IECEx Certified Equipment Scheme

Prof Xu Jianping
ExTAG Chairman
NEPSI, Shanghai

Main Contents

IECEx Certified Equipment Scheme

- Overview of the Certification Process
- Tips on how to make application
- Benefits to stakeholders
- Feedback from local manufacturers

IECEx Certification Schemes

IECEx System

IECEx 02 Vision:

- Worldwide acceptance
- One standard
- One test
- One certificate
- One Mark

IECEx Equipment Scheme
Certification of Ex Equipment

IECEx Conformity Mark License

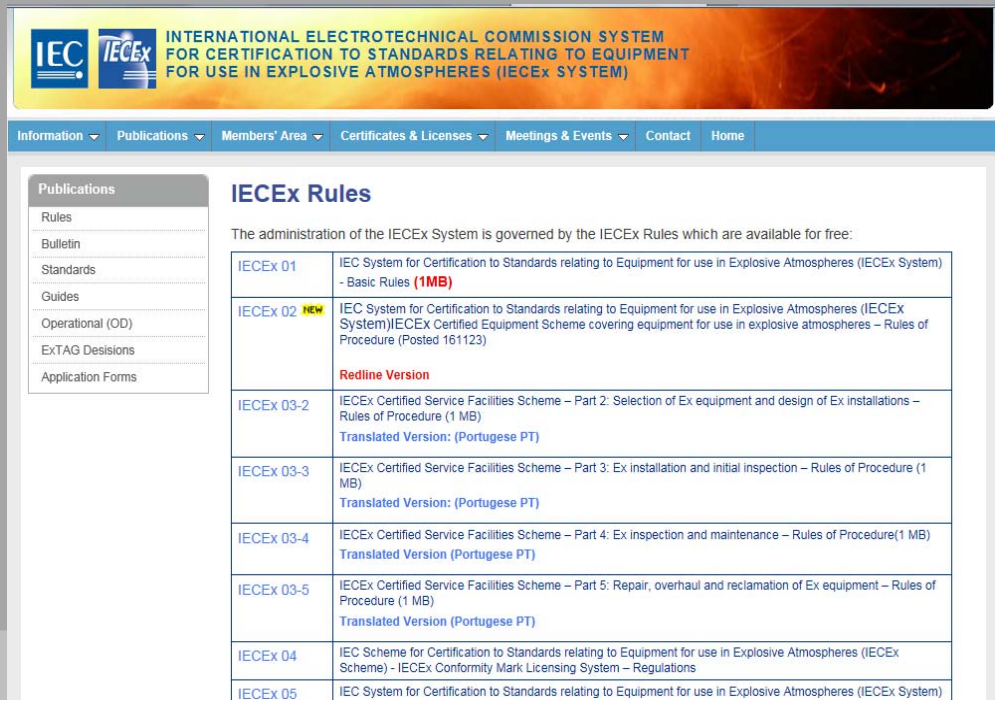
IECEx Services Scheme
Certification of Ex Service Providers

IECEx Personnel Competence Scheme

Supporting Documentation Structure

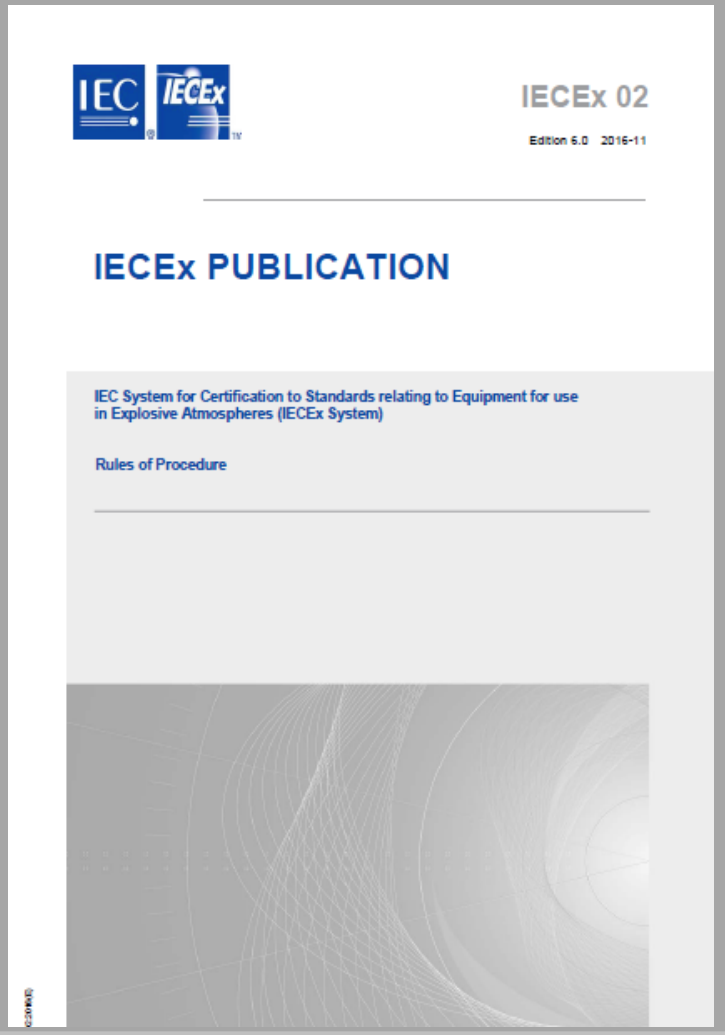
- IECEx 01 Basic Rules
- IECEx 02 Rules of Procedure – Equipment Scheme
- IECEx 04 Rules of Procedure – Mark Licensing System
  - Series Operational Documents (OD 001- OD XXX)
  - Technical Capability Document (TCD)
  - ExTR/QAR forms
  - IECEx Bulletin (std differences)
  - ISO/IEC stds and ExTAG decision
  - Application Guidance
  - Application form

