An Overview about the IECEx System

Prof. Dr. Thorsten Arnhold
IECEX Chairman
IECEEx – building safe bridges for global business
International Ex - business in the old times
International Ex - business in the present
International Ex - business in the future
IEC Family 164 countries – Global reach

82 Members  82 Affiliates
The two pillars of the IEC building

Standard – Generation and Maintenance

Assessment Conformity to relevant Standards

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IEC Structure for conformity assessment

Conformity Assessment Board (CAB)

IECEE

IECEx

IECQ

IECRE
The IECEx vision remains unchanged since London 1996

Rules of procedure IECEx 02 Paragraph 5.6:
The final objective of the IECEx – Certified Equipment Scheme is worldwide acceptance of one standard, one certificate and one mark.
### IECEx: Per July 2016 – 33 Member Countries

<table>
<thead>
<tr>
<th>Australia</th>
<th>India</th>
<th>Russia</th>
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<tbody>
<tr>
<td>Brazil</td>
<td>Israel</td>
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<td>Canada</td>
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<td>Hungary</td>
<td>Romania</td>
<td>United States of America</td>
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</tbody>
</table>
IECEx Management Committee

„Parliament of IECEx“ administers the operation & reports to IEC CAB (2015 Christchurch New Zealand)

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Important elements of the IECEx system

**Ex Testing Laboratory (ExTL):**
Directly or indirectly linked to a ExCB
Carries out Type test
Issues Test reports

**Ex Certification Body (ExCB):**
Issues IECEx – Certificates
Issues Quality Assessment Reports
Endorses IECEx Test Reports

**IECEx – Assessor**
Assessment of Ex CBs
Assessment of Ex TLs
Basis is ISO/IEC 17065
(former ISO/IEC Guide 65)
## Equipment Scheme

<table>
<thead>
<tr>
<th>Code</th>
<th>Equipment</th>
<th>Guidance</th>
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<tbody>
<tr>
<td>OD 203</td>
<td>N</td>
<td>Guidance on the definition of ‘manufacturer’ in relation to trade agents and local assemblers</td>
</tr>
<tr>
<td>OD 035</td>
<td>Y</td>
<td>A procedure to generate, discuss, report and publish ExTAC Decision Sheets</td>
</tr>
<tr>
<td>OD 034</td>
<td>N</td>
<td>Operational Document - Guidance on the preparation of IECEx Equipment Certificates and Reports covering more than one identical item of equipment.</td>
</tr>
<tr>
<td>OD 033</td>
<td>Y</td>
<td>IECEx Operations Manual - IECEx Unit Verification Certificates</td>
</tr>
<tr>
<td>OD 026</td>
<td>N</td>
<td>Guidelines for the certification of Lead Auditors and Auditors, in accordance with the IECEx System.</td>
</tr>
<tr>
<td>OD 025</td>
<td>Y</td>
<td>Guidelines on the Management of Assessment and Surveillance programs for the assessment of Manufacturer's Quality System, in accordance with the IECEx System.</td>
</tr>
<tr>
<td>OD 024</td>
<td>Y</td>
<td>IECEx Rules of Procedure covering testing, or witnessing testing at a manufacturer’s or user’s facility</td>
</tr>
<tr>
<td>OD 021</td>
<td>Y</td>
<td>Guidance document for the Assessment of IT equipment and Systems</td>
</tr>
<tr>
<td>OD 020</td>
<td>N</td>
<td>Guidance for the Sampling of Group II Ex Motors for Testing as Representative of a Range for Certification Purposes</td>
</tr>
<tr>
<td>OD 018</td>
<td>Y</td>
<td>Harmonised CHECKLIST FOR TESTING AND CALIBRATION LABORATORIES (IECEx) 17025</td>
</tr>
<tr>
<td>OD 017</td>
<td>N</td>
<td>Drawing and Documentation Guidance for Ex IEx Certification - for use by Manufacturers and ExLabs</td>
</tr>
<tr>
<td>OD 012</td>
<td>Y</td>
<td>ExTAC Guide for Application of Uncertainty of Measurement to conformity for laboratory tests carried out under the IECEx System (OD 012)</td>
</tr>
<tr>
<td>OD 011-1</td>
<td>Y</td>
<td>Guidance on Use of the IECEx Interest based ‘On-Line’ Certificate of Conformity System</td>
</tr>
<tr>
<td>OD 011-2</td>
<td>Y</td>
<td>Special addendum to IECEx Equipment Certificates of Conformity CoCs</td>
</tr>
<tr>
<td>OD 010-2</td>
<td>Y</td>
<td>Operational Document - Guidance for the development, compilation, issuing and receipt of ExTRs</td>
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<td>OD 010-1</td>
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### Meetings of the IECEx System 2014
The Hague, The Netherlands, 25-29 August 2014
In 2014 the IECEx event will be organised in DENMARK and will take place in The Hague, Netherlands.

