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European Forum for Reciprocating Compressors

EFRC

ABOUT US

Organisation

The European Forum for Reciprocating Compressors was founded in June 1999 as a non-profit association to support European users, manufacturers and scientists working with reciprocating compressors in terms of technology, exchange of experience, formation and enforcement of standards and precompetitive research. Since then its geographical reach has grown from Central Europe to entire Europe and recently to the US. The small crowd of 8 initial members has grown to 46 in 2016. The initiative was to build a vivid forum incorporating the principles of commercial conferences as well as of an institution promoting the interest of compressor users and compressor industry.

Background

The increasing demand for economic plant operation has led to a critical discussion of the equipment as to selection, design, maintenance and automation. The well-known advantages of the reciprocating compressor - high efficiency in many different operating conditions, comparatively easy regulation possibilities, suitability for light gases, high compression ratios, and many more - have led to a renaissance of this type of machinery. Nevertheless there are still some reservations concerning the relatively complex mechanical design and the prejudice that reciprocating compressors involve high maintenance costs. Up to now specifications and standards prescribed in tenders for reciprocating compressors have been mostly based on American recommendations such as API 618 and NACE, sometimes resulting in unsuitable and unnecessary expensive executions. This is due to the fact that there are still no pertinent European regulations.

Goals of the Forum

Exchange of Information and Experience

It is an essential goal of the symposium to create a forum where scientists and engineers engaged in the development of reciprocating compressors are given the opportunity to present the state of the art, to show that, because of progress in engineering, the reciprocating compressor has turned into a reliable machine not only being best in terms of efficiency and flexibility but also meeting the requirements of low maintenance costs and safe operation. The EFRC acts as a 'forum of ideas' providing the opportunity to spread new ideas or to carry them out.
The users in their turn can take the opportunity to report on their experience with such machines and to request the industry concerned for solutions to problems.

Improve the Image of Reciprocating Compressors

It will be shown that reciprocating compressors meet all the requirements of modern machines and even create new possibilities. In order to accomplish this goal related Research & Development projects will be presented, and proposals for precompetitive common research can be made. The EFRC Conference - held about every second year - is an ideal platform to foster such exchange of information.

Improved Specifications and Standards

The forum will also offer an opportunity for constructive criticism concerning the internationally used US standards. The aim should be to provide an interpretation and improvement of the above regulations adapting them to modern experience and specific European needs. Proposals based on scientific knowledge or practical experience will be presented and subsequently integrated into international use in tenders and final inspection.

Working Groups

The goals of the EFRC are supported by the activities of three working groups.

- Working Group for Precompetitive Research
- Working Group for Improvement of International Standards
- Working Group for Promotion of 'Recip'-Students

The working groups will be presided over by a chairman appointed by the board of the association. EFRC members will be invited to take part in the work of these groups by sending delegates who engage to take part in the meetings until revoked. The activities of the working groups will be financed by EFRC membership fees unless otherwise defined.

Working Group for Precompetitive Research

Organizing joint research on topics fundamental for the design and operation of reciprocating compressors is one of the most prominent objectives of the EFRC.

The combined knowledge and resources of:

- Universities
- Research Institutes
- Compressor Manufacturers
- Component Manufacturers and
- Users

are used to address research topics which are basic to the industry but are beyond the commercial interest of a single party. It is intended to address national and international funds to support this work.

Up to now the following subjects have been covered by EFRC's joint R&D projects:

- Pulsation damper devices
- Failure diagnostics and failure identification
- Separator efficiency in a pulsating environment
- Effect of solid particles in compressors
- Rod load measurement
- Compressors for H_2 refuelling stations
- Effect of in-cylinder pulsations on valve dynamics
- In-cylinder heat transfer
- Compressor noise
- Effect of cylinder flange misalignment on allowable nozzle loads
- Piston- and piston rod cooling
- Allowable vibration levels for reciprocating compressors
- Compressor reliability survey
- Guidelines to check foundation of reciprocating compressors

Working Group for Improvement of International Standards

The task of this EFRC working group should be to promote and further improve the ISO 13707 so that it will become the world-wide accepted and specified document for reciprocating compressors in the oil and gas industries.

The respective EFRC working group consisting of experts of end users and plant operators, compressor manufacturers and engineering companies, has been actively participating in the API 618 5th edition. The working group is lobbying a merger of API 618 and ISO 13707.
The EFRC has developed a standard for allowable vibration levels for reciprocating compressors. A guideline has been proposed and agreed. Hence the group has approached the ISO committee to integrate the outcome in ISO 10816-8. The promising results had been presented at the 6th EFRC Conference and can be download from EFRC's website.

Aim

Preparatory work towards 2nd edition of ISO 13707: this 2nd edition should become the world-wide accepted working document and API 618, if necessary, a derivative especially for the American market. ISO 13707, 2nd edition is to come into force not later than two years after API 618, 5th edition.

Working Group for Promotion of 'Recip'-Students

In order to fulfil engineering tasks inline with manufacturing and operation of reciprocating compressors, the market also needs well trained and motivated university graduates. To meet this requirement, the cooperation between the industry and the educational institutions must be improved.

Practiced forms of cooperation are: jointly tutored theses for the diploma, special lectures by experts from the industry at universities, excursions, practical training, information on jobs for graduates.

Throughout the years it turned out the EFRC's students tour, an excursion open to students of technical univer-sities interested in reciprocating design, is an excellent tool to initiate contacts between the industry and potential candidates for technical positions. Up to now such tours have been completed six times involving in total more than 120 students.

EFRC

EUROPEAN FORUM for RECIPROCATING COMPRESSORS

Membership and Fees

The EFRC is generally open to everybody interested. Membership is initiated by an application for membership (forms are available at the EFRC Office and on EFRC's website) and is achieved by paying the entrance fee and the annual fee to the EFRC account with Deutsche Bank.

Fees are defined by the General Assembly. Currently they are:
Entrance fee: EUR 2,500.-
Annual fee: EUR 1,200.-
(EUR 600.- for non-profit organisations)

The Association

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Board

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Dr. Peter Steinrück, HOERBIGER Kompressortechnik Holding GmbH
DI Matthias Tanner, Burckhardt Compression AG

Statutes

The statutes of the association are available at the EFRC office. Extracts of the statutes can be found on the website of the EFRC: **www.recip.org**