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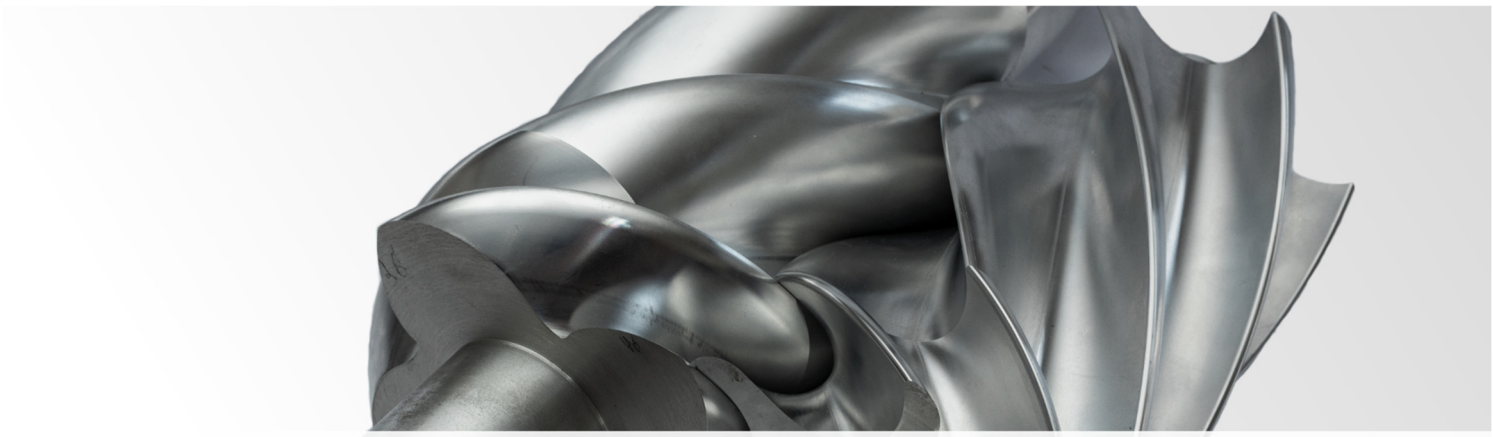

International Conference on SCREW MACHINES 2018

18th - 19th September DORTMUND, GERMANY

The International Conference on Screw Machines 2018 features presentations of research and technical papers on all kind of screw machines. This conference will cover:

- » Design
- » Manufacturing
- » Simulation
- » Operation
- » Energy efficiency
- » Novel applications

Learn about the latest developments and connect with scientists, manufacturers, service providers, and users from the screw machine community.

For registration, further information on the event, and past conference papers please visit:

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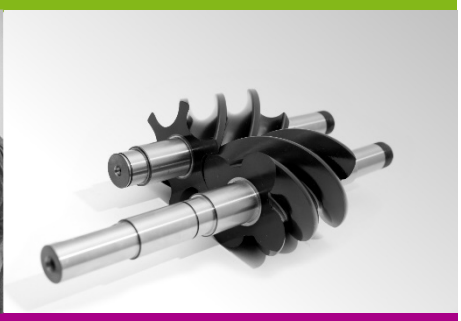

CONFERENCE VENUE

TU Dortmund University
Seminar Building I
Friedrich-Wöhler-Weg 6
44227 Dortmund, Germany

GENERAL CHAIR

Andreas Brümmer
TU Dortmund University
Chair of Fluidics
icsm2018@ft.mb.tu-dortmund.de

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ICSM 2018

TUESDAY 18th September

09:00 CONFERENCE REGISTRATION

OPENING SESSION
Room H.001

10:00 **Welcome address**
G. Sadowski, prorector research; M. Stommel, dean of the Faculty of Mechanical Engineering; A. Brümmer, general conference chair
TU Dortmund University, DE

10:30 **Advances in modelling of screw machines**
A. Kovacevic, Professor in Engineering Design and Compressor Technology
City, University of London, GB

11:15 **Potential European ecodesign regulations for compressors – history, status and outlook**
H.-U. Fleige, head of research & development
Aerzener Maschinenfabrik GmbH, DE