All are available at:
www.iecex.com

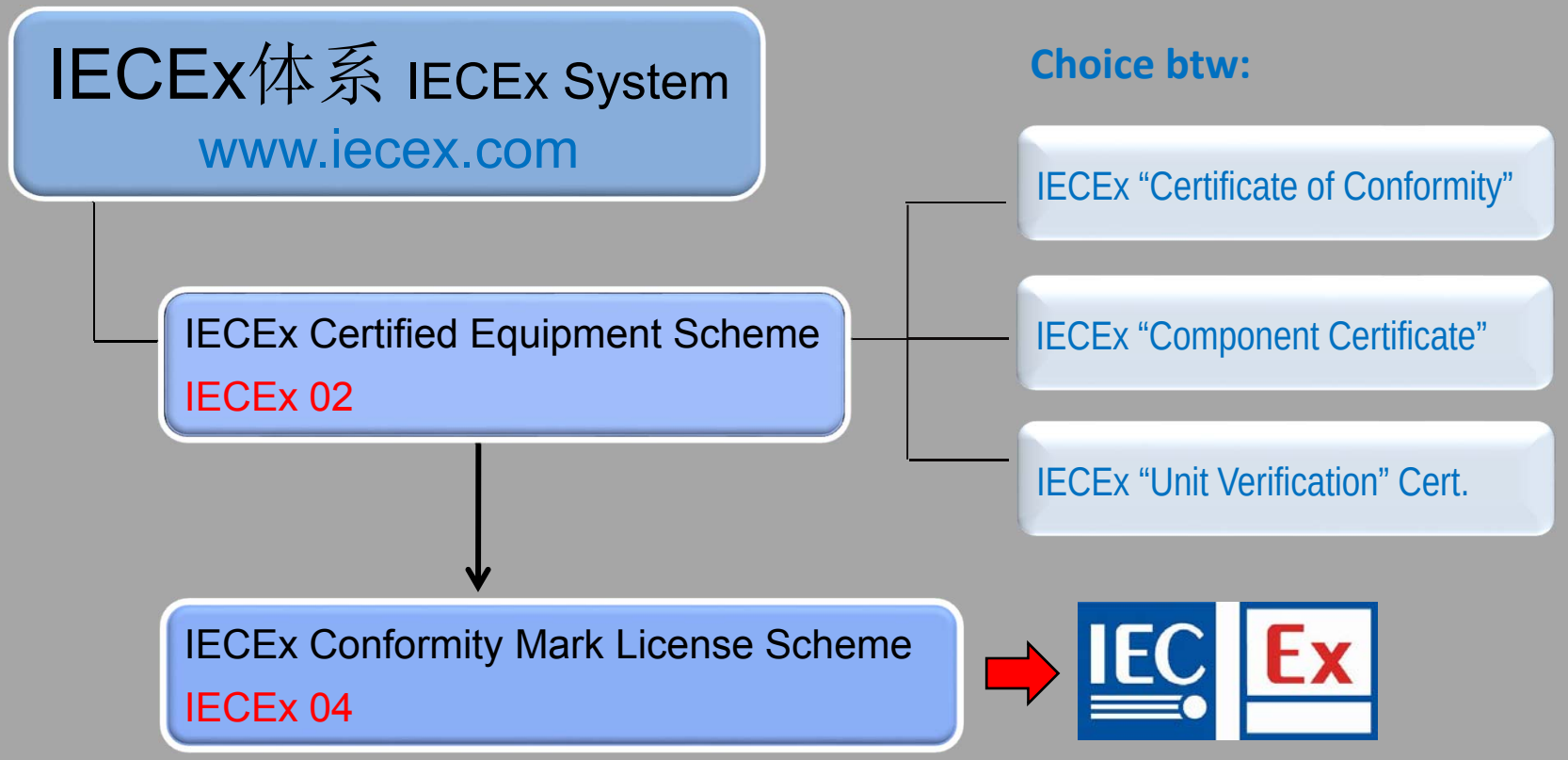


Key Features of IECEx Equipment Scheme

- Based on ISO type 5 cert. mode
- All equipment and systems used in hazardous areas, covered:
  - Electrical
  - Non-electrical
- Certificates issued to Int'l Stds, e.g.:
  - IEC
  - ISO
- "On-Line" Certificates with instant checking of certificates on IECEx website
- Operated by 55 ExCBs and 61 ExTLs



Possible Choice of Certificates



IECEx 04: 16 ExCBs for licensing IECEx Conformity Mark to IECEx certified products

Operation of IECEx Equipment Scheme

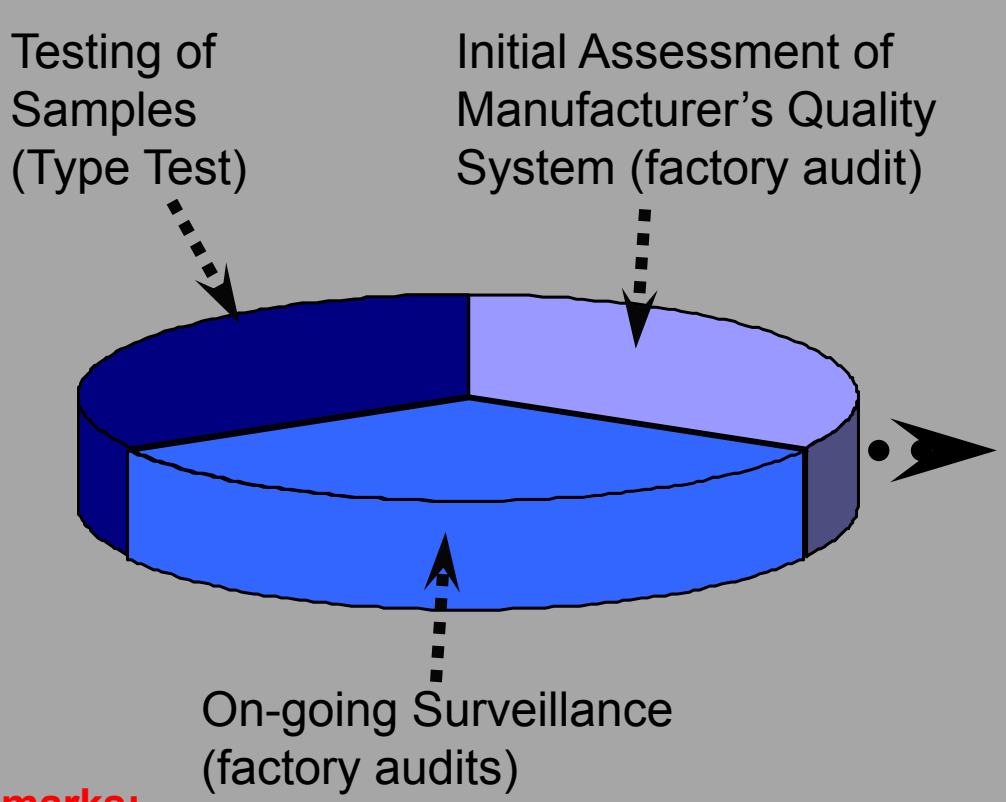
- Based on common ODs and procedures for all ExCBs & ExTLs
- All ExCBs and ExTLs undergo peer assessment process
  - initial assessment, surveillance/mid-term surveillance, 5-year reassessment
  - mandatory proficiency test (OD 202)
- Single report and certificate format used by all ExCBs and ExTLs, e.g. ExTR, QAR, CoC
- Dispute Resolution Mechanism
  - friendly communication btw issuing and accepting bodies
  - complain and/or appeal to body/IECEx secretariat/ IEC/CAB
  - Technical interpretation via ExTAG decision (DS – OD 035)
- Int'l confidence as a best practice mode on conformity assessment to int'l standards

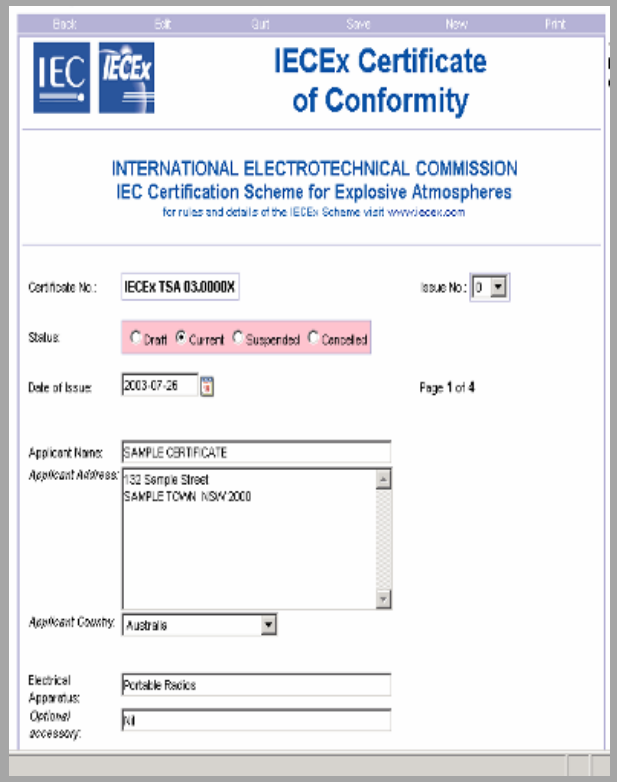
IECEx Equipment Certification – Basic STEPS

- Manufacturer/applicant needs to:
  - Prepare application documents (OD 017), including technical drawings, instruction manual, supporting documents and test sample)
  - Select an IECEx Certification Body (ExCB)
  - Complete and submit application form to selected ExCB
- ExCB and its associated ExTL needs to:
  - confirm acceptance of application
  - carry the certification processes
    - ※ Test and assessment (ExTR)
    - ※ Factory initial audit to ISO/IEC 80079-34, previous OD 005 (QAR)
    - ※ ExCB issues IECEx certificate (Ex CoC)
- On-going Surveillance by ExCB

Core Elements of IECEx Equipment Certification

- ISO Type 5 – high credibility for all manufactured products





IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

Certificate No.: IECEx TSA 03.0000X Issue No: 0

Status: Draft / Current / Suspended / Cancelled

Date of Issue: 2003-07-26 Page 1 of 4

Applicant Name: SAMPLE CERTIFICATE

Applicant Address: 132 Sample Street
SAMPLE TOWN NSW 2000

Applicant Country: Australia

Electrical Apparatus: Portable Radios

Optional accessory: Nil

Remarks:

1）IECEx does NOT require manufacturer separately holds ISO 9001 certificate.

