

1-Day Seminar on
Pressure Vessel Integrity and Fatigue Failures

Venue: SIRRIS, Technologiepark 935, 9052 Zwijnaarde, Ghent, Belgium
www.sirris.be (hosted by SIRRIS)

Date: Wednesday 19 October, 2016

***SEMINAR
PROGRAMME***

**Followed by ERPERC Task Group Meetings - Thursday 20 Oct. 2016,
morning**

The Seminar will be followed by two Task Group Meetings on the morning of Thursday 20th October at the same venue.

The two Task Groups that will meet are: 'Hydro Testing and PV Integrity' and 'Fatigue'. The Agenda for these Task Groups will be published later and posted on EPERC website:
www.eperc-aisbl.eu

BACKGROUND & INTRODUCTION

The seminar on “Pressure vessel integrity and Fatigue Failures” primarily aims at a consolidation of good engineering practice in the application of the newly revised fatigue design rules of EN 13445-3, clauses 17/18 and related annexes. Together with the rules formulated in clause 5 this European Standard provides for a graded fatigue design concept of pressure equipment including exemption rules, simplified and detailed fatigue checks. This concept allows for an economically beneficial and technically safe approach to a qualified fatigue design of pressure vessel and power plant components. However, the user has to be familiar with the concept as a whole and the background of the rules in order to make substantiated decisions for the fatigue design of its own equipment and components.

Against this background the following and related topics are going to be dealt with in more detail and by way of example:

- Flowchart of fatigue exemption rules and fatigue design options in EN13445-3
- Simplified Fatigue Analysis – background and application
- Example of Simplified Fatigue Analysis
- Detailed Fatigue Analysis – background and application
- Fatigue design of welded components: IIW recommendations and application of the concept of hot spot structural stress
- Detailed Fatigue Analysis – Stress calculations, cycle counting and stress range determination
- Example of Detailed Fatigue Analysis
- Recommendations on post weld improvement of aluminum and steel structures
- Fatigue related research programmes
- Material testing and design recommendations for components exposed to hydrogen enhanced fatigue – the MATHRYCE project

Furthermore, discussion and information on the development of this specific design code and comparison to other similar design codes (e.g. ASME Code) will be welcome.

SEMINAR AIMS AND OBJECTIVES

This seminar is aimed at bringing together European industry and research experience, identifying gaps and discussing areas of new and potential research in support of European Standards. European Standards bodies and Commission Officials are being invited and expected to be involved in the Seminar.

Presentation Time = 22 mins. + 3 mins. for discussion = 25 minutes.

SEMINAR PROGRAMME

REGISTRATION & WELCOME = 0930 to 0950h

WELCOME & INTRODUCTION TO SEMINAR = 0950 – 1000h

1. Introduction to fatigue analysis

Guy BAYLAC, Consultant, France and Yves SIMONET, CETIM, France

1000-1025h

2. Simplified fatigue analysis according to Clause 17 and Annex U of EN 13445-3 including the general structure of fatigue checks and the exemption rules

Guy BAYLAC, Consultant, France and Yves SIMONET, CETIM, France

1025-1050h

Coffee Break --- 1050 – 1110h

3. Example application of the simplified fatigue analysis of Clause 17

Fernando LIDONNICI, SANT'AMBROGIO, Italy

1110-1135h

4. Detailed fatigue analysis according to Clause 18 and methodology of Annexes NA and NB of EN 13445-3

Jürgen RUDOLPH, AREVA, Germany

1135-1200h

5. IIW recommendations and application of the concept of hot spot structural stress for detailed fatigue analysis

John WINTLE, TWI, UK

1200-1225h

Lunch Break --- 1230 – 1330h

6. Example of application of the detailed analysis of Clause 18

*Ralf TRIEGLAFF, Martin BECKERT (TÜV NORD, Germany),
Daniel FRIERS (KRONES Technical Calculations, Germany)*

1330-1355h

7. Environmental effects on fatigue - Material testing and design recommendations for components exposed to hydrogen enhanced fatigue – the MATHRYCE project

Laurent BRIOTTET, CEA, France

1355-1420h

8. Fatigue analysis of hydrogen tanks and gas cylinders

Jader FURTADO, AIR LIQUIDE, France

1420-1445h

Coffee Break --- 1445 – 1515h

9. Fatigue design rules in other European Codes and ASME Codes: uncertainties in fatigue evaluation of components

Claude FAIDY, Consultant, France

1515-1540h

10. Research programmes on fatigue of welded and unwelded components, and environmental effects

Jürgen RUDOLPH, AREVA, Germany

1540-1605h

Discussion on research needs and priorities

1605-1615h

REGISTRATION FORM

(Please copy and e-mail / fax / post)

EPERC SEMINAR – Wednesday 19 October 2016

REGISTRATION FEE: Please put 'X' in the box opposite the fee applicable and then show total fee. (The fee shown below is **to be paid in pound sterling** as the secretariat of EPERC is based in the UK. The equivalent figures in Euros are only shown as a guide, and the actual amount in Euros will depend on the exchange rate at the time of the payment).

	Reduced Fee* (if paying by 16 Sep. 16)			Full Fee* (if paying 17 Sep.16 onwards)		
Delegates	£150	~200 EUR		£200	~280 EUR	
Presenters	£75	~105 EUR		£100	~140 EUR	
Please state here the fee that you are paying = £						

* For EPERC member: 30% Reduction on the stated fee.

The fee includes the Seminar lunch, coffee etc. during break and Seminar Proceedings in electronic format.

<p>PAYMENT: By UK bank cheque, bankers draft, or bank to bank transfer to 'ETD Ltd.' (For payment by bank to bank transfer, account details will be supplied on request to: Mrs. K Mahoney kmahoney@etd-consulting.com). Please quote reference 'EPERC SEMINAR - Oct. 2016' with the payment and state here how you paid/intend to pay:</p> <p>.....</p> <p>.....</p>			
<p>By Credit Card: Major cards such as Visa/ Master Card/ JCB/ American Express/ Switch are accepted with the exception of Dinners Club. For security please <i>fax or post</i> this information.</p>			
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Authorisation signature		Total amount to pay: £	

Delegate Details: (Required for your badge)

Your title and name:	Position (optional):
Company name & address:	
Phone:	Fax:
E-mail:	

REGISTRATION ADDRESS & Information re Accommodation

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