germany since 1978. The focus of the new ForTech Bulk 2022 conference will be put on personal networking, meeting, discussing and presenting hot topics of today around forgings: Digitization, sustainability and new manufacturing concepts in forging technology. So, we hope that this refreshed series of venues in forging technology will follow the great success of our former conference sequence!

What changed in cold and warm bulk forging during recent years? Sustainability, circular economy, importance of CO_2 emission and digitization in the forging community meanwhile gain similar importance as newest developments in technology regarding materials, newest routes in forging processes, tool and die design etc. For that reason, the new concept of ForTech Bulk 2022 Conference aims on efficient networking and exchange of knowledge between speakers, guests, researchers and shop floor technicians. Today and tomorrow we will have enough time to meet again and to exchange newest findings in the new research campus ARENA2036 of the University of Stuttgart.

The conference promises to become an exciting experience in the mentioned fields and will provide an excellent opportunity to get in touch with bulk metal forming experts from around the world. You are also invited to visit the metal forming lab of the hosting Institute for Metal Forming Technology (IFU) on the Informat Get Together on May 18th. We look forward to welcoming you!

Sincerely,

M. Liewald

Mathias Liewald

Program Schedule

May 18th - May 19th, 2022

ForTech Bulk 2022
Forming Technology Network of Bulk Metal Forming

First Conference Day	
CET	May 18th, 2022
11:00 - 12:50	**Welcome to the ARENA2036** – Check-in at COVID-test center
12:50 - 13:00	**Opening of Conference** by Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA, *Institute for Metal Forming Technology (IFU),* *University of Stuttgart*
Session 1: Strategic Opening Lectures	
13:00 - 13:30	**"Quo vadis Bulk Metal Forming?"** by Hon.-Prof. Dr.-Ing. Ekkehard Körner
13:30 - 14:00	**"German forging industry – economic situation and outlook"** by Dipl.-Kfm. Holger Ade, *Industrieverband Massivumformung e. V.*
14:00 - 14:30	**"Forgings move the World – what moves the Forging World?** by Dr.-Ing. Hans-Willi Raedt, *prosimalys GmbH*
14:30 - 15:00	Coffee break | Exhibition
Session 2: Approaches in Digitization of Forging Processes	
15:00 - 15:25	**"European CO_2-Reduction Strategies for Passenger and Light-Duty Vehicles"** by Univ.-Prof. Dr.-Ing. Michael Bargende, *Institute of Automotive Engineering (IFS),* *University of Stuttgart*

