



3nd EFRC - Conference

***Reliability and
economics of compression systems
– recent trends in the market of
reciprocating compressors***

March 27th - 28th, 2003

**Vienna Marriott Hotel
Vienna, Austria**

***Registration form and
conference programme***



Conference goals

Exchange of experience and information

Engineers of manufacturers and users of reciprocating compressors as well as scientists engaged in research shall be given the opportunity to report on their experience with such machines and to request the solution of problems of the industry concerned.

Improve the image of reciprocating compressors

It shall be shown that reciprocating compressors meet all the requirements for modern machines and even offer expanded possibilities. Related Research & Development projects shall be presented, proposals for pre-competitive research can be made.

Conference focus

As implied by the general topic the focus of the 3rd EFRC conference concentrates on the fields of:

- Fundamentals
- Selection and Sizing
- Innovation and Technology
- Operation and Maintenance

Promotion

During the conference companies and institutions may present themselves and their products at the **exhibition**. For this purpose there will be exhibition space (2x3 m) to rent in the exhibition hall or foyer of the Vienna Marriott hotel. Additionally there will be the opportunity to place one- or half-page paid **advertisements** in the conference binder.



European Forum for Reciprocating Compressors

The European Forum for Reciprocating Compressors is an association with its seat in Dresden, Germany. The members are:

- BASF, Germany
- Burckhardt Compression, Switzerland
- HGC Hamburg Gas Consult, Germany
- Hoerbiger Kompressortechnik Services GmbH, Austria
- Leobersdorfer Maschinenfabrik, Austria
- MAN Turbomaschinen, Germany
- Mehrer, Germany
- Neuman & Esser, Germany
- Prognost Systems, Germany
- Thomassen Compression Systems, The Netherlands
- Technical University of Dresden, Germany
- TNO TPD Institute for Applied Physics, The Netherlands
- Zwickauer Maschinenfabrik, Germany

People or companies interested are invited to become members of the association. For details please visit the EFRC website: www.recip.org

BASF



Burckhardt Compression

HOERBIGER

HGC HAMBURG
GAS
CONSULT



MAN
TURBO

Mehrer
KOMPRESSOREN



PROGNOST
DIAGNOSTIC SYSTEMS



THOMASSEN
COMPRESSION
SYSTEMS



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Thursday, March 27th, 2003

REGISTRATION

8:30 h – 10.00 (Foyer)

Room A + B

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|---|---|
| 10.00 – 10.05 | Plenum (Room A-D): Welcome address by the chairman of the EFRC, Prof. Gotthard Will |
| 10.05 – 10.30 | Plenum (Room A-D): Keynote speech |
| 10.30 – 11.15 | Coffee break & exhibition |
| Session 1: FUNDAMENTALS | |
| Chairman: Gotthard Will / TU Dresden | |
| 11.15 – 11.45 | V. Kacani / Leobersdorfer Maschinenfabrik: Simulation of leakage on piston rings of reciprocating compressors |
| 11.50 – 12.20 | <u>N. Feistel</u> / Burckhardt Compression; G. Vetter / University of Erlangen: Investigation of the operational behaviour of dry-running piston-rod sealing systems in crosshead compressors |
| 12.20 – 13.50 | Lunch break with buffet lunch |
| SESSION 3: FUNDAMENTALS | |
| Chairman: M.C.A.M. Peters / TNO TPD | |
| 13.50 – 14.20 | B. Howes et al. / Beta Machinery Analysis: API 618 forced response studies |
| 14.25 – 14.55 | <u>A. Eijk</u> / TNO TPD; G. Samland / Burckhardt Compression: A comparison of measured and calculated modal analysis results |
| 14.55 – 15.40 | Coffee break & exhibition |
| SESSION 5: FUNDAMENTALS | |
| Chairman: M.C.A.M. Peters / TNO TPD | |
| 15.40 – 16.10 | A.J. Smalley et al. / Southwest Research Institute: Dynamic characteristics of large high-speed reciprocating compressor systems |
| 16.15 – 16.45 | A. Thönnissen / VSP: Multidimensional simulation of pulsations with a new adaptive cartesian flow solver |
| 16.50 – 17.20 | A. Brighenti, A. Pavan / SATE; M. Maffei, SIAD: Investigation on the influence of pressure pulsations on multistage reciprocating compressors - comparison between test and simulation results |
| 17.20 – 17.30 | Closing remarks by session chairman |
| 17.30 – 18.30 | Exhibition |
| from 18.30 | Dinner at "Heuriger" |

