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**EUROPEAN
FORUM
for
RECIPROCATING
COMPRESSORS**

Introduction to the EFRC



*René Peters
Chairman of
the EFRC*

Overview

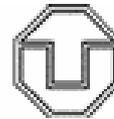
- *European Forum for Reciprocating Compressors*
- *History*
- *Aim*
- *Board*
- *Members*
- *Working groups and activities*
 - *student promotion*
 - *pre-competitive R&D*
 - *standardization*
 - *knowledge exchange*
- *EFRC conference*
- *EFRC training and workshops*



History

EFRC has been founded in 1999 by:

- *NEA*
- *LMF*
- *Hoerbiger*
- *TNO*
- *TU Dresden*
- *Thomassen Compression Systems*
- *Wartsila Compression Systems*
- *Burckhardt Compression*



TECHNISCHE
UNIVERSITÄT
DRESDEN



- *To serve as a platform to facilitate exchange of information between vendors, operators and scientists working in the field of reciprocating compressors.*

Aim of the EFRC

1. Knowledge transfer

Conferences

Internet

Workshops

Training and seminars

2. Perform joint research

Pre-competitive

Aiming at improving the performance of the recip

3. Improving the image of the reciprocating compressor

Student workshops

Field surveys



EFRC board

- *Chairman: Dr. Rene Peters*
 - *TNO Energy*
 - *The Netherlands*
- *Secretary: Dr. Peter Steinrück*
 - *Hoerbiger Kompressortechnik Holding GmbH*
 - *Austria*
- *Treasurer: Dr. Matthias Tanner*
 - *Burckhardt Compression AG*
 - *Switzerland*
- *Secretary support: Maja Schutz*
 - *TU Dresden*
 - *Germany*