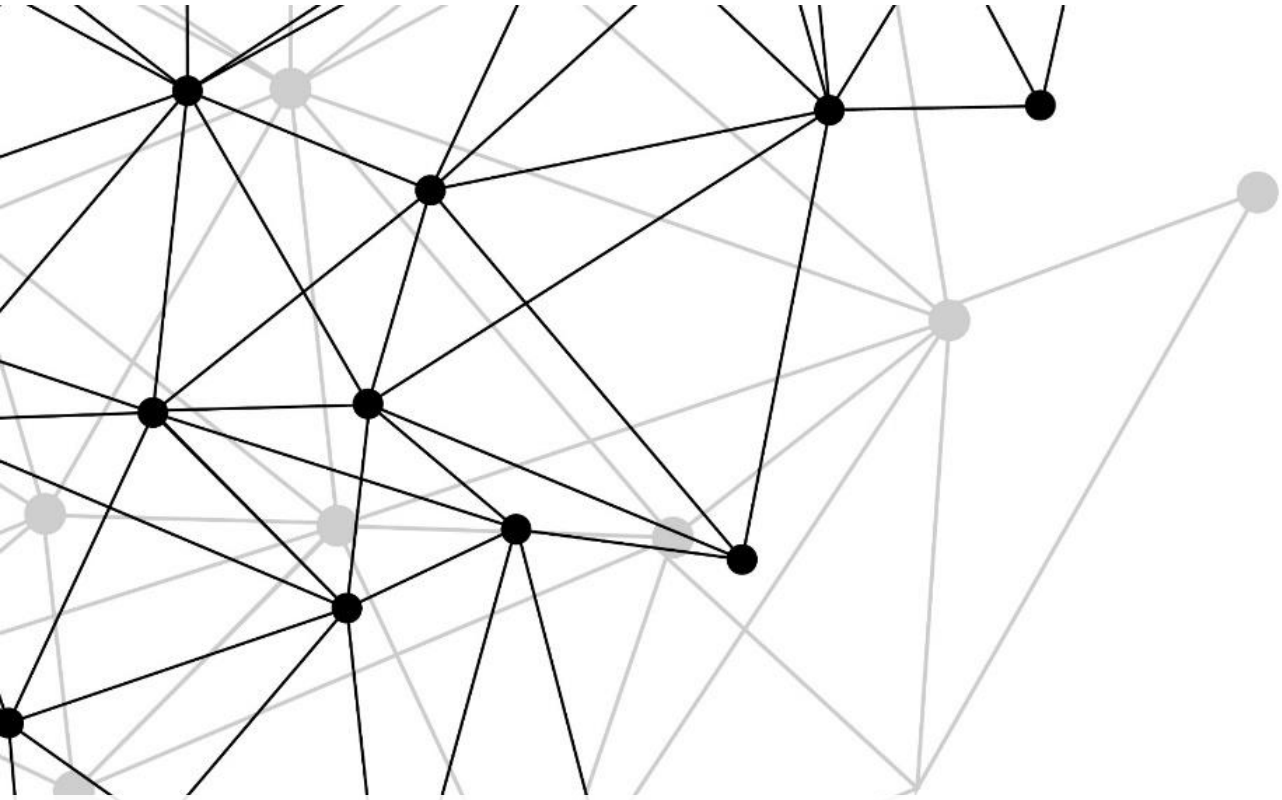
15:25 – 15:50	**"Increasing performance through IoT and AI-based plug & play solutions in metal forming"** **by Valentin Kaltenbach,** *Kaltenbach.Solutions GmbH*
15:50 - 16:15	**"Concept of a digitized start-up phase of a two-stage cold extrusion process"** by Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA, Jonathan Böhm, *Institute for Metal Forming Technology (IFU)*
16:15 - 16:40	**"Machine Learning for Production Processes: Bringing the Technology into Production"** by Univ.-Prof. Dr. Thomas Bäck, *divis intelligent solutions GmbH,* Dr. Ingo Heinle, *BMW AG*
16:40 – 17:05	"**Improve OEE with good technical data – targeted and provable"** by Dr.-Ing. Jörg Stahlmann, *ConSenses GmbH*
17:05 - 17:10	**Conclusion** by Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA, *Institute for Metal Forming Technology (IFU)*
17:10 - 18:00	**Transfer to IFU**
approx. 18:00	**Informal Get Together** at the Institute for Metal Forming Technology (IFU), Holzgartenstraße 17, 70174 Stuttgart

Session 2: Approaches in Digitization of Forging Processes	
Video on demand	**"Industrial Wireless Tracking Tools of Cold Forging Dies for Industry 4.0 Systems: RFID & QR Code Applications"** by Fatih Kocatürk, *Norm Cıvata San. ve Tic. A.Ş.* *İzmir, Turkey*

