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G R O U P

# **R. STAHL and the IECEx Scheme**

An ATEX directive domiciled manufacturer's approach and experience towards IEC Ex certification



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R. STAHL: 80 years experience in electrical explosion protection

# What is IECEx compared to ATEX?

The single International IEC Scheme covering Certification to Standards that relate to Apparatus for Explosive Atmospheres, to provide an Internationally accepted means of demonstrating claimed compliance with International Standards

IECEx is a “[Conformity Assessment Tool](#)” providing confidence that Products and Services covered by an IECEx Certificate meet specified requirements.



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# **What is IECEx compared to ATEX?**

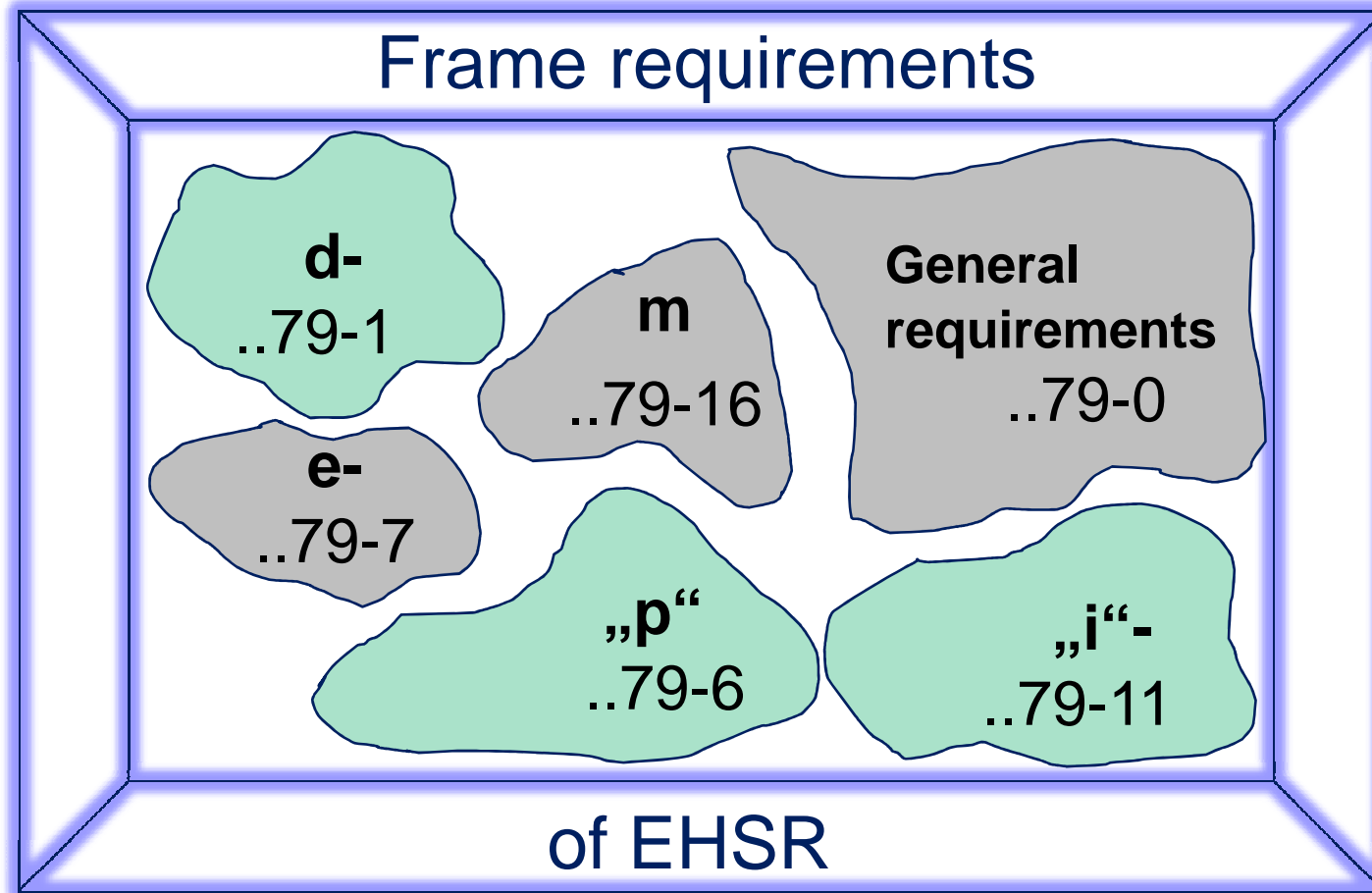
The ATEX directive is a obligatory governmental regulation directing the process of placing of explosion protected products on the European market.