Thursday, March 27th, 2003

REGISTRATION

8:30 h – 10.00 (Foyer)

Room C + D

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|---------------|-------------------------------|
| 10.00 – 10.05 | Welcome address: see room A+B |
| 10.05 – 10.30 | Keynote speech: see room A+B |
| 10.30 – 11.15 | Coffee break & exhibition |

SESSION 2: SELECTION AND SIZING

Chairman: Hans Elferink / Thomassen Compression Systems

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|---------------|--|
| 11.15 – 11.45 | <u>A. Pyle</u> / Shell; <u>A. Eijk</u> / TNO TPD; <u>H. Elferink</u> / Thomassen Compression Systems: 5th edition of the API standard 618 |
| 11.50 – 12.20 | <u>G. Kopscick</u> / Ariel: Comparison of moderate and slow-speed API-618 reciprocating compressor design for downstream applications |
| 12.20 – 13.50 | Lunch break with buffet lunch |

SESSION 4: SELECTION AND SIZING

Chairman: Klaus Hoff / Neuman & Esser

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|---------------|---|
| 13.50 – 14.20 | <u>S. Cierniak</u> / HGC; <u>H. Funke</u> , <u>D. Wendt</u> / Alstom Power Conversion: Optimizing the drive system for a variable speed electric motor driven reciprocating compressor |
| 14.25 – 14.55 | <u>H.S. Gujral</u> / PCA; <u>S. Cierniak</u> / HGC: Economising the engineering costs of packaging reciprocating compressors to diverse customer specifications: some methods and strategies |
| 14.55 – 15.40 | Coffee break & exhibition |

SESSION 6: SELECTION AND SIZING

Chairman: Gerhard Vetter / University of Erlangen

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|---------------|---|
| 15:40 – 16.10 | <u>N. Feistel</u> / Burckhardt Compression: Influence of piston-ring design on the capacity of a dry-running hydrogen compressor |
| 16.15 – 16.45 | <u>K. Hoff</u> / Neuman & Esser; <u>J. Greven</u> : Reliable high-pressure CO ₂ compression by careful compressor design |
| 16.50 – 17.20 | <u>W. Wirz</u> / Dresser Rand: High-speed separable compressors – an alternative for slow speed integral-engine compressors for natural gas transmission and gas storage |
| 17.20 – 17.30 | Closing remarks by session chairman |

| | |
|---------------|----------------------|
| 17.30 – 18.30 | Exhibition |
| from 18.30 | Dinner at "Heuriger" |

Friday, March 28th 2003

REGISTRATION

8:00 h – 9.00 (Foyer)

Room A + B

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| 09.00 – 09.20 | P. Steinrück: Joint research at the EFRC |
| 09.25 – 09.45 | S. Cierniak: Educating reciprocating compressor engineers at the EFRC |
| 09.45 – 10.30 | Coffee break & exhibition |
| SESSION 7: INNOVATION AND TECHNOLOGY Chairman: Anthony Smalley / Southwest Research Institute | |
| 10.30 – 11.00 | <u>M. Hastings</u> / Brüel&Kjaer; J. Schrijver / Thomassen: Special rod-drop monitoring technique developed in close cooperation between the machine manufacturer, instrument supplier and end-user |
| 11.05 – 11.35 | L. van Loon / Alloy Carbide: Carbide coatings - use on reciprocating compressor piston rods and hyper compressor plungers |
| 11.40 – 12.10 | <u>B. Spiegl</u> et al. / Hoerbiger Ventilwerke: System for the direct measurement of rider band wear for reciprocating compressors |
| 12.10 – 13.40 | Lunch break with buffet lunch |
| SESSION 9: FUNDAMENTALS Chairman: Peter Steinrück / Hoerbiger | |
| 13.40 – 14.10 | <u>G. Flade</u> , G. Will / TU Dresden: Simulation of the instationary flow in ring valves |
| 14.20 – 14.50 | G. Samland / Burckhardt Compression: Thermal and structural analysis of a reciprocating compressor cylinder |
| 14.50 | Closing remarks by session chairman |
| 15.00 | End of conference and exhibition |