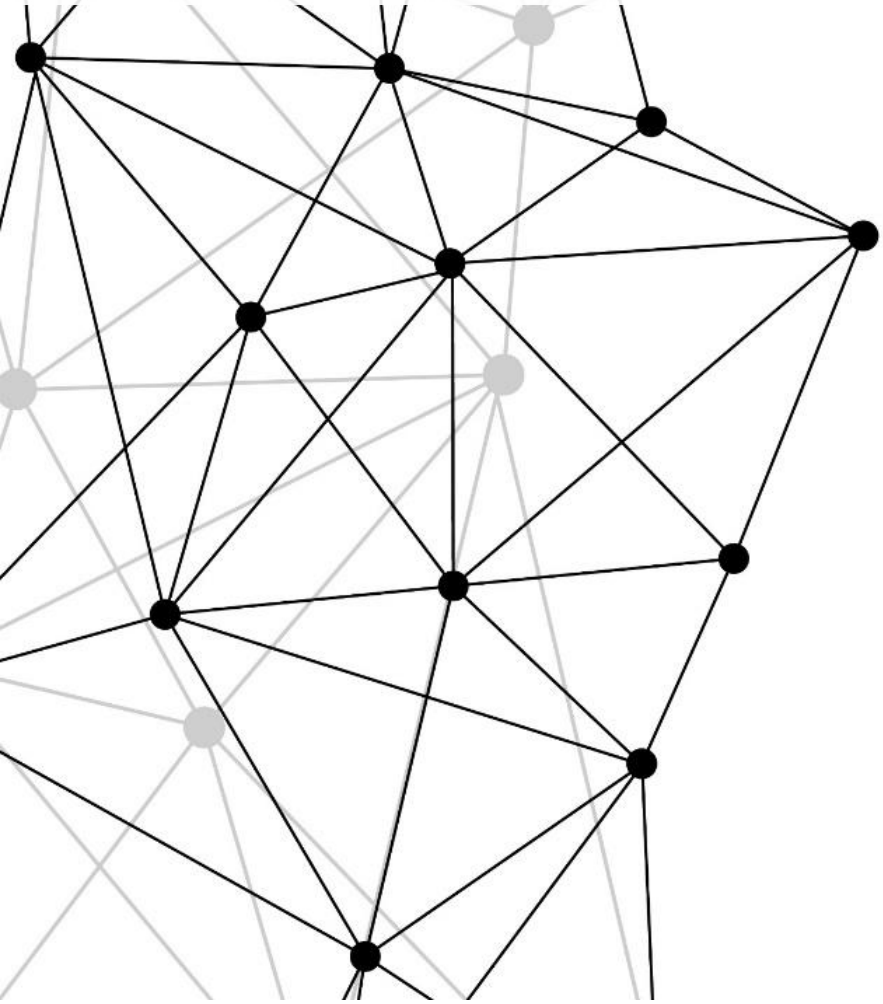
Second Conference Day	
CET	May 19th, 2022
7:00 - 9:00	**Welcome to the ARENA2036** – Check-in at COVID-test center
9:00 - 9:05	**Opening/Welcome** by Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA, *Institute for Metal Forming Technology (IFU),* *University of Stuttgart*
Session 3: Forging Processes and Sustainability	
9:05 - 9:30	**"Integration of optical sensors into load-bearing structures: opportunities and challenges"** by Nassr Al-Baradoni, *Institute for Production Engineering and Forming Machines,* *Technical University of Darmstadt*
9:30 - 9:55	**"Innovative heat treatment utilising heat from hot forming."** by Matthias Schneider, *Musashi Bockenau GmbH und Co. KG*
9:55 - 10:20	**"Prediction of microstructure evolution in hot forging and heat treatment using a mean-field material model"** by Lukas Kertsch, *Fraunhofer Institute for Mechanics of Materials (IWM)*
10:20 - 10:45	Coffee break | Exhibition
10:45 - 11:10	**"Drawing of Splines with superposition of tensile and compressive stress"** by Thomas Stürzl, *Felss Systems GmbH*
11:10 - 11:35	**"Advanced and intelligent forging tool design for increased sustainability in semi-warm and warm bulk forging processes"** by Isaac Valls, *Rovalma S.A.*

11:35 - 12:00	**"Robust design of a multistage process for the production of cold forged net shape parts"** by Dr. Vid Krušič, *formely: Letrika Group*
12:00 - 12:25	**"Forging goes Digital with Schuler"** by Hartmut Kussmaul, *Schuler Group*
12:25 - 13:15	Lunch break | Exhibition
13:15 - 13:40	**Guided tour through the ARENA2036** by Dr. Clemens Ackermann, ARENA2036 e.V.
13:40 - 14:05	**"Approaches to increased flexibility of production systems"** by Sebastian Frank, *LASCO Umformtechnik GmbH*
14:05 - 14:30	**"Advantages of Servo Driven Forming Machines"** by Klaus Schreiner, *Hatebur GmbH*
14:30 - 14:55	**"Virtual Forging Process Design"** by Dr.-Ing. Michael Muckelbauer, *Guris Europe GmbH*; Dr. Nadine Kosseifi, *Transvalor S.A.*
14:55 - 15:20	**"Forging simulation is a building brick of Industry 4.0"** by Dr.-Ing. Hans-Willi Raedt, *prosimalys GmbH*
15:20 - 15:40	Coffee break | Exhibition

Session 4: Young Researcher Contributions	
15:40 - 16:00	**"Representative Volume forecast of forged components needed in Volkswagen Group until 2030"** by Nicolas Rose, Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA *Institute for Metal Forming Technology (IFU),* *University of Stuttgart*
16:00 - 16:20	**"Application of Reinforcement Learning for the optimized design of open-die forging processes"** by Niklas Reinisch, *Institute of Metal Forming (IBF),* *RWTH Aachen*
16:20 - 16:40	**"Efficient component manufacturing by process combination of casting and forging"** by Tim Lehnert, *Fraunhofer Institute for Machine Tools & Forming Technology,* *University of Chemnitz*
16:40 - 17:00	**"Beneficial application of preforming in order to manufacture spur and face gears by means of cold forging"** by André Weiß, *Institute for Metal Forming Technology (IFU),* *University of Stuttgart*
17:00	**Conference Closing** by Univ.-Prof. Dr.-Ing. Dr. h. c. Mathias Liewald MBA, *Institute for Metal Forming Technology (IFU),* *University of Stuttgart*