12:00 LUNCH BREAK

MULTIPHASE FLOW I
Room 1.001

13:30 **Numerical analysis of oil injection effects in a single screw expander**
S. Randi[1], A. Suman[1], N. Casari[1], M. Pinelli[1], D. Ziviani[2]
[1] University of Ferrara, IT
[2] Purdue University, US

13:55 **Multiphase-flow simulation of a rotating rectangular profile within a cylinder in terms of hydraulic loss mechanisms**
H. Vasuthevan, A. Brümmer
TU Dortmund University, DE

14:20 **Mathematical modeling of working processes of variable frequency screw compressor with differentiated oil supply into the working chamber**
V. L. Yusha, G. I. Chernov, M. A. Fedorova
Omsk State Technical University, RU

14:45 **Effects of surface condensation in an idealised steam-driven screw expander**
M. Grieb, A. Brümmer
TU Dortmund University, DE

DESIGN & MANUFACTURING I
Room 2.008

13:30 **The workflow of rotor machine development: design phases, steps and tools of the development process**
H. Österman, A. Edrisi, I. Lashgari
Svenska Rotor Maskiner (SRM), SE

13:55 **An analysis of manufacturing factors' influences on the actual screw compressor rotors' profile clearances**
T. Mustafin[1], R. Yakupov[1], M. Khamidullin[1], I. Khisameev[1], V. Alyayev[1], E. Ibragimov[2]
[1] Kazan National Reserch Technological University, RU
[2] V.B. Shneppe NIIturbokompressor, HMS GROUP, RU

14:20 **An innovative rotor milling method for flexible multi-functional machines**
A. Bergström
Svenska Rotor Maskiner (SRM), SE

15:10 COFFEE BREAK

MULTIPHASE FLOW II
Room 1.001

15:45 **Impact of different clearance heights on the operation of a water-flooded twin-screw expander – experimental investigations based on indicator diagrams**
A. Nikolov, A. Brümmer
TU Dortmund University, DE

16:10 **Effect of oil-injection on twin screw compressor performance**
N. Basha, A. Kovacevic, N. Stosic, I. Smith
City, University of London, GB

16:35 **Thermal expansion in liquid-injected screw compressors**
U. Dämgen[1], P. Hadamitzky[2], J. Dohmann[3]
[1] Boge Kompressoren, DE
[2] TU Braunschweig, DE
[3] Ostwestfalen-Lippe-University-of-Applied-Sciences, DE

DESIGN & MANUFACTURING II
Room 2.008

15:45 **Novel approach to single-screw compressors and expanders design**
D. Ziviani[1], P. J. Goeghegan[2], E. A. Groll[1]
[1] Purdue University, US
[2] Oak Ridge National Laboratory, US

16:10 **The influence of profile geometric parameters on characteristics of rotor-gearing compressor**
A. Kotlov[1], I. Maksimenko[1], Y. Kuznetsov[2]
[1] Peter the Great St.Petersburg Polytechnic University, RU
[2] JSC Compressor, RU

16:35 **Mini screw: the development of high-CFM compact compressor for LGWP A1 low pressure refrigerant**
M. Akei, V. Sishtla, S. MacBain
UTC CCS, Carrier Corporation, US

18:15 CONFERENCE DINNER – sponsored by PTG Holroyd Machine Tools & Components
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WEDNESDAY 19th September

CONTACT & LOSS MECHANISMS — Room 1.001

08:30 Influence of suction port parameters on integral characteristics of screw-type compressor
A. Kotlov
Peter the Great St.Petersburg Polytechnic University, RU

08:55 Identification and analysis of screw compressor mechanical losses
S. Abdan[1 2], N. Stosic[1], A. Kovacevic[1], I. Smith[1], P. Deore[2]
[1] City, University of London, GB
[2] Kirloskar Pneumatic Company Ltd, IN

09:20 Raman scattering study of micrometer-sized spots of magnetite and hematite formed at 18CrNiMo7-6 screw rotor surfaces due to liquid-free, unsynchronized operation
H. Moldenhauer, M. Bayer, J. Debus, A. Nikolov, A. Brümmer
TU Dortmund University, DE

SIMULATION & EXPERIMENT I — Room 2.008

08:30 Full 3D numerical analysis of a twin screw compressor by employing open-source software
N. Casari[1], M. Pinelli[1], A. Suman[1], A. Kovacevic[2], S. Rane[2], D. Ziviani[3]
[1] University of Ferrara, IT
[2] City, University of London, GB
[3] Purdue University, US