It defines the „frame of safety“ by setting general technical and organisational requirements in the appendix II „Essential Health and Safety Requirements (EHSR)“



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# Function of the Essential Health and Safety Requirements (EHSR)



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# Why have IECEx?

To eliminate or significantly reduce:

- Multiple/Re-Testing/Assessments
- Delays in accessing markets
- Obstacles that prevent access to new products and technology by smaller markets.
- Un-Safe Practices + Lost Production (Down time)
- Initial aim “The facilitation of International Trade in Ex Products, Systems and Services”, while maintaining acceptable levels of Safety

**IECEx Vision:**

**“To be the Global Centre of Excellence in the Ex field”**



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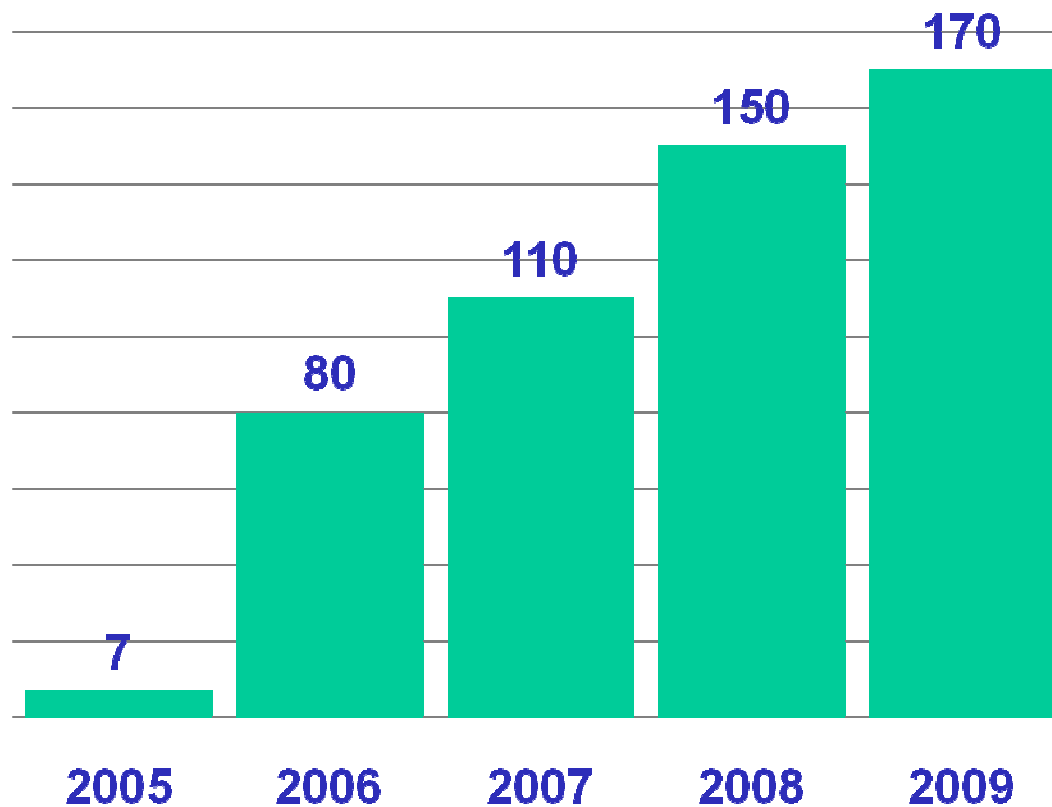
# Reduce Multiple Re – Testing/ Assessments

- At the moment IECEx CoC is only in Australia fully accepted
- For the rest of the world (representing about 6,8 billion people minus 22 M Australians) a double or multiple certification for products is necessary
- the “fast track” procedure reduces the time and costs significantly:
  - test reports of an Ex TL are recognized by the national certification authorities





