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**Introduction  
to the EFRC**



*René Peters  
Chairman of  
the EFRC*

**EUROPEAN  
FORUM  
for  
RECIPROCATING  
COMPRESSORS**

## 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*



EFRC introduction

## History

*EFRC has been founded in 1999 by:*

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



**TNO** innovation  
for life

**HOERBIGER**

TECHNISCHE  
UNIVERSITÄT  
DRESDEN

THOMASSEN  
COMPRESSION  
SYSTEMS

**Burckhardt  
Compression**

WÄRTSILÄ

LMF

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



EFRC

## Aim of the EFRC

1. Knowledge transfer
  - Conferences (EFRC and IREC (with VDMA))
  - Internet ([www.recip.org](http://www.recip.org))
  - Workshops
  - Training and seminars
2. Perform joint research
  - Pre-competitive R&D
  - Aiming to improve the performance of the recip
3. Improving the image of the reciprocating compressor
  - Student workshops
  - Excursions



EFRC

## EFRC board

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



## EFRC Members

44 members

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



SCIFÉ  
Gas. Designed for you.



FRAGOL

DRG  
Dynamflow Research Group



## Working groups and activities

- Pre-competitive R&D
  - **Luzi Valaer** – Burckhardt Compression
  - Initiate and fund R&D projects sponsored by members
- Standardisation
  - **Andre Eijk** - TNO
  - Work on improvement of API 618 and ISO 13707 standards
  - Development and EFRC guidelines and best practices
- Student promotion
  - **Christiane Thomas** – TU Dresden
  - Organise bi-annual student workshop
- Training events
  - **Leonard van Lier** - TNO
- Marketing
  - **Martina Frenz** - NEA
  - Organise bi-annual EFRC conference
  - Maintain website [www.recip.org](http://www.recip.org)



## Student promotion

- *Site visit OEM's and operations with recip's 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 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
- 2016 Dusseldorf: International Rotating Equipment Conference
- 2018 Madrid



## 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*

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for life

 TECHNISCHE  
UNIVERSITÄT  
DRESDEN

 TU  
WIEN

 TU Delft



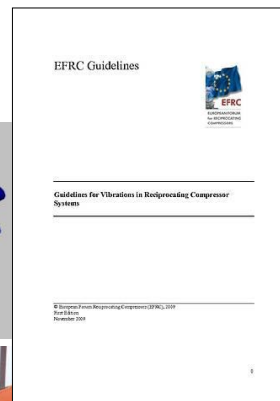
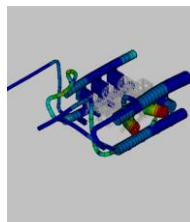
## The EFRC Research Group

- *Open to all EFRC members*
- *Annual budget funded by participating members*
- *Selection of ideas*
- *Approval of projects*
- *Projects are executed by research partners*
- *Project monitoring and administration*
- *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](http://www.recip.org)



## Thank you for your interest

For more information, contact

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Or visit [www.recip.org](http://www.recip.org) for more information about EFRC