2）Assessment of QMS to ISO/IEC 80079-34 is not required for IECEx unit Verification (IECEx OD 033).

Certification Process of Ex Equipment

According to type 5 of ISO Certification mode

Application Preparation By Manufacturer

IECEx Certification Body (ExCB)

Completed by ExTL

Sample test

Factory Audit

Factory Surveillance

Completed by ExCB

IECEx Certificate of Conformity

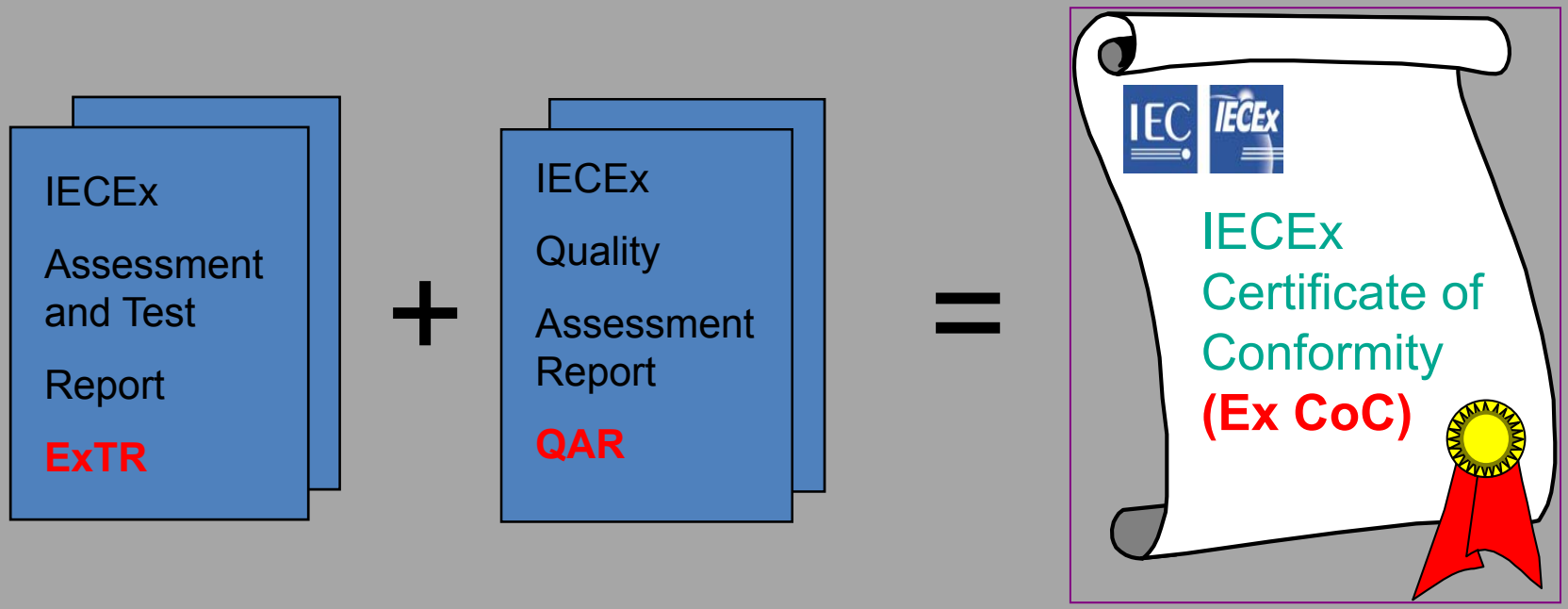
INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

Physikalisch-Technische Bundesanstalt (PTB)

Manufacturer

- Based on ISO/IEC 17065/17025+IECEx Rules + Procedures + ODs.
- No need to conduct factory audit and surveillance for IECEx “Unit Verification” Certificate.

Conditions for issuing IECEx CoC

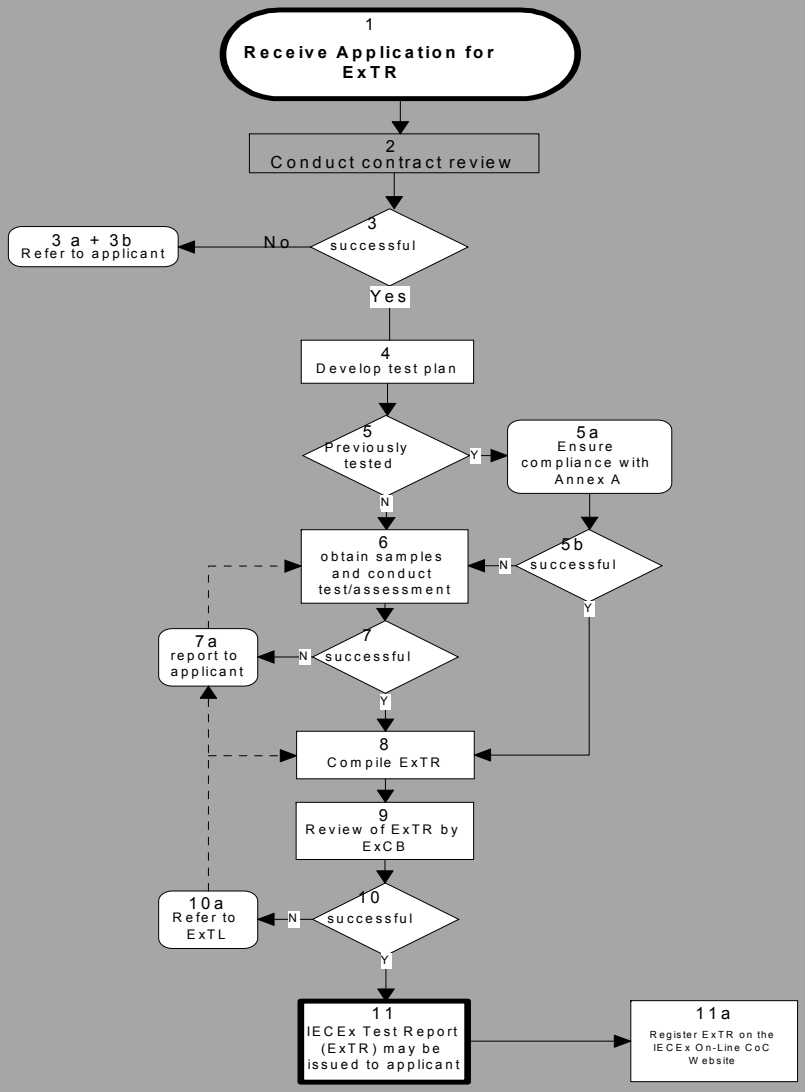


Remarks:

1) ExCB needs to confirm that ExTR and QAR match.
2) IECEx CoC issued to latest two versions of standards.
3) IECEx Unit Verification, refer to IECEx OD 033.
4) ExTR, QAR and CoC can be individually apply for, and issued by different bodies.