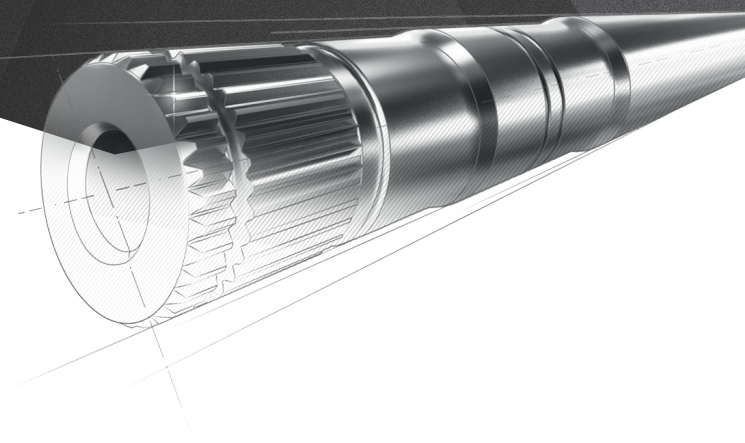


Session 1: Strategic Opening Lectures



FELSS

The smarter way of forming.



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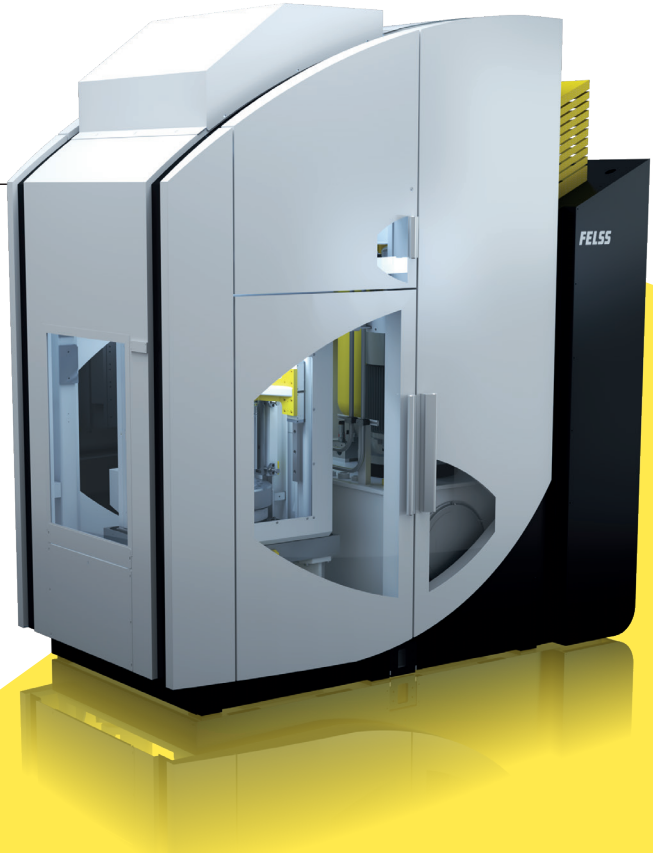
WIR **FORMEN** IHRE LÖSUNG

Leichter, Belastbarer, Schneller, Ressourceneffizienter, Präziser und Maßgeschneidert.

Als Spezialist für Kaltumformung überzeugen wir durch ganzheitliche und maßgeschneiderte Lösungen – von der Prozessentwicklung über den Maschinenbau bis hin zum fertigen Produkt in der Komponentenfertigung. Wir nennen das **Make & Buy**!