More info from the meeting website

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**Quick Links**
- View IECEx Certificates and Licences (exposure)
- Certification Bodies (ExCIs) - Equipment
- Certification Bodies (ExCIs) - Service Facilities
- Certification Bodies (ExCIs) - Certified Person
- ExTAC Decision Sheets
- IEC TC31 & IECEx Meeting Schedule

**Featured**
- Malaysia Conference presentations available
- IECEx systems endorsed by UN/CECE

**IECEx mobile apps**
IECEx consists of four schemes:

- IECEx Equipment Scheme
  Certification of Ex Equipment

- IECEx Conformity Mark License Scheme

- IECEx Services Scheme
  Certification of Ex Service Providers, eg Repair and overhaul workshops + Install.

- IECEx Certified Persons Scheme (CoPC)
  Competency to work in Ex field (New)
IECEx Certified Equipment Scheme

IECEx Equipment Scheme
Certification of Ex Equipment + Systems

Site assessment of the Manufacturers QM – System => QAR

Type Test => ExTR

IECEx “Certificate of Conformity”

IECEx “Component Certificate”

IECEx “Unit Certificate”
IECEx Certified Equipment Scheme Certificates & Test Reports

Cumulative Growth of IECEx Equipment CoCs and Reports

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The „fast track“ procedure
For all EPL (a, b and c) there is an obligation to type tests/ignition source analysis and site assessments of the QM systems carried out by IECEx CBs and TLs.
Risk analysis is evaluated by teams consisting of experts from the manufacturers and IECEx - Certification Bodies and Test Labs.

If applicable and necessary type tests are conducted by the IECEx - Test Labs.
Draft OD 005-3-Part 3:
Supplementary requirements for non-electrical...

- ISO/IEC 80079 – 34: Explosive atmospheres-Part 34: Application of quality systems for equipment manufacturers is the basis document
- Additional requirements for the Quality Assurance during the manufacturing process of non-electrical components critical for the explosion protection of the equipment
Outlook
ISO/IEC 800079 – 36 and -37 are published...

...international customers and regulators get the message soon
Consultants and Certification Bodies recognise the new business opportunities
Advertisement by the manufacturers
IECEEx consists of four schemes:

**IECEEx Equipment Scheme**
Certification of Ex Equipment

**IECEEx Conformity Mark License Scheme**

**IECEEx Services Scheme**
Certification of Ex Service Providers, eg Repair and overhaul workshops + Install.

**IECEEx Certified Persons Scheme (CoPC)**
Competency to work in Ex field (New)
Basic standard: IEC 60079-19 Repair & Overhaul

Basic question: Does the repair workshop fulfils the requirement of this standard?
IEC 60079 – 19 requires that the repair facility...

- operate a QM-system
- appoint a responsible person
- have adequate repair and overhaul facilities
Certification procedure for IECEx repair facilities

- Offsite & Site Assessment
  - Compliance With IEC 60079-19 & OD315-5
- Offsite & Site Assessment
  - Quality Management System OD 314-5

Facility Assessment Record (FAR)

IECEx Service Facility Certificate of Competency

On-going Surveillance OD 313-5
IECEx Service Facility Scheme

Cumulative Number of CoCs and FARs for Repair facilities

- CoCs
- FARs
- Total
- Drafts

@ 21 June 2016

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IECEx Service Facility Scheme – next steps

Equipment Selection

Installation & Initial Inspection

Inspection & Maintenance
IECEx consists of four schemes:

- **IECEx Equipment Scheme**
  Certification of Ex Equipment

- **IECEx Conformity Mark License Scheme**

- **IECEx Services Scheme**
  Certification of Ex Service Providers, eg Repair and overhaul workshops + Install.

- **IECEx Certified Persons Scheme (CoPC)**
  Competency to work in Ex field (New)
Lack of Competence in hazardous areas: some examples
Lack of Competence in hazardous areas: the consequences
What is competence?

Knowledge

Acquired skills

Tasks duties and responsibilities

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Ex Units of competence

- Unit Ex 001: Basic Principles
- Unit Ex 004: Maintenance
- Unit Ex 007: Visual & close Inspection
- Unit Ex 008: Detailed Insp.
- Unit Ex 010: perform Audit insp. of install.
- Unit Ex 002: Zone Classification
- Unit Ex 006: Test el. Installations
- Unit Ex 003: Installation
- Unit Ex 005: Overhaul & Repair
- Unit Ex 009: Design Electr. Installation

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Appropriate Mix of Competences to be certified

Ex CB examines:

- Knowledge
- Skills
- Experience

Certification Process

Surveillance – Re Assessment
Combination of written & practical examination

Performance assessment bays for the Unit Ex 003, Ex 007, Ex 008
IECEx Certified Personal Scheme

Certified Personnel Scheme - Cumulative Total

0 200 400 600 800 1000 1200 1400
2010 2011 2012 2013 2014 2015 @ 21 June 2016

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2017
CERTIFICATE OF RECOGNITION

IECEx Recognised Training Provider Program

This is to confirm that

R. STAHL Schaltgeräte GmbH

has been recognised in accordance with
IECEx System Rules and IECEx OD 521 Procedures

Chris Agius
Executive Secretary IECEx
September 2015
Oil and gas (up-stream and down-stream) is estimated to have accounted for 66.4% of hazardous area equipment revenues in 2014. Despite the rapid fall in oil prices and the cuts in capital expenditure that resulted, this is forecast to still account for 67% of revenues by 2020.
IECEx Certificates & Test Reports
Absolut von 2014 - 2016

+ 45%
Thank You!