Procedure for Issuing ExTR

- Steps acc. to IECEx OD 009:
  - Receive application for ExTR
  - Contract review
  - Development of test plan (acceptance of previous test data)
  - Conduct test and assessment
  - Compile ExTR by ExTL and reviewed by ExCB
  - Issue ExTR to applicant
  - Register ExTR at IECEx website



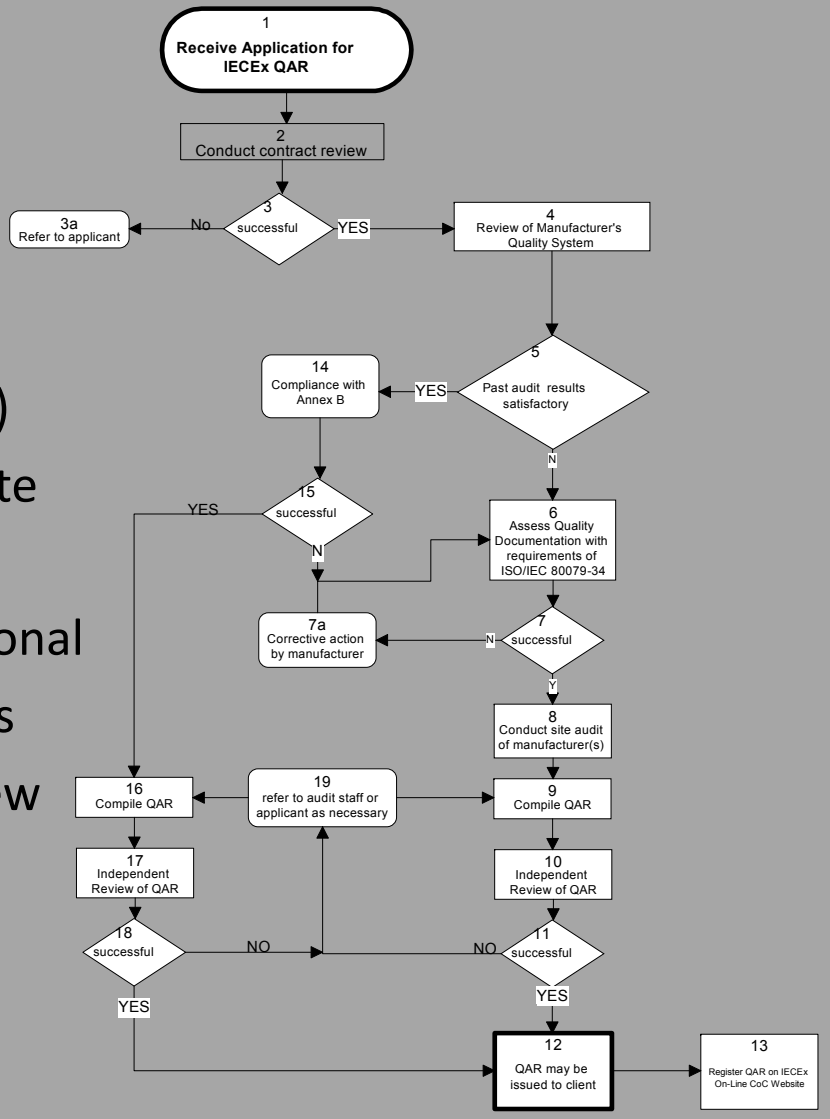
Process for Issuing and IECEx Test and Assessment Report (ExTR)

Procedure for Issuing QAR

- Steps acc. to IECEx OD 009:
  - Receive application for QAR
  - Contract review
  - Review applicant's QMS
    (acceptance of previous audit results)
  - Quality document assessment and site audit acc. to ISO/IEC 80079-34
    - ※ Modelled on ISO 9001, plus additional
    - ※ Annex A - Critical areas on Ex types
  - Compile QAR and independent review
  - Issue and Register QAR

In order to:

1) Ensure product is produced to certification.
2) Prevent any deviations and compromises.



Process for Issuing an IECEx Quality Assessment Report (QAR)

Procedure for Issuing IECEx CoC

- Steps acc. to IECEx OD 009:
  - Receive application
  - Contract review
  - Confirmation of ExTR & QAR, and their matching
  - Certification decision
  - Prepare and Issue CoC via online system
  - Commence surveillance program

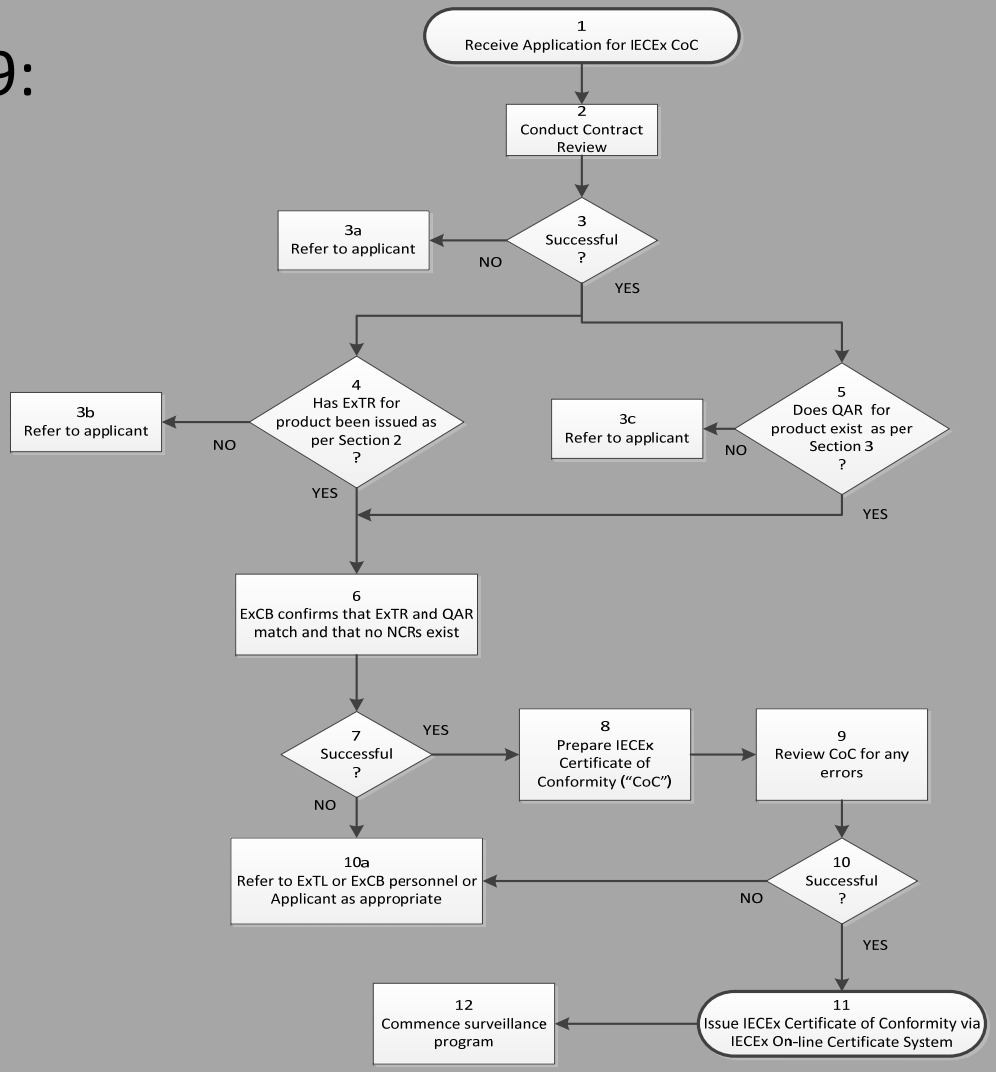
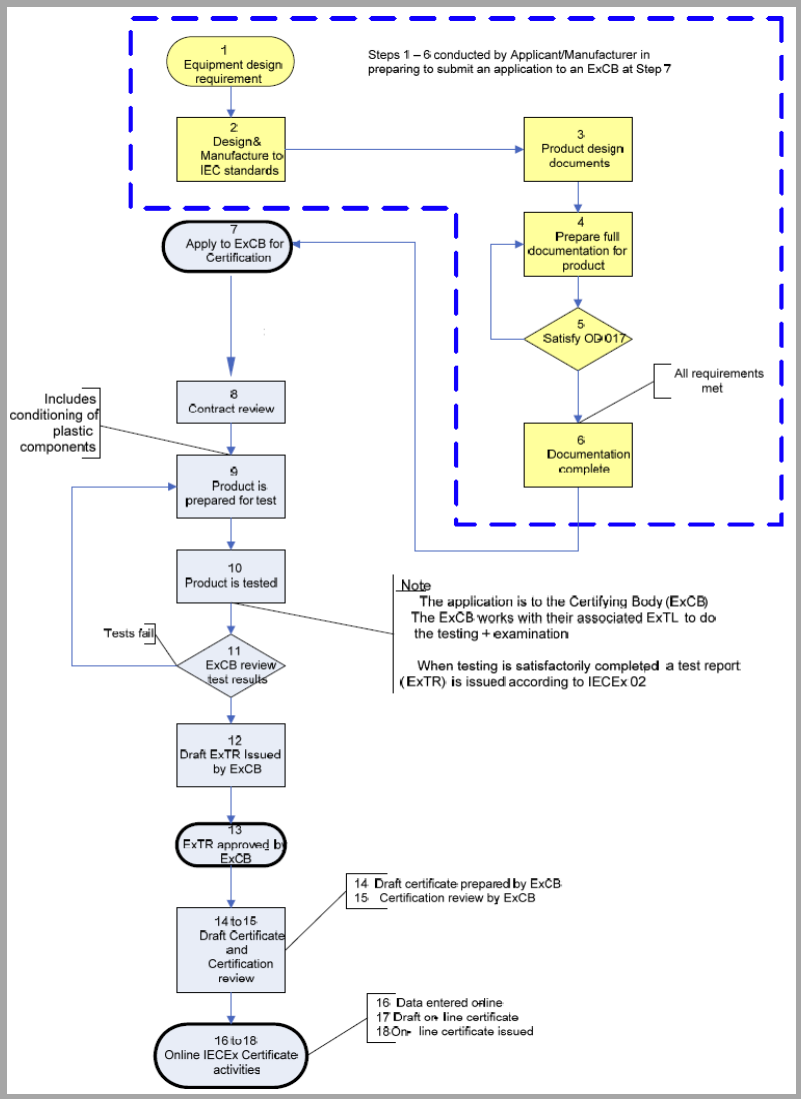


