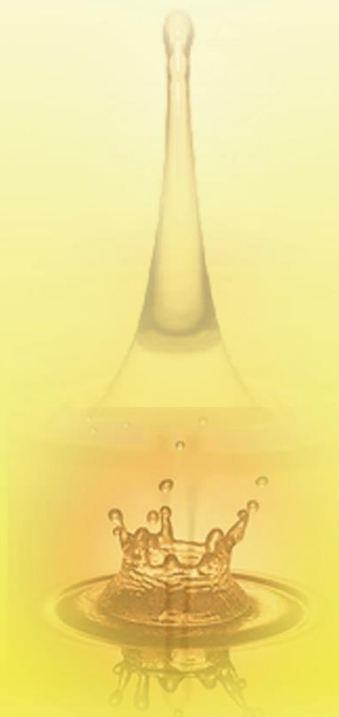


International Conference

FT 2019

Fluid Power 2019



Conference Programme

CONGRESS CENTRE HABAKUK

SLOVENIA - MARIBOR, 19. - 20. SEPTEMBER 2019

International conference Fluidna tehnika / Fluid Power 2019

The International Conference Fluidna tehnika / Fluid Power is a two day event, intended for all those professionally-involved with hydraulic or pneumatic power devices and for all those, wishing to be informed about the 'state of the art', new discoveries and innovations within the field of hydraulics and pneumatics.

The gathering of experts at this conference in Maribor has been a tradition since 1995, and is organised by the Faculty of Mechanical Engineering at the University of Maribor, in Slovenia. Fluid power conferences are organised every second year and cover those principal technical events within the field of fluid power technologies in Slovenia, and throughout this region of Europe. This year's conference is taking place on the 19th and 20th September in Maribor.

We wish all participants at the International conference Fluidna tehnika / Fluid Power 2019 continued successful professional work, and hope that we have yet again added another small piece within the mosaic of fluid power.

Organizing committee



Thursday, 19th September 2019 - Hall Mlinařik

- 08:00 *Arrival and Registration*
- 09:00 *Opening ceremony*
- 09:30 **OPENING SESSION - Invited lectures**
- 11:00 *Coffee break*
- 11:45 **Session I**
- 13:30 – 15:00 *Main break - Lunch*
- 15:00 **Session II**
- 16:15 *Coffee break*
- 16:45 **Round table – discussion**
- 08:00 – 18:00 **Poster session, Exhibition**
- 18:00 **Social evening – Embraced by Fluid Power**

Friday, 20th September 2019 - Hall Mlinařik

- 08:00 *Registration, information*
- 09:00 **Session III**
- 10:30 *Coffee break*
- 11:00 **Session IV**
- 12:30 *Coffee break*
- 13:00 **Session V**
- 14:00 **Fluid Power Golden diploma award
Summary, Prize draw, Conclusion**
- 08:00 – 15:00 **Poster session, Exhibition**

all papers will be presented and printed in English language



Opening Session – Invited Lectures

Thursday, 19.9.2019 | 9:30 – 11:15 | Hall Mlinařik

Fluid Power Innovations – On track for Future Challenges

O. Reinertz, K. Schmitz

IFAS, RWTH Aachen, Aachen, Germany

Programmable Mechatronic Pneumatics and Robotics with the Festo Motion Terminal

D. Rager, M. Doll, R. Neumann, E. Knubben

FESTO AG & Co KG, Esslingen, Germany

CETOP - The voice of the European Fluid Power Industry

C. Vergano

CETOP- European Fluid Power Committee, Frankfurt am Main, Germany



Session I:
Fluid Power Components & Design
Thursday, 19.9.2019 | 11:45 – 13:30 | Hall Mlinařik

Modelling, optimal design and simulation of hydraulic oil reservoir

A. Osmanović, A. Efendić, E. Trakić
University of Tuzla, Tuzla, Bosnia and Herzegovina

Evaluation of flow-induced forces in hydraulic valves

A. Čelik, B. Bobnar, F. Majdič**
Poclain Hydraulics d.o.o., Žiri, Slovenia
**University of Ljubljana, Ljubljana, Slovenia*

Hydraulics for smart grapple

M. Luheni, R. Voje, F. Majdič*
University of Ljubljana, Ljubljana, Slovenia
**Modularis TEH d.o.o., Litija, Slovenia*

Advanced spool materials for friction reduction in pneumatic valves

M. Šimic, N. Heraković
University of Ljubljana, Ljubljana, Slovenia

Influences on efficiency of water hydraulic motor

F. Majdič
University of Ljubljana, Ljubljana, Slovenia

Mean time to failure of hydraulic valve

N. Novak, A. Čelik, M. Žust*, F. Majdič*
University of Ljubljana, Ljubljana, Slovenia
**Poclain Hydraulics, d.o.o., Žiri, Slovenia*

Sponsor presentation: EXOR-ETI – software



Session II: Test Procedures and Test Beds

Thursday, 19.9.2019 | 15:00 – 16:15 | Hall Mlinařik

An endurance test scenario for hydraulic blocks in respect of new materials, production methods and constructions

