



INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

# An Introduction to the IECEX Certification System



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IECEX Secretariat  
June 2016



# IEC's Conformity Assessment Systems

## 24 Member IEC Board on Conformity Assessment (CAB)

### IECEE

System of Conformity Assessment Schemes for Electrotechnical Equipment and Components

CB Scheme

CB-FCS Scheme

PV Programme

E3 Energy Efficiency

Hazardous Substances

### IECEX

System for Certification to Standards Relating to Equipment for use in Explosive Atmospheres

Ex Equipment

Ex Services

Ex Personnel

### IECQ

Quality Assessment System for Electronic Components, assemblies, materials and related processes

Components + assemblies

Processes

HSPM

Avionics

LED Lighting

### IECRE

System for certification to Standards relating to equipment for use in renewable energy applications

Wind Energy

Marine Energy

PV Solar



**IECEX**

# **IEC System for Certification to Standards Relating to Equipment for use in Explosive ('Ex') Atmospheres.**



# **“Ex” is not an Industry of its own!**

**Ex is part of almost every Industry known to Man ... examples include:**

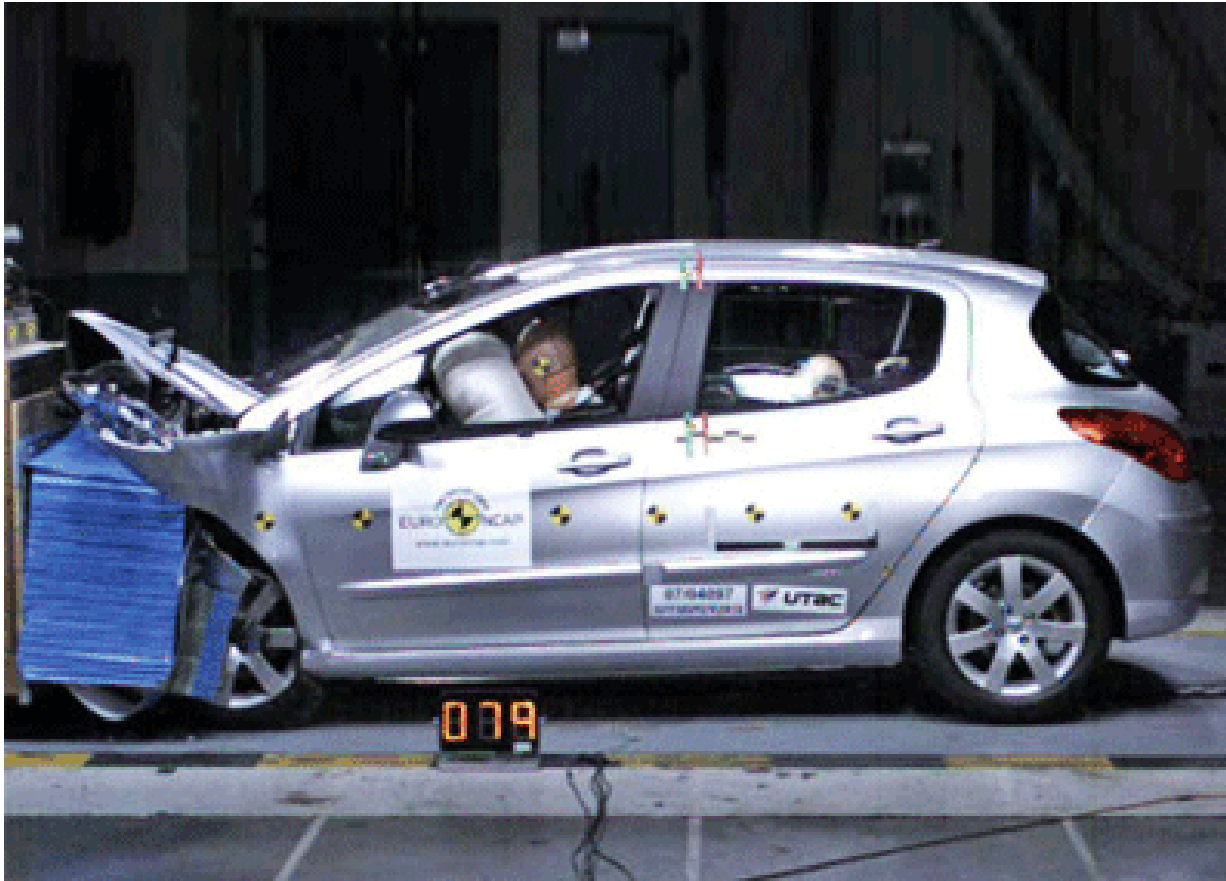
- Automotive refuelling stations or petrol stations
- Oil + gas extraction
- Oil refineries, rigs and processing plants
- Gas pipelines and distribution centres
- Chemical processing plants
- Printing industries, paper and textiles
- Hospital operating theatres
- Aircraft refuelling and hangars
- Surface coating industries
- Coal mining
- Sewerage treatment plants
- Grain handling and storage
- Woodworking areas
- Sugar refineries, storage , packaging + distribution
- Metal surface grinding, eg aluminium dusts and particles.
- Transportation
- Pharmaceuticals
- Food processing
- Furniture manufacturer
- .... many others