Figure 1. Process for issuing an IECEx Certificate of Conformity

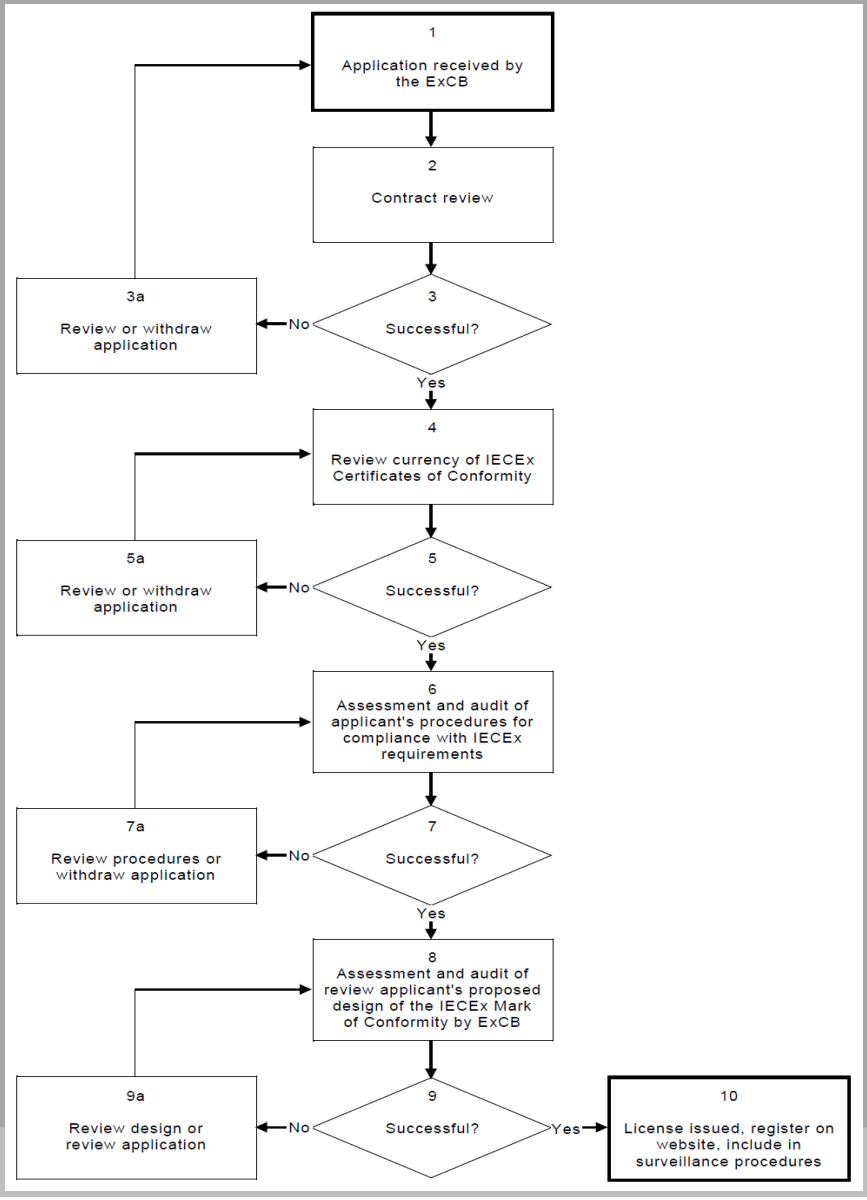
Procedure for Issuing IECEx Unit Verification Certificate

- Steps acc. to IECEx OD 033:
  - Receive application
  - Contract review
  - Conduct test and assessment (ExCB works with associated ExTL)
  - Compile and approve ExTR
  - Draft and issue certificate to specific items, via online system
- Manufacturer's preparations:
  - Equipment design requirement
  - Design and manufacture to Standards
  - Product documents acc. to OD 017