# Number of R. STAHL's certificates (cumulated)



about 170  
certificates



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**In 2009 the complete active  
product range of R. STAHL is  
IECEX certified**

**A complete product range  
for the whole IEC-world!**



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# Reduce delays in accessing markets

- More and more countries in South East Asia and Middle East are accepting and expecting IECEx certificates (instead of ATEX)
- Big multinational customers are preferring IECEx certificates
- Main reasons:
  - direct involvement of the respective countries in the IEC Ex process
  - third party certification for Zone 2 – equipment is obligatory
  - The IECEx System covers the whole life cycle of the product



## Benefit expected from IECEx scheme (1/3)

- ▶ IECEx scheme does not allow self certification, so without consideration for the EPLs an equipment to be installed in hazardous area has to be certified by a approved Body (ExCB).
  - ▶ *ATEX directive does allow self certification for electrical equipment EPL=Gc/Dc (Category 3).*
  - ▶ Self certification is not allowed within TOTAL E&P technical referential.



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# **Eliminate Un-Safe Practices + Lost Production (Down time)**

- Initial aim “The facilitation of International Trade in Ex Products, Systems and Services”, while maintaining acceptable levels of Safety
- Counterfeiting is a serious problem also in the Ex market
- There is no legal way to negate the certification of product copies.
- The manufacturers have to make the users aware of the risks of using counterfeited products.



# Counterfitting: Case study flameproof

Physikalisch-Technische Bundesanstalt  
Braunschweig und Berlin

PTB



## (1) Production Quality Assessment Notification

(Translation)



(2) Equipment or protective systems or components intended for use in potentially explosive atmospheres - Directive 94/WE/C

(3) Notification Number: PTB 03 ATEX Q082

(4) Product group(s): enclosures for switchgears and controlgears in the decisive types of protection Flameproof Enclosure "d" and Increased Safety "e" luminaires in the decisive types of protection Flameproof Enclosure "d" and Increased Safety "e"

A list of the EC-Type Examination Certificates covered by this notification is held by the notified body.

(5) Applicant: [Redacted], Houjie Industry Co., Ltd. of China

(6) Actual manufacturer: [Redacted], Houjie Industry Co., Ltd. of China

(7) The Physikalisch-Technische Bundesanstalt (PTB) notified for Annex IV in accordance with Article 9 of the Council Directive 94/WE/C of 23 March 1994 notifies to the applicant that the actual manufacturer has a production quality system which complies to the Annex IV of the Directive.

(8) This notification is based on the confidential audit report No. 03-13157, issued the 2004-01-09. This notification is valid until 2007-01-08 and can be withdrawn if the actual manufacturer no longer satisfies to the requirements of Annex IV.

Results of periodical reassessment of the quality system are a part of this notification.

(9) According to Article 10 (1) of the Directive 94/WE/C the CE-Marking shall be followed by the identification number 0102 of PTB as the notified body which is involved in the production control stage.

Zertifizierungsstelle Explosionsschutz

Braunschweig, January 09, 2004

By: [Signature]



Dr.-Ing. U. Klausmeyer  
Regierungsdirektor

Sheet 1/1

Notifications without signature and official stamp shall not be valid. The notification may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.  
Physikalisch-Technische Bundesanstalt, Bundesallee 119, D-38118 Braunschweig



Ex – Control Station



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# Counterfitting: Case study flameproof contact element