Friday, March 28th 2003

REGISTRATION 8:00 h – 9.00 (Foyer)

Room C + D

| | |
|---------------|---------------------------|
| 09.00 – 09.20 | Plenum: see room A+B |
| 09.25 – 09.45 | Plenum: see room A+B |
| 09.45 – 10.30 | Coffee break & exhibition |

SESSION 8: OPERATION AND MAINTENANCE Chairman: Georg Samland / Burckhardt Compression

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| 10.30 – 11.00 | <u>J. Lenz</u> , A. Brümmer / Kötter Consulting Engineers: Investigation of vibration problems at a 7 MW recip |
| 11.05 – 11.35 | H. Stehr et alt. / Hoerbiger KT Asia: Process know-how and the effects on product design and engineering |
| 11.40 – 12.10 | <u>M. Comyn</u> et alt./ Exxon Mobil; F. Boer/ Thomassen: Reliability experienced with offshore re-injection compressors |
| 12.10 – 13.40 | Lunch break with buffet lunch |

SESSION 10: OPERATION AND MAINTENANCE Chairman: Leonhard Keller/ Burckhardt Compression

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|---------------|---|
| 13.40 – 14.10 | <u>A. Rumpold</u> , K. Stachel / Hoerbiger Ventilwerke: New technologies pave the way for on-line CCM systems for reciprocating compressors |
| 14.20 – 14.50 | E. Drewes / Prognost Diagnostic Systems: Improved high-speed safety protection |
| 14.50 | Closing remarks by session chairman |
| 15.00 | End of conference and exhibition |

Conference languages: English and German

Lectures will be given in either of the two languages, simultaneous translation into the other language will be provided. The conference binder is published in English only!

Authors, lecturers and session chairmen

(in alphabetical order):

Artner, Dietmar, Dipl.-Ing. – Hoerbiger Ventilwerke GmbH, Vienna, Austria
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Wilken, Gerdt – Exxon Mobil Corp., London, United Kingdom
Will, Gotthard, Prof. Dr. - Technical University of Dresden, Germany
Wirz, William C. – Dresser-Rand Company, Painted Post, New York, USA

Fees:

Conference: € 800,- incl. VAT

The conference fee includes conference proceedings, 2 buffet lunches, all conference beverages and the conference dinner on March 27th, 2003.

Hotel accomodation: € 175,-/night incl. VAT

Includes accommodation in Vienna Marriott Hotel in single or double room within the limited amount of rooms, incl. breakfast buffet.

Accompanying person: € 95,- each incl. VAT

For private persons, double room only, no conference participation, including breakfast buffet and dinner on March 27th, 2003.

Promotion:

Exhibition: € 1.250,- incl. VAT

This arrangement includes the conference fee for **1 person** (incl. conference proceedings, 2 buffet lunches, all conference beverages and the dinner on March 27th, 2003) **AND** the exhibition space of 2x3 m (without booth equipment).