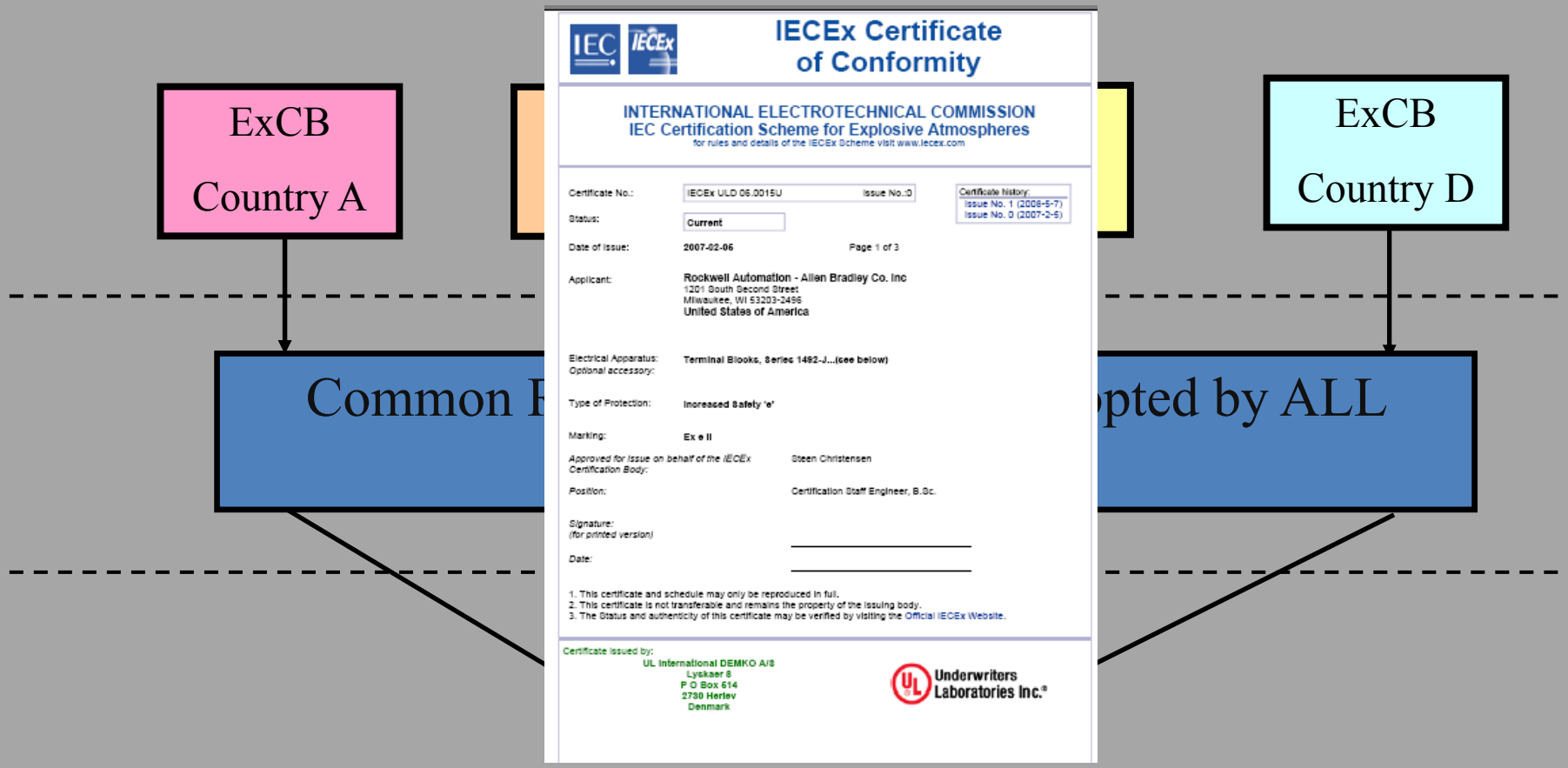
Procedure for licensing IECEx Mark

- Steps acc. to IECEx OD 422:
  - Receive application
  - Contract review
  - Review currency of IECEx CoCs
  - Assessment & audit of applicant's procedure and design (OD 023)
  - Issue and register license via online system
  - Surveillance arrangement by ExCB



Tips on How to Make Application

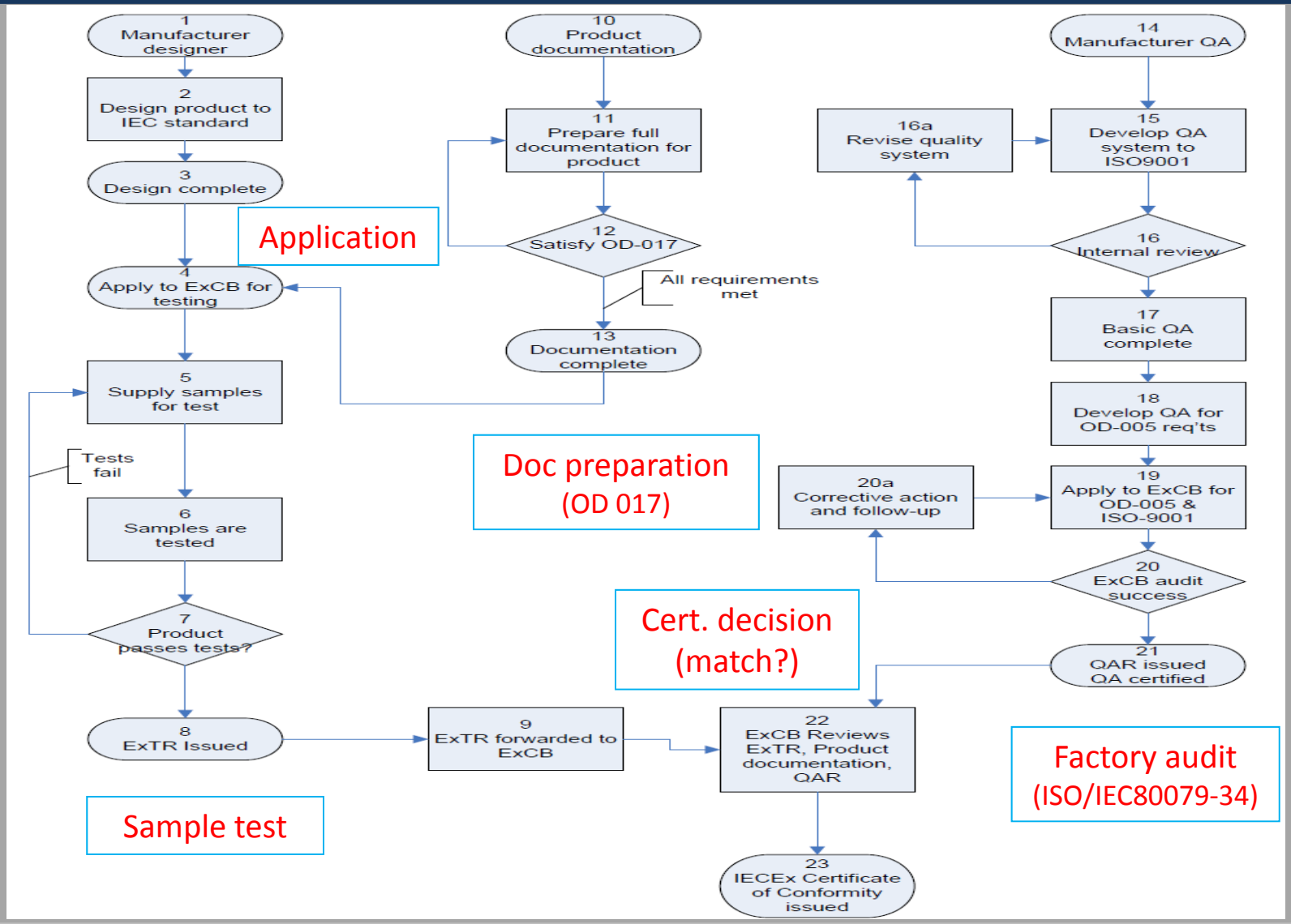
- IECEx 02A Guidance for applicants seeking IECEx CoC



Selection of ExCBs

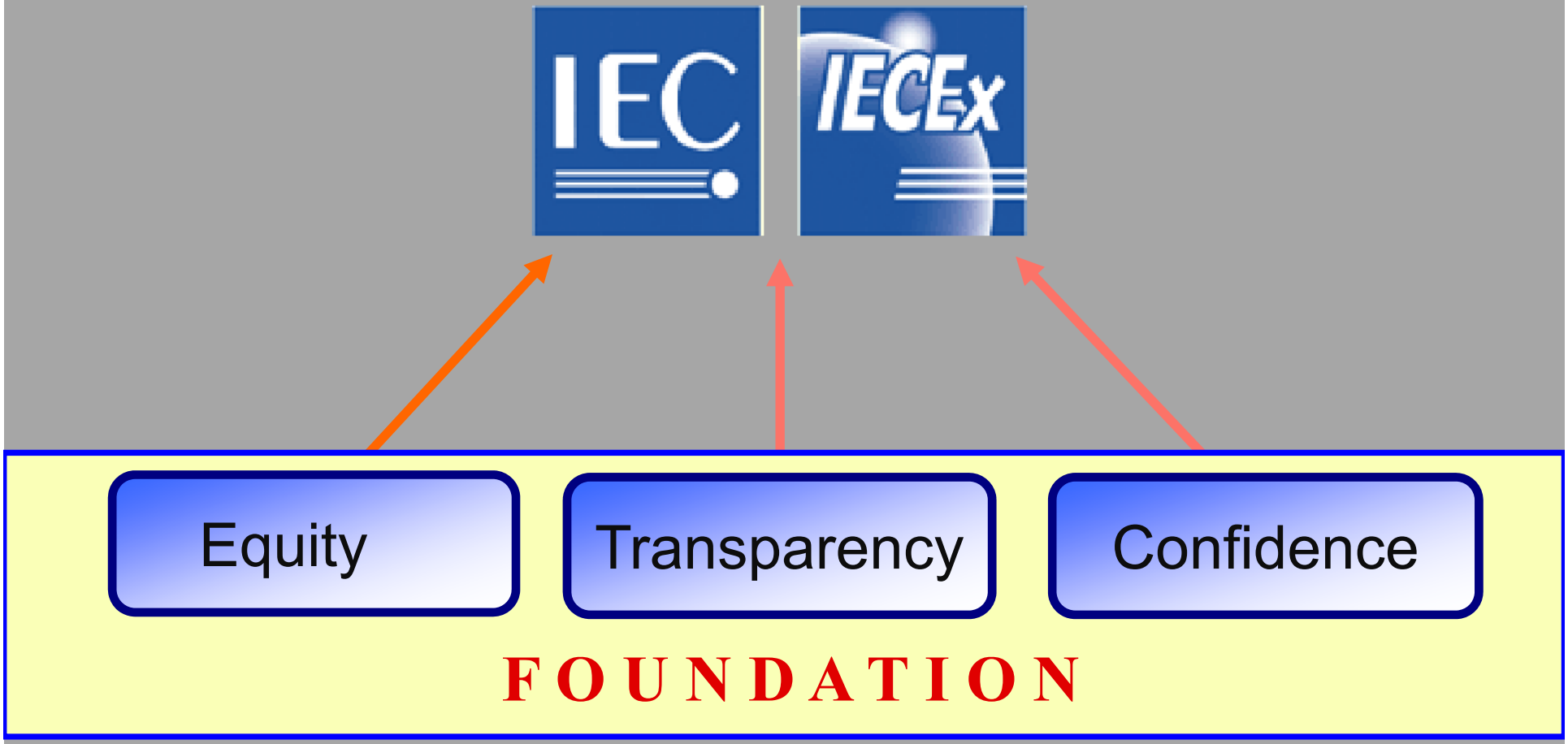
- Full listing maintained at IECEx website
  - 55 ExCBs + 5 Applicants
  - 61 ExTLs + 8 Applicants
    (as of 28 March 2017)