## Scope and Standards for IECEx include ...

- Electrical Equipment Conformance to **IEC 60079 Series** and **IEC 61241 Series** requirements
- Non-electrical Equipment to **ISO/IEC 80079 Series**
- Hazardous Area Classification to **IEC 60079-10**
- Ex Equipment Installation and Inspection to **IEC 60079-14** and **IEC 60079-17** requirements
- Ex Equipment Maintenance, Repair, Overhaul and Reclamation to **IEC 60079-19**
- Personnel Competence to **ISO/IEC 17024**

# What makes a **technical** product safe?



*Design, test, production and operation instructions according to specifications (law, directives, standards etc.)*



# What makes the use of a technical product safe?



***Correct selection of the appropriate product***

# How to **keep** a technical product safe ...



***Correct inspection and maintenance to keep sufficient level of safety***



***“Tri-Level Study of the Causes  
of Traffic Accidents .....  
"human errors and deficiencies"  
were a definite or probable  
cause in 90-93% of the incidents  
examined”***

**Stanford Law School  
Research study report**

# How to **use** a technical product safely ...



***Appropriate rules and procedures for operation by competent operators***

# What about products for **hazardous areas** ...?



# Schemes within the IECEx System

## IECEx System



### IECEx Equipment Scheme

Certification of Ex Equipment



### IECEx Conformity Mark License Scheme



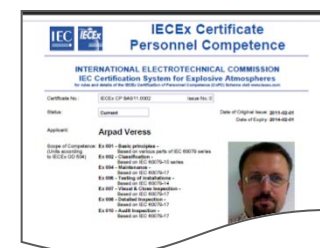
### IECEx Services Scheme

Certification of Ex Service Providers



### IECEx Certified Persons Scheme (CoPC)

Competency to work in Ex field





# Schemes within the IECEx System

## IECEx System



### IECEx Equipment Scheme

Certification of Ex Equipment



### IECEx Conformity Mark License Scheme



### IECEx Services Scheme

Certification of Ex Service Providers



### IECEx Certified Persons Scheme (CoPC)

Competency to work in Ex field







# IECEx Equipment Scheme

**IECEx Equipment Scheme**  
Certification of Ex Equipment + Systems

IECEx “Certificate of  
Conformity”




IECEx “Component  
Certificate”



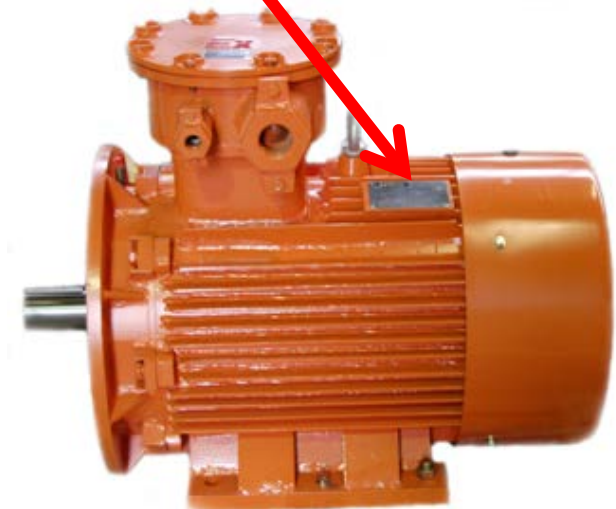
IECEx “Unit  
Verification  
Certificate”



# Certificate Number on the Product

					3-AC Induction Motor				
Ex mark ExdI/IIB T4/T5					Ex IEC 60034-1 AS 1359				
TYPE					N°			kg	
kW	Hz	V	AMP	RPM	EFF.	COS $\phi$	T.AMB	T.RISE	CONN.
Ins.CL.	S	IP	BRG DE				NDE		
MEPS COMPLIANT					<a href="http://www.rototech.com.au">www.rototech.com.au</a>				