*J. Edler, S. Hoerhan, V. Tič**

Graz University of Technology, Graz, Austria

**University of Maribor, Maribor, Slovenia*

Data acquisition and management of hydraulic components durability test device

*A. Čakš, V. Tič**

INEL – Industrijska elektronika d.o.o., Celje, Slovenia

**University of Maribor, Maribor, Slovenia*

Seal material compatibility test procedure

*R. Kalb, D. Lovrec**

ProLonic GmbH, Raaba-Grambach, Austria

**University of Maribor, Maribor, Slovenia*

Test device and automated test procedures for measuring valve characteristics

V. Tič, D. Lovrec

University of Maribor, Maribor, Slovenia

Significance of proportional valve steady-state characteristics

D. Lovrec

University of Maribor, Maribor, Slovenia

Round Table – Discussion

Thursday, 19.9.2019 | 17:00 | Hall Mlinařik

Importance and role of professional associations - CETOP, FTS, SDFT, FEANI



Session III:
Control and Monitoring Concepts

Friday, 20.9.2019 | 09:00 – 10:30 | Hall Mlinařik

Control of linear servo hydraulic high-cycle fatigue testing device

I. F. Zuřiga Tello, V. Tič, N. Gubelj**

Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico

**University of Maribor, Maribor, Slovenia*

Position controller for direct driven electro-hydraulic system

J. Benić, Ž. Šitum

Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia

Comparison of different servo-hydraulic force control concepts

L. Jerebic, M. Kastrevc, V. Tič

HAWE Hidravlika d.o.o., Štore, Slovenia

**University of Maribor, Maribor, Slovenia*

Nonlinear mathematical modelling of electrohydraulic servo systems

M. Kastrevc, E. Detiček

University of Maribor, Maribor, Slovenia

Nonlinear velocity control of electrohydraulic servo systems

E. Detiček, M. Kastrevc

University of Maribor, Maribor, Slovenia



Session IV:
Applications and Concepts

Friday, 20.9.2019 | 11:00 – 12:30 | Hall Mlinařik

Hydraulic Power Drives for Shredders

A. Novak, A. Žakelj

Poclain Hydraulics d.o.o., Žiri, Slovenia

Adaptive hydrostatic drive for airport passenger's stairs

*V. Knab, M. Šteger**

Poclain Hydraulics S.E.E., France

**Poclain Hydraulics d.o.o., Žiri, Slovenia*

**AddiDrive Technology – Hydraulic Drive System
for Optimum Mobility of Trucks in Harsh Environment**

P. Ipsa

Poclain Hydraulics Industrie, Verberie, France

**Flow Optimization of a Hydraulic Fast Change Coupling System
for Mobile Excavators**

*J. Edler, M. Haas, F. Wagner**

Graz University of Technology, Graz, Austria

**Winkelbauer GmbH, Anger, Austria*

**Comparison of the Quality of Synchronous Motion of Radial Gates
for Different Configurations of Electric-Hydraulic Drives**

D. Nauparac, N. Višnjić, N. Cero

PPT Inženjering, Belgrade, Serbia

Mechatronic systems with pneumatic drive

Ž. Šitum, J. Benić, Š. Grbić, F. Vlahović, D. Jelenić, T. Kosor

Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia



Session V:
Maintenance and Monitoring of Fluid Power Systems

Friday, 20.9.2019 | 13:00 – 14:00 | Hall Mlinařik

Construction kit for safety related functions in mobile machines

M. Knobloch

HAWE Hydraulik SE, Muenchen, Germany

**Comparison of mobile machine oil diagnostics results
by standard and OTC – Kittiwake correlation method**

M. Jovanović, V. Karanović, M. Orošnjak, N. Nikolić, D. Selinić

University of Novi Sad, Novi Sad, Serbia

**OLMA Lubricants d.o.o., Novi Beograd, Serbia*

Eliminating oil mist from the air

N. Petrović

HYDAC Hidraulik GmbH, Niš, Serbia

Leakage minimization in a fuel company

S. Babić, U. Oven

TU-Val d.o.o., Ljubljana, Slovenia

Fluid Power Golden diploma award

Friday, 20.9.2019 | 14:00 | Hall Mlinařik

Summary, Prize draw, Conclusion



General sponsor:

FESTO

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Social Evening: Embraced by Fluid Power

Social evening, organized at the end of the first day of the conference, is a great opportunity to relax at the end of the day, and to chat with others in a relaxed atmosphere, make new contacts and acquaintances, or exchanged some point of views.

This year's social evening will be held in the velvet Maribor Underground. We will enter the magical world of the Vinag Wine cellar and discover almost two centuries of winemaking and wine-making traditions beneath the streets of Maribor. Amazing wine cellar is one of the largest and oldest classic wine cellars in Europe – it boasts an area of 15,000 m² and 2,2 kilometre long underground tunnels.



While tasting of “delicious fluids” and serving local dishes we will be entertained by the internationally renowned Academic folk group KUD Student.

The sponsor of social evening is **HAWE Hidravlika d.o.o., Slovenia.**

Location:

Congress centre Habakuk *****

Pohorska ulica 59

SI-2000 Maribor

Tel: +386 23 00 81 00

Fax: +386 23 00 81 28

E-mail: habakuk@termemb.si

<http://www.termemb.si/si/hoteli/hotel-habakuk>



Organiser:



Laboratory for
Oil Hydraulics

e-mail: laoh@um.si

tel.: +386 22 20 7611

fax: +386 22 20 7996

prof. dr. Darko Lovrec
e-mail: darko.lovrec@um.si



<http://ft.fs.um.si/>