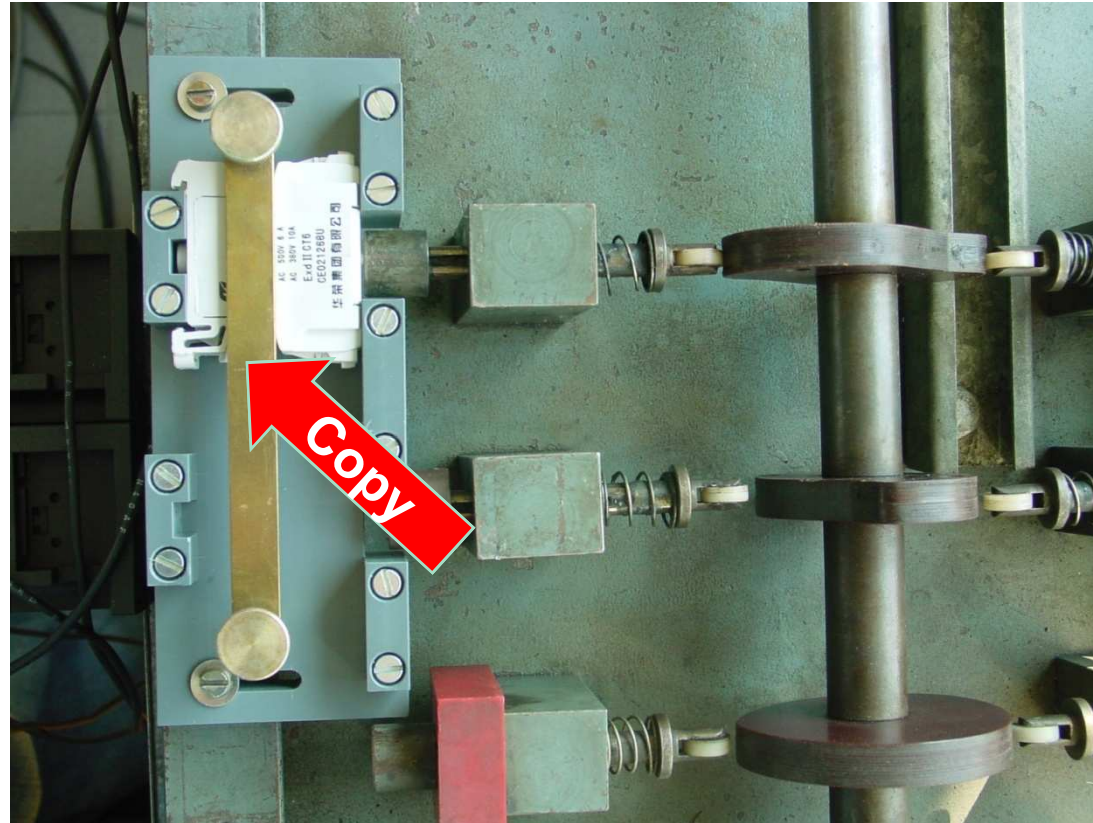
Static overpressure test  
with water according to  
IEC 60079 – 1  
No leakage permitted



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# Counterfitting: Case study flameproof contact element



**Reliability test: 100.000 operation cycles**



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# Counterfitting: Case study flameproof contact element

abrasion at the flame path



Copy with plastic plunger



Original with ceramic plunger-  
no abrasion occurred

Flameproof gap after 100.000 operations



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# Counterfitting: Case study

## Ex – fluorescent lighting



Mechanical Impact  
test **failed**



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# Marking

- marking is increasingly complex
- “world products” have ATEX and IECEx marking
- a kit if items are redundant or not necessary (i.e. ATEX-categories and IEC-EPLs)
- for small products there are problems with the available space
- a lot of customers are confused
- New means of information transfer like RFID or web based solutions are being investigated



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# Operation instruction

- similar requirements with IECEx and ATEX
- Easy access to IECEx-certificates via Internet



[www.iecex.com](http://www.iecex.com)



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# **Global Center of excellence in the Ex - world**

Out of the perspective of a European manufacturer IECEx is on a good way to reach that goal.

The new schemes for service facilities and personal competencies are good for the proper and safe use of the Ex – equipment.

We have sufficient rules and procedures in the IECEx - Scheme for certified equipment. The most important requirement is that these rules are applied in a uniformed manner by all certification bodies in all regions.

The final success of the system depends on the full recognition of the IECEx-CoC by a large number of countries.



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**THANK YOU FOR YOUR  
ATTENTION!**

**[www.stahl.de](http://www.stahl.de)**

**[www.r-stahl.com](http://www.r-stahl.com)**



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# Biography

- Dr. Thorsten Arnhold
- Vice President Product Management and Marketing
- study at Technical University of Dresden: Electronics
- PhD (Dr.-Ing) 1990: Hybrid Integrated Circuits
- Diploma of Marketing at the St. Gallen Business School
- many years of experience as a Quality Manager (ISO 9000 system implementation)
- since 1998 VP for Product Management and Marketing at R. STAHL
- member of IEC TC 31 – MTS
- Chairman of the German National Committee of IECEx



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