Application Guide - Flowchart



- Abstracted from IECEx 02A

Foundation of IECEx Equipment Scheme

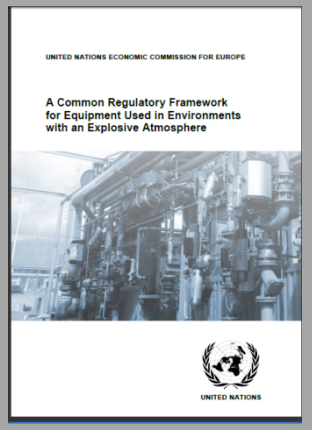


Int'l evidence that meets Int'l standards, a global marketing solution!

Recognition and Support by Countries and Industries

- 33 participated members from USA, UK, France, Germany, Australia, Norway, Malaysia, Canada, UAE, China, ……
- Active involvement in IECEx meetings + WGs
- Supported/promoted by industries

- Endorsed by UNECE



Benefits to Stakeholders in China

Customers

- Reduction of app. risk
- Compliance to int'l practice
- Safer production
- Global management

Regulators

- Used for improvement of national system
- Adoption as a good practice for supporting
  - The Belt and Road
  - National quality and safety strategy

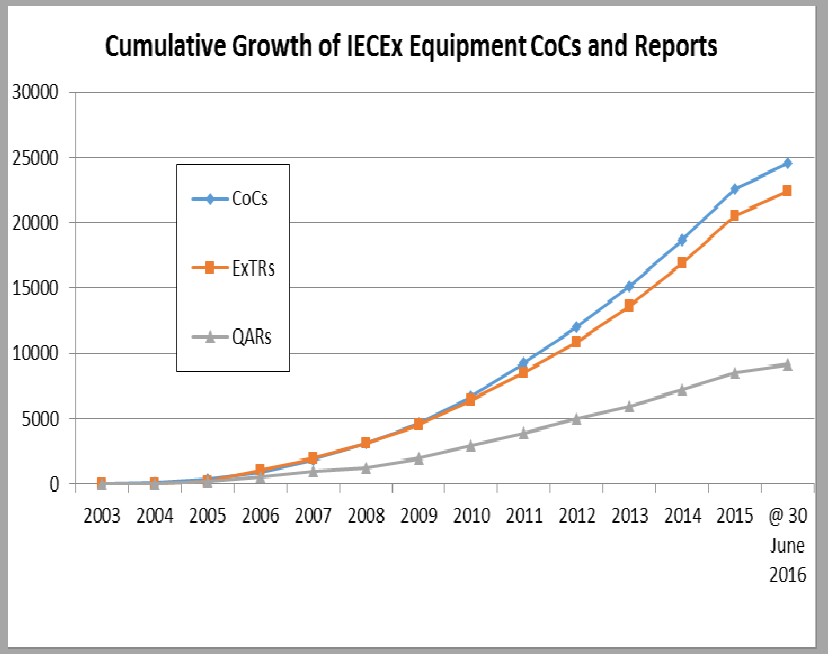
Manufacturers

- Confidence to int'l std.
- Global market access
- Win reputation
- Reduce quality cost
- Add value to bidding

Evidence of the Benefits

- Statistics on issued equip. CoCs and Reports
  - —24,544 IECEx CoC, 22,434 ExTR and 9,155 QAR issued

Total number of IECEx Equipment CoCs					
Issued In the Year of	CoCs	ExTRs	QARs	Total CoCs & Reports	Drafts CoCs in the System
2001	0	2	0	2	0
2002	0	4	0	4	0
2003	12	10	1	23	10
2004	98	61	43	202	115
2005	262	133	154	549	225
2006	563	909	387	1859	360
2007	931	906	386	2223	431
2008	1258	1166	350	2774	499
2009	1490	1347	712	3549	618
2010	2070	1897	947	4914	675
2011	2626	2143	966	5735	1000
2012	2680	2301	1019	6000	1150
2013	3104	2783	1027	6914	1286
2014	3562	3265	1246	8073	1461
2015	3904	3655	1353	8912	1583
@ 30 June 2016	1984	1852	564	4400	1921
Totals	24544	22434	9155	56133	



- IECEx Certificate holders from China
  - —About 1000 IECEx CoCs, 1000 ExTRs and 860 QARs, e.g, the Sponsors – **Warom:** 169 CoC; **CZ:** 61 CoC; **CHENZHU:** 13 products certified under 2 CoC

Feedback from dedicated Ex manufacturers in China

30 yrs history, as a leading Ex company in China, to provide equipment solutions for whole series Ex system.

WAROM

A full supporter of IECEx, as an earliest IECEx CoC holder in China since 2007 & a member IECEx MarkCo.

Enterprise ideas and qualifications

- “Quality first, users supreme” oriented with continuous innovation
  - ISO 9001, 14001, 10012 and OHSAS 18001 certified
    - Qualified as “Enterprise Technology Center”
- Authorized as “Intellectual Property Rights Exemplary Enterprises”
  - holds more than 700 product patents

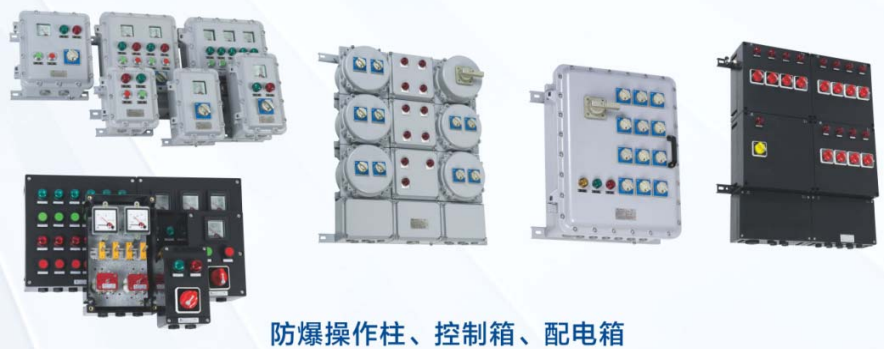
Series Products available at Warom

- Ex LED series lightings and various professional lightings
- Ex components, terminal boxes, plugs and sockets
- Ex control panels and distribution stations, Ex instruments, ... for Group I, II and III purposes

防爆LED系列灯具
Explosion-proof LED series lightings

防爆接线箱、插接装置
Explosion-proof terminal box, plug and socket

防爆荧光灯、高/矮顶灯、泛光 / 投光灯、局部照明灯、警示灯、移动照明灯具
Explosion-proof fluorescent light fitting, Highbay, Floodlight / spot light, Local / caution illumination, Portable lighting



防爆操作柱、控制箱、配电箱
Explosion-proof control box, distribution box

Value of IECEx equipment certification

- Being as largest export Ex equipment supplier to about 30 countries and regions, e.g., Russia, the United Arab Emirates, Saudi Arabia, Kuwait, Iran, Thailand, Turkey, South Africa, Brazil and so on.
- Confidence by various certifications, e.g., IECEx, ATEX, CU-TR, UL&FM, INMETRO and etc.
- As an int'l player, IECEx is an important tool with Value:
  - Continuous improvement by IECEx audit
  - High confidence that meets int'l standards
  - Quick access to local certification within IECEx member countries
  - Direct acceptance by some marketplace

IECEx Certification is a global marketing solutions for Ex equipment!