Under the IECEx Certified Equipment Scheme, the IECEx Certificate number displayed on the product must match the Master version on the website – this provides instant verification of claims of IECEx Certification



# Schemes within the IECEx System

## IECEx System



### IECEx Equipment Scheme Certification of Ex Equipment



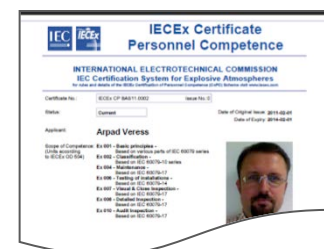
### IECEx Conformity Mark License Scheme



### IECEx Services Scheme Certification of Ex Service Providers



### IECEx Certified Persons Scheme (CoPC) Competency to work in Ex field



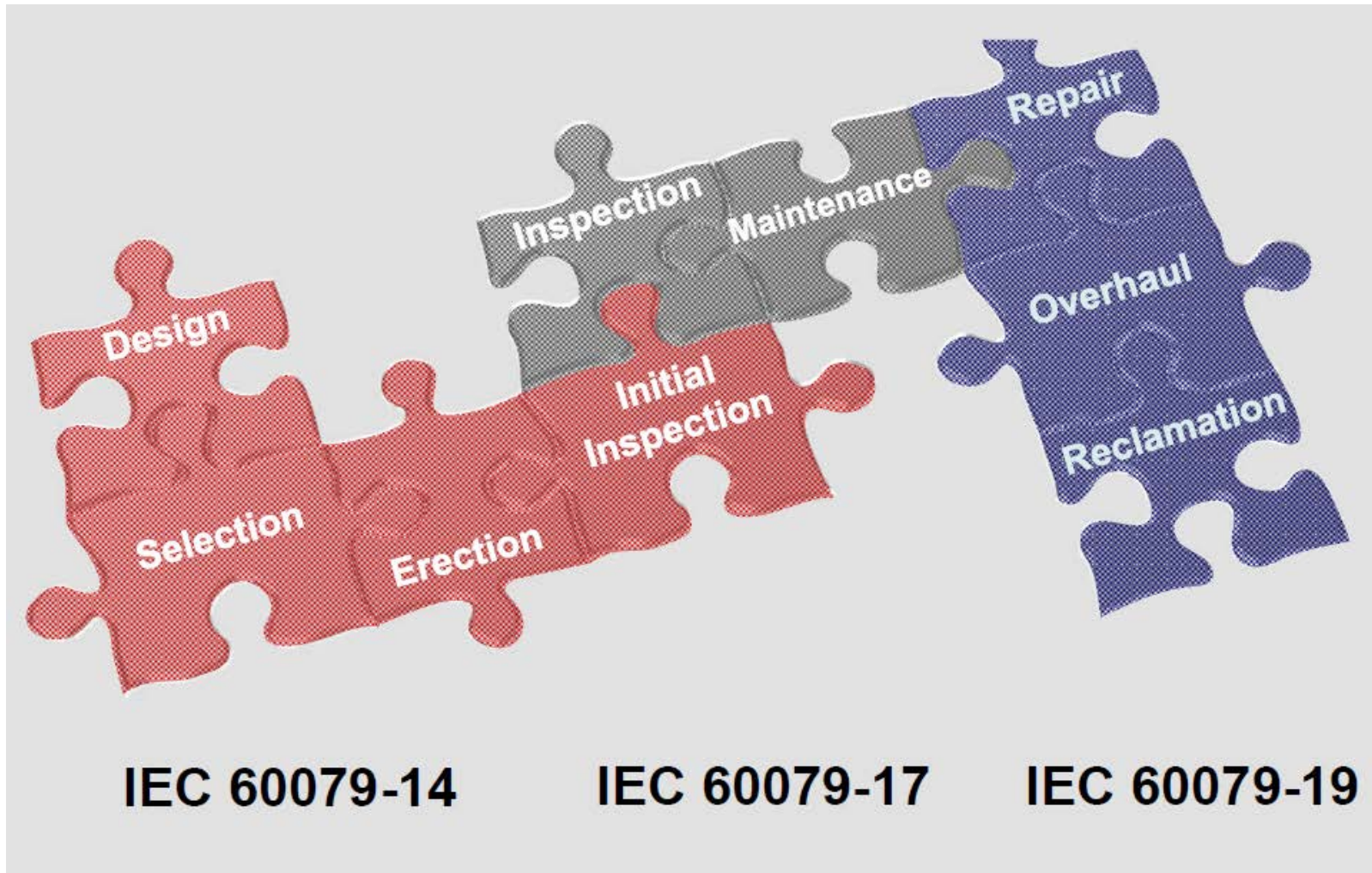
**Certifying providers of**

- *Design*
- *Selection*
- *Installation*
- *Inspection*
- *Maintenance*
- *Repair*
- *Overhaul*
- *Reclamation*