08:55 CFD simulation of a two stage twin screw compressor including leakage flows and comparison with experimental data
R. Andres[1], J. Hesse[1], F. Hetze[1]; D. Low[2]
[1] CFX Berlin Software GmbH, DE
[2] Sullair, a Hitachi Group Company, US

09:20 Modeling a dry running twin-screw expander using a coupled thermal-fluid solver with automatic mesh generation
D. H. Rowinski[1], A. Nikolov[2], A. Brümmer[2]
[1] Convergent Science, Inc., US
[2] TU Dortmund University, DE

09:45 COFFEE BREAK

SYSTEM & MACHINE DESIGN — Room 1.001

10:15 A similarity based efficiency model of spindle screw pumps
C. Schänzle, T. Corneli, P. F. Pelz
TU Darmstadt, DE

10:40 Model tests on the control behaviour of a test air supply system in open or closed-loop operation
L. de Buhr[1 2], H.-U. Fleige[1], J. Seume[2]
[1] Aerzener Maschinenfabrik GmbH, DE
[2] Leibniz Universität Hannover, DE

11:05 A model for the transient pulsation generation at the discharge of a screw compressor by a shock tube analogy
P. X. Huang
Hi-Bar MC Tech LLC, US

SIMULATION & EXPERIMENT II — Room 2.008

10:15 Numerical study on screw machines with large helix angles
Y. Lu, A. Kovacevic, M. Read
City, University of London, GB

10:40 Transient flow analysis of a roots blower: numerical and experimental studies
S. Sun[1 2], A. Kovacevic[2], C. Bruecker[2], A. Leto[2 3], G. Singh[2], M. Ghavami[2]
[1] Xi'an University of Technology, CN
[2] City, University of London, GB
[3] Džemal Bijedić University of Mostar, BA

11:05 Comparison of thermodynamic efficiency between constant, dual and multiple lead rotors for an industrial air screw compressor
M. Utri[1], A. Brümmer[1], J. Hauser[2]
[1] TU Dortmund University, DE
[2] Compression Technologies and Services, Ingersoll Rand, DE

11:30 LUNCH BREAK & LABORATORY TOURS

VACUUM — Room 1.001

14:00 Analytical and numerical prediction of the flow and performance in a claw vacuum pump
J. F. Willie
Gardner Denver Schopfheim GmbH, DE

14:25 Limits of one dimensional modeling of rarefied Couette Poiseuille clearance flow in vacuum pumps
C. Huck, A. Brümmer
TU Dortmund University, DE

14:50 Optimisation of screw spindle vacuum pumps with variable rotor pitch regarding load-lock operation
T. Jünemann, A. Brümmer
TU Dortmund University, DE

15:15 Study on the performance prediction of dry twin screw vacuum pump
J. Tuo, B. Guo, R. Wu, X. Chen
Xi'an Jiaotong University, CN

SIMULATION (EU MOTOR Project) — Room 2.008

14:00 Spline-based parameterization techniques for twin-screw machine geometries
J. P. Hinz, M. Möller, C. Vuik
Delft University of Technology, NL

14:25 Isogeometric simulation of thermal expansion for twin screw compressors
A. Shamanskiy, B. Simeon
TU Kaiserslautern, DE

14:50 Isogeometric analysis framework for the numerical simulation of rotary screw machines. I. General concept and early applications
M. Möller, J. Hinz
Delft University of Technology, NL

15:15 Fluid flow through housing clearances of dry running screw machines using dimensionless numbers
M. Utri, S. Höckenkamp, A. Brümmer
TU Dortmund University, DE

CLOSING SESSION — ROOM H.001

15:45 Closing remarks
A. Brümmer, general conference chair
TU Dortmund University, DE

16:00 End of the conference

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REGISTRATION & FEES

Visit the conference web page **www.icsm.tu-dortmund.de** and register via **ConfTool** for the International Conference on Screw Machines 2018 in Dortmund. If you have any questions regarding the registration process, please do not hesitate to contact us.

The conference fee including all events is **650 €** (VAT not included).

CONTACT

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