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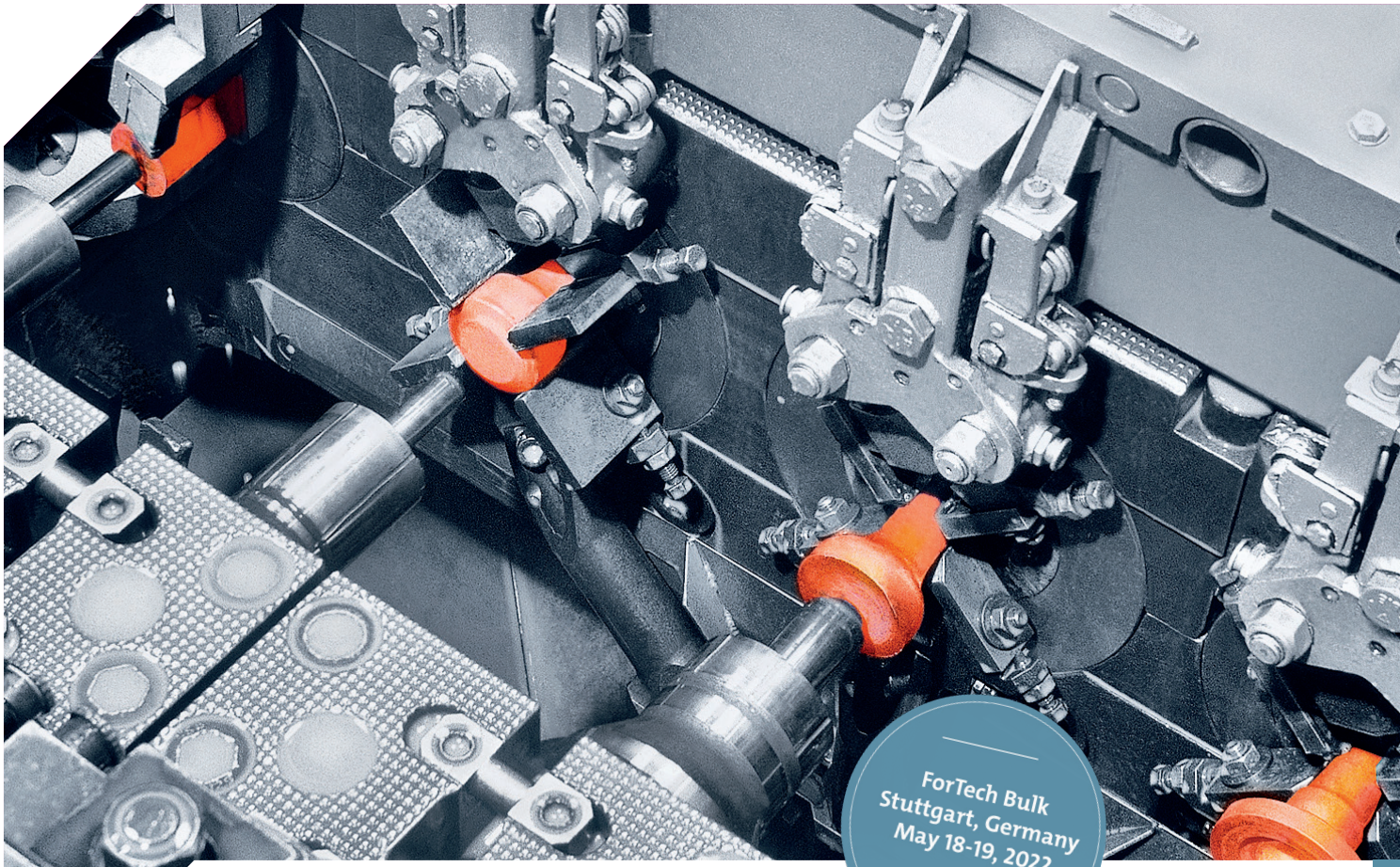
HATEBUR

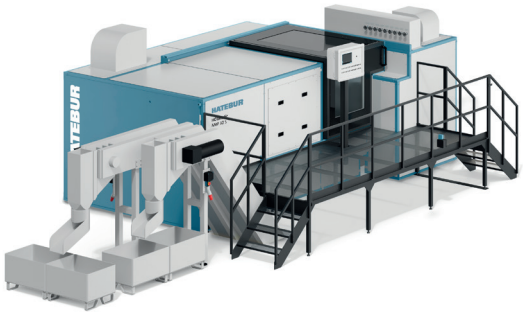


ForTech Bulk
Stuttgart, Germany
May 18-19, 2022

Hatebur HOT*matic* AMP 50-9

Flexible and reliable **for a wide range of parts**

The HOTmatic AMP 50-9 is the ideal hotformer for the cost-efficient production of forgings with a diameter of up to 108 mm, with a production rate of up to 100 parts per minute.



Highlights

Wide range of uses
–
Intuitive operation
–
Tried-and-tested, efficient cooling system for maximum tool service life
–
High availability due to short retooling times
–
High material efficiency thanks to servo-infeed and electronic bar end elimination device (ESA 600)

info@hatebur.com
Please get in touch for any questions you may have.

For technical information or brochures, please send us an e-mail or visit **www.hatebur.com**