Advertisement in the conference binder:

The advertising rates are:

| | |
|--------------|---------------------|
| ½ page b/w | € 800,- incl. VAT |
| 1/1 page b/w | € 1.000,- incl. VAT |
| ½ page 4C | € 1.000,- incl. VAT |
| 1/1 page 4C | € 1.500,- incl. VAT |

If you are interested in one of these promotion offers we are happy to send you more information. Please contact the Conference Secretary:

Johannes Wunderlich c/o
HOERBIGER Ventilwerke GmbH
Phone: +43 1 74004 – 151
Fax: +43 1 74 98 285
email: wu@hkts.hoerbiger.com
Internet: www.recip.org

Payment:

Upon receipt of your registration the invoice (confirmation) will be sent by NÖL – Niederösterreichisches Landesreisebüro. We kindly ask you to effect payment immediately after receipt of the invoice. Please note that the confirmation is valid only after receipt of the payment on the account given below. Please indicate your name and the company or organization.

Bank transfer:

SKWB Schoellerbank Aktiengesellschaft

Account: 61511605011 BLZ 19200

Account holder: NÖL – Niederösterreichisches Landesreisebüro

Banking charges are at the expense of the payer.

Credit cards:

We accept Visa, MasterCard, Diners Club or American Express

Cancellation:

Cancellation can only be accepted in writing.

Up to February 14th, 2003: repayment of 50% of the fee

Up to February 28th, 2003: repayment of 30% of the fee

After February 28th, 2003: no repayment

For registration please cut off the last page and send the form duly filled in and signed per mail or fax to:

NÖL – Niederösterreichisches Landesreisebüro

Attn. Mrs. Martina Edinger

Heidenschuß 2

A – 1010 Vienna

Austria

Phone: +43 (1) 53 402 25

Fax: +43 (1) 53 50 319

eMail: m.edinger@noltours.at

by

January 31st, 2003.

Registration also possible via Internet

EFRC-Website: www.recip.org

Registration form

**European Forum for Reciprocating Compressors 3rd
Conference March 27th-28th, 2003 Vienna**

In CAPITAL LETTERS please
(one form per registration only)

Title: _____ Sex: Male Female
Surname: _____
First name: _____
Company: _____
Address: _____
City Code: _____
City: _____
Country: _____
Phone: _____
Fax: _____
eMail: _____

Please mark with a cross:

Position

- | | |
|--|---|
| <input type="checkbox"/> Plant Manager | <input type="checkbox"/> Plant Supervisor |
| <input type="checkbox"/> Engineer | <input type="checkbox"/> R&D Engineer |
| <input type="checkbox"/> Maintenance Manager | <input type="checkbox"/> Process Engineer |
| <input type="checkbox"/> Rotating Equipment Engineer | <input type="checkbox"/> Scientist |
| <input type="checkbox"/> Others _____ | |

Industry

- | | |
|--|--|
| <input type="checkbox"/> Petrochemical Industry | <input type="checkbox"/> Refinery |
| <input type="checkbox"/> Chemical Industry | <input type="checkbox"/> CHP Plants |
| <input type="checkbox"/> Compressor Manufacturer | <input type="checkbox"/> Engineering Company |
| <input type="checkbox"/> Component Manufacturer | <input type="checkbox"/> R&D Organisation |
| <input type="checkbox"/> University | <input type="checkbox"/> Consulting Engineer |
| <input type="checkbox"/> Gas Gathering, Gas Transport, Gas Storage | |
| <input type="checkbox"/> Others: _____ | |



I want to register for: (please tick)

3rd EFRC - Conference

I am a lecturer

Accommodation from _____ till _____

Single room

Double Room

Accompanying person (number _____)

Payment by bank transfer

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Account: 61511605011 BLZ 19200

Account holder: NÖL – Niederösterreichisches Landesreisebüro

Banking charges are at the expense of the payer.

Payment by credit card:

Visa

Master

Diners

American Express

Credit card holder: _____

Credit card no.: _____

Valid thru: _____

Signature of credit card holder: _____

I accept the registration conditions:

Signature: _____

Stamp

EFRC Conference Secretary c/o
NÖL – Niederösterreichisches
Landesreisebüro
Mrs. Martina Edinger
Heidenschuß 2
A – 1010 Vienna

✂

Austria