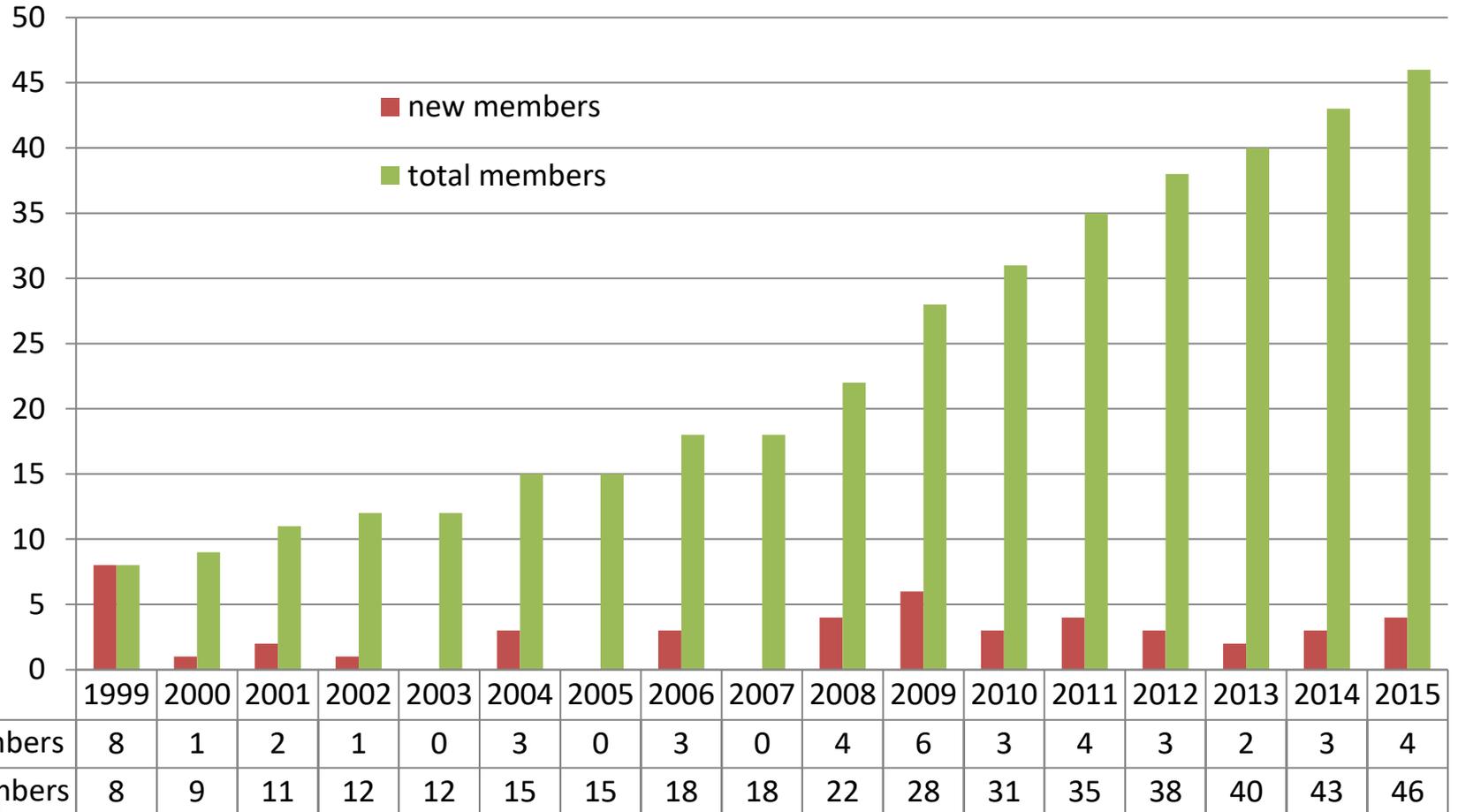
Current Members

44 members

- 14 manufacturers
- 6 operators
- 1 packager
- 15 component suppliers
- 4 technology institutes
- 2 consultants
- 2 media representative



Overview EFRC members



Currently 45 Members from 11 countries



Working groups and activities

- Pre-competitive R&D
 - Luci Valaer – Buckhardt Compression
 - Initiate and fund R&D projects sponsored by members
- Standardisation
 - Andre Eijk - TNO
 - Work on improvement of API 618 and ISO 13707 standards
- Student promotion
 - Gunther Machu – Hoerbiger
 - Organise bi-annual student workshop
- Training
 - Leonard van Lier – TNO
 - Organise annual training workshops
- Marketing and EFRC conference
 - Martina Frenz - NEA
 - Organise bi-annual EFRC conference
 - Maintain website www.recip.org



Student promotion

- *Site visit OEM's and operations with recips for international students*
- *Participation from many EU countries*
- *Presentations by EFRC members*
- *Excursions to production sites*
- *Exercise for students (incl. award!)*



- *2002 Benelux and Germany*
- *2004 Poland*
- *2006 Italy and Switzerland*
- *2008 Austria*
- *2010 United Kingdom*
- *2012 France*
- *2014 Austria*
- *2016 Germany and Switzerland*



EFRC conference

- *International conference on reciprocating compressor development and operation.*
- *Strong international participation*
- *Papers by OEM's, operators and suppliers*
- *Training seminar for young engineers*
- *1999 Dresden*
- *2001 The Hague*
- *2003 Vienna*
- *2005 Antwerp*
- *2007 Prague*
- *2008 Dusseldorf*
- *2010 Florence*
- *2012 Dusseldorf: International Rotating Equipment Conference*
- *2014 Vienna*