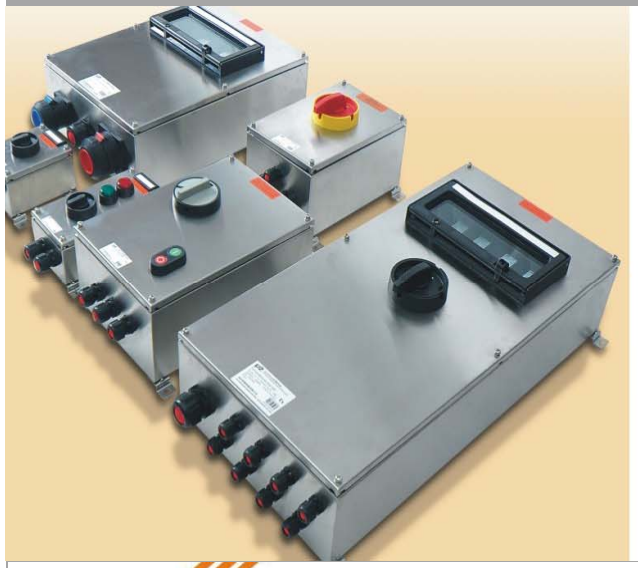
Feedback from Dedicated Ex manufacturers in China

27 years history, continuously committed to providing respected customers high-quality products and services

A leading Chinese Mfr., especially in Ex equipment with non metal enclosure
One of earliest IECEx CoC holders in China
Active supporter of IECEx system

Series Products available at CZ

- Explosion-proof Components and Modules
- Explosion-proof Plugs and Sockets
- Explosion-proof Lightings
- Explosion-proof Electrical Apparatus 、 Control Box、 Junction Box, Including Full plastic 、 stainless steel and aluminum-alloy enclosure



EXPLOSION-PROOF

Value of IECEx equipment certification

IEC Ex国际认证
International IEC Ex Approval

ATEX 欧洲认证
Europe union ATEX Approval

俄罗斯海关联盟CU认证
Customs Union Technical Regulations Certicate,CU–TR

德国莱茵TÜV
TÜV Rheinland Group

巴西UC认证
união certificadora

挪威船级社
DET NORSKE VERITAS

中海油供应商
Supplier of China National Offshore Oil Company Limited (CNOOC)

国家高新技术企业
High–tech enterprise

中石油一级供应商
A member of the first–level supply networks for China National Petroleum Corporation (CNPC)

中石化物资资源市场成员
A member for the material resource market of China Petroleum & Chemical Corporation (Sinopec)

IECEx helped CZ products to the int'l market with low cost and less time!
IECEx Certification is the best choice for globalization of an Ex Enterprise!

Feedback from Dedicated Ex manufacturers in China

CHENZHU 辰竹

15 years history, one of largest professional suppliers for safety interface and protection units

Series Products available at CHENZHU

For Safety Protection of ICS used in petrochemical, coal industry

- *Explosion-proof*
- *lightning-proof*
- *Anti-interference*

Intrinsic Safety Ex i

SIL 3 IEC61508

Isolated Safety Barriers

EMC

Signal isolator

Lightning Protection

SPD

Mech. safety

SIL 3 IEC61508

Safety relay

Safety Control

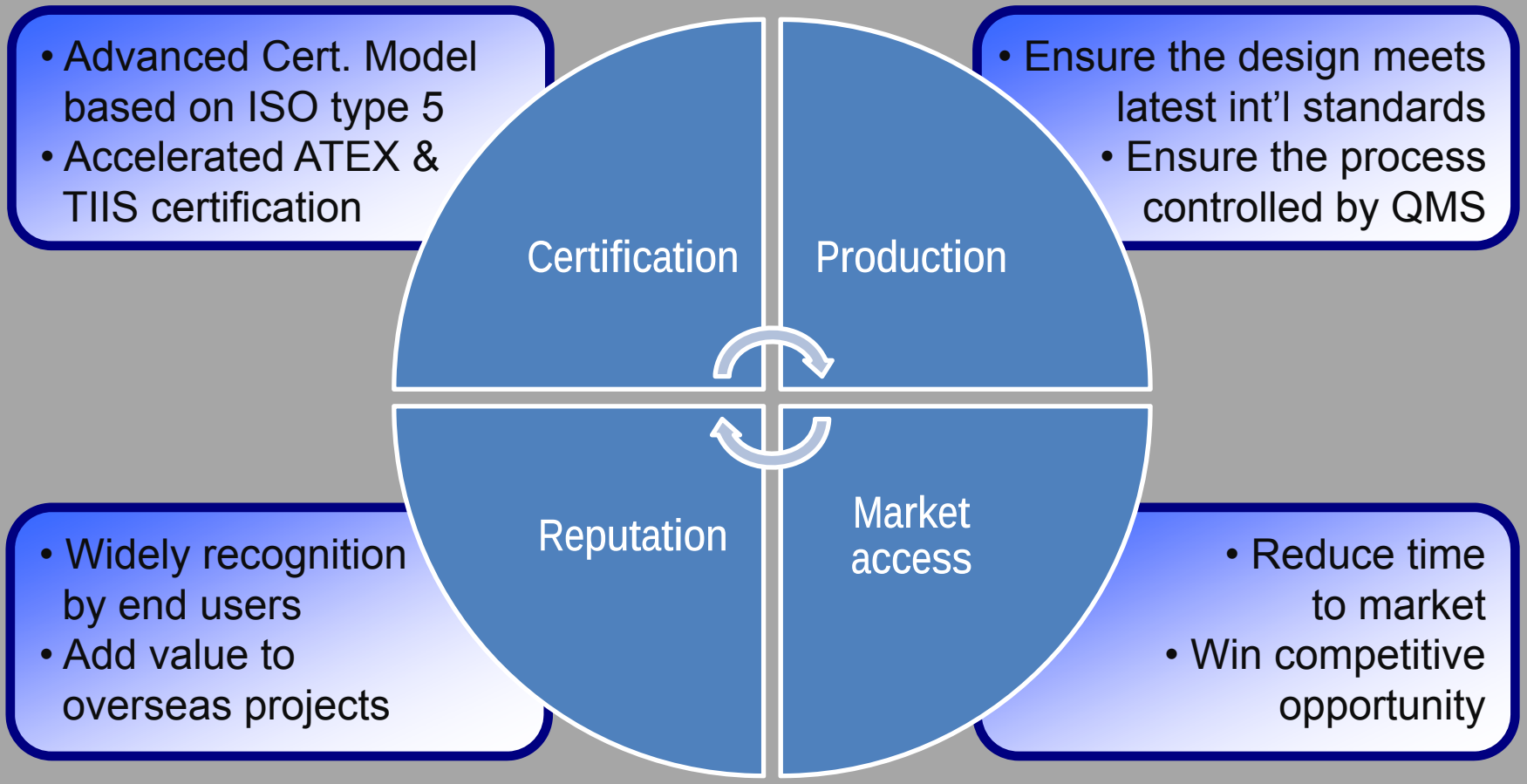
Smart controller

Transmitters & Power Supply

Cumulative sales - 2 million units, annual sales - 300 thousand units

The domestic market share – 1st!

Value of IECEx equipment certification



Thank you

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