

The IECEx Scheme for certification of Ex equipment



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What is the IECEx Scheme?

The IECEx Scheme is the International Electrotechnical Commission (IEC) Scheme for certification of equipment and services for use in explosive atmospheres. The Scheme is one of three conformity assessment systems established and operated by the IEC, and is based on IEC standards.

Created in September 1999, the Scheme aims “to facilitate international trade in equipment and services for use in explosive atmospheres, while maintaining the required level of safety...” (source: IECEx website, www.iecex.com). It is a voluntary system which provides an internationally accepted means of proving that products and services are in compliance with IEC standards. The voluntary and international aspects of the IECEx Scheme differentiate it from certification under ATEX, for example, which is mandatory but applies only within the European Economic Area.

The IECEx Scheme comprises global certification programs for both equipment and service facilities.

Is IECEx certification the same as IEC certification?

IECEx certification is not the same as IEC certification, even though both relate to the same IEC standards. The fundamental difference is that IECEx certification is a quality based system, using a single set of Rules and Operational Procedures, while IEC certification is usually based on product type testing alone.

This means that IECEx certification involves – in addition to the product tests – assessment of quality control procedures and testing plans, audits of manufacturing plants, and routine on-going surveillance and inspections. (See table below).

In addition, IECEx has established a comprehensive set of operational manuals and procedures to develop a single internationally standardized approach to Ex testing and certification. This approach includes:

- A standardized evaluation process for bodies seeking to become IECEx Testing Laboratories and Certification Bodies
- A standardized “IECEx way of Ex Testing and Certification”. There is a single set of operational procedures, and Ex test procedures are always applied in the same way.
- A dedicated Technical and Operational Secretariat to maintain operations. Ex test procedures are evaluated and monitored on a centralized basis.

What does the certification process involve?

The table summarizes the main steps in a quality based certification system like the IECEx Scheme. For comparison, the activities involved in type test certification (such as IEC certification) are also shown.

Activity	IECEx (quality based product certification)	IEC (type test product certification)
Select suitable standard	x	x
Develop plan for testing representative samples	x	x
Test samples	x	x
Issue Test Report	x	x
Perform technical review of Test Report	x	x
Assess manufacturer's quality control procedures and testing plans	x	
Conduct audit to verify quality control systems are appropriate and correctly implemented	x	
Issue certificate	x	x
Perform full re-testing to re-issue certificate		x
Conduct routine, on-going surveillance and audits	x	

Who is responsible for the certification work?

A manufacturer needing to have equipment certified under the IECEx Scheme can apply to an IECEx Certification Body (ExCB) in any member country. At present (May 2006) there are 25 IECEx member countries. The ExCB performs or coordinates the activities shown in the table.

A quality assessment of the manufacturer is undertaken by the ExCB itself, and the auditor issues an IECEx Quality Assessment Report (QAR).

Type testing of product samples is performed on behalf of the ExCB by an IECEx Assessment and Testing Laboratory (ExTL). On completion of its work the ExTL's assessment engineer prepares an IECEx Test Report (ExTR).

The ExTR is then submitted to the ExCB for endorsement. Based on the QAR and ExTR, the ExCB then issues the Certificate of Conformity (CoC). The CoC provides internationally accepted verification that the equipment in question is in compliance with the relevant IEC standards. By May 2006, over 900 certificates had been issued.

Once formally issued by the ExCB, both the ExTR and QAR are registered on the IECEx Internet site. This provides verification that an ExTR and QAR exist for the product and manufacturer.

The IECEx Scheme includes rigorous procedures for assessing organizations seeking to be accepted as ExCBs and ExTLs. Once accepted, these bodies are subject to on-going monitoring, including a full review every five years.

How do I know if a motor is IECEx certified?

IECEx certified motors show the certification number on their rating plate, for example: "IECEx LCI 05.0008". In this case "LCI" indicates that the IECEx Certificate was issued by LCIE, an IECEx approved Certification Body in France.

In addition, IECEx certificates are issued in electronic form and are publicly available on the IECEx website. They can therefore be viewed and printed by anyone with access to the Internet. See 'Online Certificates' at www.iecex.com.

Which ABB motors and generators are IECEx certified?

All HXR, AMA and M3GM motors and generators with protection type Ex nA, as well as all M3JP/ M3KP 80–400 motors with protection type Ex d and Ex de, are IECEx certified. Work is presently in progress to secure IECEx certification for AMI Ex nA motors and generators.

Other protection types and motors can be supplied with IECEx certification on request. For manufacturing plants where the quality assessment work has already been successfully completed, other protection types - such as Ex p - can be supplied if required. In such cases ABB simply has to apply for a motor-specific ExTR.

IECEx certification is particularly useful in certain markets. In Australia, New Zealand, and Singapore, for example, IECEx certificates are accepted, but not all IEC certificates are accepted. Certain other countries, including Korea and China, are prepared to accept ExTRs as a basis for their own national certificates. There are also many countries that are willing to accept products covered by current IECEx certificates, even though the countries in question are not members of the IECEx Management Framework.