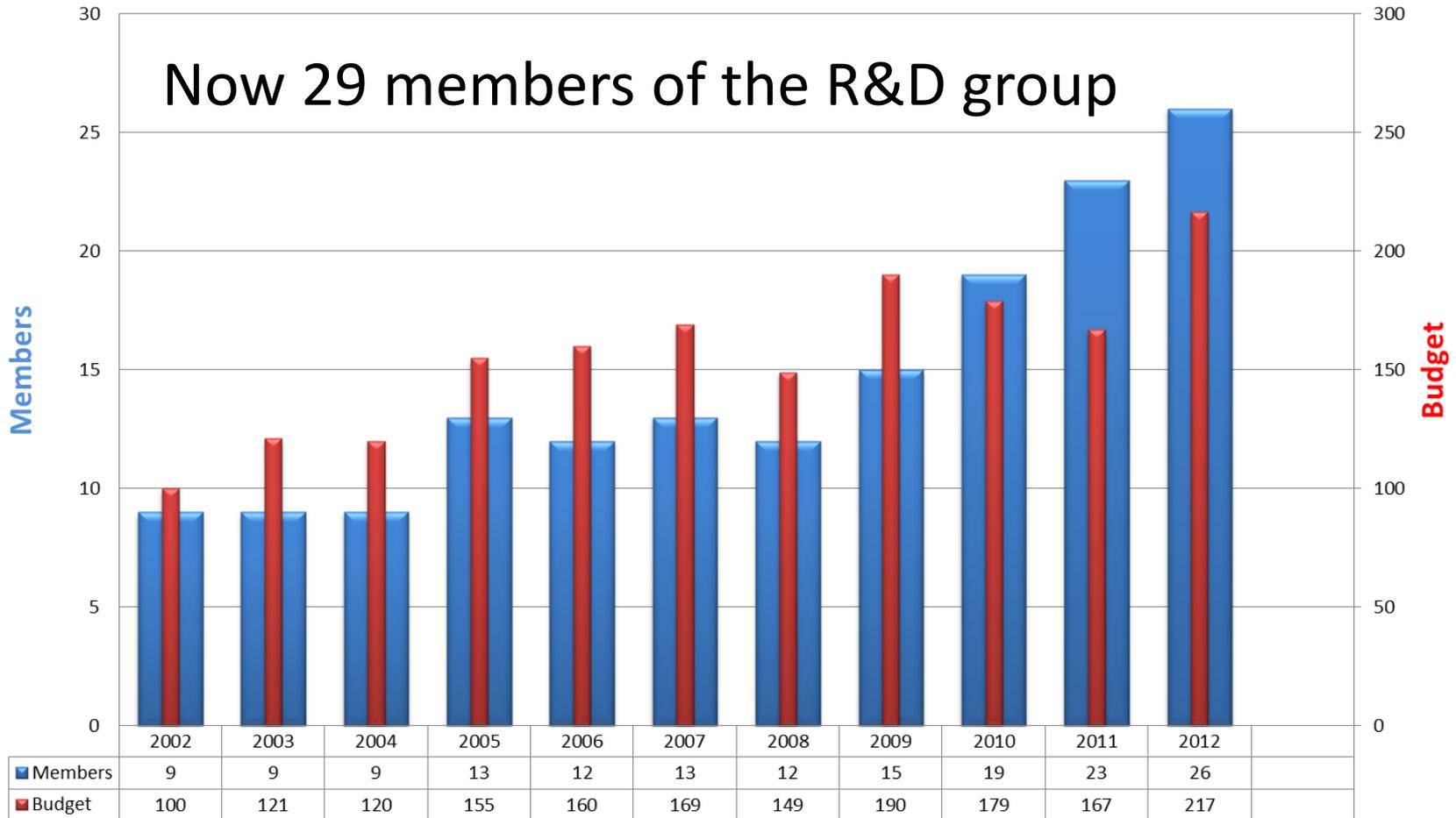
EFRC Joint Research

- *Combining forces of EFRC members to solve / investigate problems which are beyond the scope of a single player*
- *Basic research and precompetitive research carried out at research institutes or universities*
- *Scientific arm of the reciprocating compressor community*



pre-competitive R&D budget

Members and budget



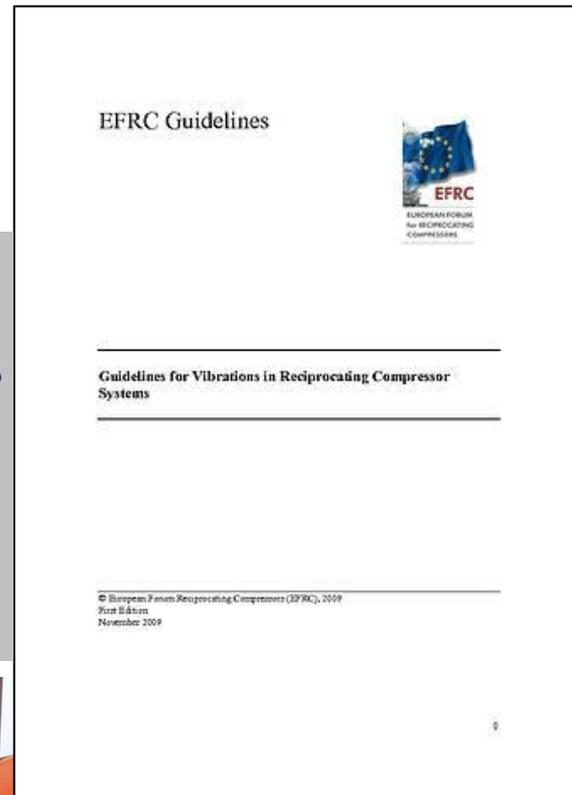
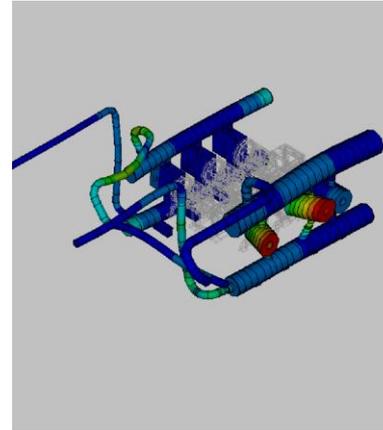
The EFRC Research Group

- *Open to all EFRC members*
- *Annual budget funded by participating members*
 - *Selection of ideas*
 - *Approval of projects*
 - *Projects are executed by research partners*
 - *Project controlling*
- *Results are owned by EFRC*
- *Research results are disclosed to EFRC research group members only*



Example project: Allowable Vibration levels

- Motivation:
 - Vibrations are an important design criteria for installations
 - Existing standards are considered to be not specific
- Result:
 - EFRC Guideline on vibrations
 - Working towards ISO standard
- Approach:
 - Literature search
 - Interviews with stakeholders
 - International Workshop
 - Report



EFRC membership

- Membership open for all companies actively connected to the reciprocating compressor (design, research, manufacture, operate)
- Entrance fee: 2500 euro
- Annual fee: 2000 euro
- Not for profit annual fee: 600 euro
- Registration from on www.recip.org



Please respect



NO SMOKING

throughout the event!



Please switch off your



Mobile

during the session!



Thank you for your interest

For more information, contact

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- Or visit www.recip.org for more information about EFRC