**services on Ex Equipment**



# Relevant IEC “Service” Standards







# Schemes within the IECEx System

## IECEx System



### IECEx Equipment Scheme

Certification of Ex Equipment



### IECEx Conformity Mark License Scheme



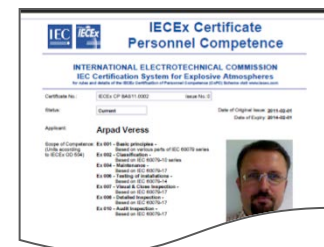
### IECEx Services Scheme

Certification of Ex Service Providers



### IECEx Certified Persons Scheme (CoPC)

Competency to work in Ex field





# The IECEx “CoPC” Scheme

## The IECEx Personnel Competence Scheme

- is a global scheme
- supports other training, certification and induction systems
- recognizes that both knowledge and skills are needed for safe working
- does NOT require, specify, organise or provide training
- recognises many paths to ‘competency’
- requires ongoing confirmation of currency

# What is COMPETENCY ?

- **Competence = Application** of knowledge and skills to the standards of performance required in the workplace.
- Competency includes all aspects of work performance and not just specific skills...
  - Persons must be aware of the hazards in their work area and work safely in their presence
  - Persons must know what they are doing under various scenarios
  - Equipment must be used correctly



# IECEx CoPC Units of Competency

Reference	Title
Unit Ex 000	Basic knowledge & awareness to enter hazardous area site
Unit Ex 001	Apply basic principles in explosive atmospheres
Unit Ex 002	Perform classification of hazardous areas
Unit Ex 003	Install explosion protected equipment & wiring systems
Unit Ex 004	Maintain equipment in hazardous areas
Unit Ex 005	Overhaul & repair of explosion protected equipment
Unit Ex 006	Test electrical installations
Unit Ex 007	Perform visual & close inspection of electrical installations
Unit Ex 008	Perform detailed inspection of electrical installations
Unit Ex 009	Design electrical installations
Unit Ex 0010	Perform audit inspection of electrical installations

# Is there a problem ...







# IECEX On-Line Certificate System



INTERNATIONAL ELECTROTECHNICAL COMMISSION SYSTEM  
FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT  
FOR USE IN EXPLOSIVE ATMOSPHERES (IECEX SYSTEM)

Information ▾ Publications ▾ Members' Area ▾ **Certificates & Licences ▾** Meetings & Events ▾ Contact Home

## News Releases

### Explosions avoided

IECEX, UNECE and IEC Brazilian NC conference on safety in the Ex field

### Preventing dust explosions

IECEX certification provides high level of protection

### Mining: A high-risk activity

IECEX ensures protection and safety for Ex equipment and workforce

### Competitive advantages

IECEX present at Australasian Oil and Gas Exhibition and Conference

### IECEX launches first mobile app

to show international certificates for equipment used in explosive atmospheres

### IECEX-AFSEC seminar in Africa



## IECEX Malaysia 2014

Kuala Lumpur 19-20 February 2014

Organized by the IEC and IECEX, together with Department of Standards Malaysia, and in conjunction with UNECE (United Nations Economic Commission for Europe), the 2014 IECEX International Conference will take place on 19 and 20 February 2014.

[More information from the meeting website](#)

## Quick Links

[IECEX Certificates and Licences](#)

[Certification Bodies \(ExCBs\) - Equipment](#)

[Certification Bodies \(ExCBs\) - Service Facilities](#)

[Certification Bodies \(ExCBs\) - Certified Persons](#)

[Certification Bodies \(ExCBs\) - Conformity Mark](#)

[ExTAG Decision Sheets List](#)

[IEC TC31 & IECEX Meeting Schedule](#)

## Featured



IECEX systems endorsed by UNECE



IECEX mobile apps



# IECEx On-Line Certificate System

## ***FIND ....***

- **Certification Bodies and Test Laboratories**
- **suppliers of Ex equipment**
- **competent personnel**
- **Ex Service Providers**

## ***CHECK ....***

- **Equipment markings**
- **Certificate details**
- **Personnel credentials**
- **Equipment installation requirements**



INTERNATIONAL  
ELECTROTECHNICAL  
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# Thank you for your attention



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