

How medical devices are approved in Europe

In Europe, approval of medical devices is governed by the European Council Medical Device Directive (Council Directive 93/42/EEC, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1993L0042:20071011:en:PDF>). This directive does not cover *in vitro* diagnostics, which are regulated under Council Directive 98/79/EC. Active implantable devices are covered under Council Directive 93/385/EEC.

Industry Canada provides a detailed explanation of the EU requirements in a report on the Canadian medical devices industry: http://www.ic.gc.ca/eic/site/md-am.nsf/eng/hi00037.html#_1_6.¹

EU device classifications

The EU classifies devices into four categories. Devices are categorized according to a series of rules set out in the Council Directive. The higher classifications apply for devices that are more invasive and more risky. Classification depends on a series of factors including how long the device is intended to be in continuous use, whether the device is invasive or surgically invasive, whether the device is implantable or active, and whether or not the device contains a therapeutic substance. Details on which category a medical device falls into can be found in the 18 classification rules listed in Annex IX of the Directive 93/42/EEC.

- **Class I:** This group covers low-risk devices, and the conformity assessment procedures are carried out by the manufacturer. Examples of this type of classification include devices that do not penetrate the body such as bandages, hospital beds, sterilization packaging, and dental mirrors. There is no need for a Notified Body (see below for more details) for class I devices.
- **Class IIa:** In most cases, the intervention of a Notified Body is compulsory at the production stage for class IIa devices. Examples include anesthetic gas masks, acupuncture needles, oxygen masks and spirometer peak flow meters.
- **Class IIb:** In this class, inspection by a Notified Body is required with regard to the design and manufacture of the device. Examples of this type of classification include anesthesia gas machines, hyperbaric chambers and respiratory monitors.
- **Class III:** This group covers the most critical devices for which explicit authorization with regard to conformity is required before commercialization. Examples include artificial hearts, pacemaker batteries and bone grafts.

Quality systems

The quality standard to which medical device manufacturers should adhere is ISO 13485:2003 *Medical devices-Quality management systems-Requirements for regulatory purposes*. Manufacturers must ensure that their manufacturing processes align with the ISO standard otherwise they will not be permitted to apply the CE marking (see below) to their device. An important part of the CE marking process for class II and III devices is an audit of the quality system by the Notified Body. The quality system must pass the inspection conducted by the Notified Body.

CE marking

Once a medical device is placed on the European market, it is required to contain CE marking. The CE marking symbolizes conformity of the product to the EU's requirements. The manufacturer bears the ultimate responsibility for ensuring the product conforms to EU requirements. The CE marking relates to the design and production phases of a product. It is not a quality standard; it is a manufacturer's declaration that a product complies with the essential requirements of the relevant directives. It allows for the movement of goods within the EU and the removal of non-conforming goods. Often, the term is referred to as "CE mark;" however, this is technically incorrect, and the correct

¹ Industry Canada. (2009, November 6). *Quality System Requirements for Medical Devices*. Reference Guide For Manufacturers Selling Medical Devices in Europe, Canada and the United States, 2005 Version. Retrieved February 24, 2010, from <http://www.ic.gc.ca/eic/site/md-am.nsf/eng/hi00012.html>.

wording is “CE marking.”

Devices that do not receive CE marking include custom-made devices, devices undergoing a clinical investigation, and *in vitro* diagnostics undergoing performance evaluation.

There are nine key steps to give a product CE marking:

1. Determine which EU Directives apply to the product.
2. Identify the applicable conformity assessment procedure. This could be self-declaration for low-risk products, or it could involve testing, inspection or a quality system assessment by a Notified Body. Details on which conformity assessment procedures apply can be found in the various Annexes to Directive 93/42/EEC.
3. Select the applicable product standards and test methods and select an independent lab (Notified Body) if product testing is done externally.
4. Ensure the product complies with the essential requirements of the Directive.
5. Identify whether an independent assessment of the conformity to a Directive is required from a Notified Body. If such certification is required, the manufacturer must hire a Notified Body to perform the product assessments.
6. Maintain technical documentation as required by the Directive.
7. Prepare the *Declaration of Conformity* that includes a list of standards and directives to which the product conforms, and the required supporting evidence. It should be available to EU regulators upon request.
8. Check that no other local (i.e., national) requirements exist in the countries where the product will be sold.
9. Affix CE Marking to the product.²

Note that manufacturers are required to register with a competent regulatory authority in the country in which they intend to sell their product.

Notified Bodies

The EU has established a system of Notified Bodies that are responsible for certifying products on behalf of the EU. The Notified Body is not permitted to be the designer, manufacturer, supplier, installer or user of the medical device it is assessing. The assessment must be independent and impartial. Notified Bodies are appointed by each member state under their appropriate national regulations to conduct third-party conformity assessment procedures on a product or its production processes, as required by the Directives, so that it can be approved for CE marking.

The Notified Body evaluates a product against harmonized standards such as ISO 9000 to ensure that a quality system is in place and all the essential requirements are met. A Notified Body is designated to conduct conformity assessments only for areas in which it is certified as per its expertise. The technical competence and management structure of the organization is required to fulfill certain conditions, and the name of the Body, along with the details of the scope of its notified activities, must be provided to the European Commission. Contact details for all Notified Bodies can be found in the European Commission's NANDO database (<http://ec.europa.eu/enterprise/newapproach/nando/>).

Some Notified Bodies will conduct pre-audits (for a fee) to evaluate the feasibility of a successful certification audit. A manufacturer must apply to the Notified Body for the assessment of its quality system. In some cases, product compliance is needed in addition to quality compliance. The certification audit takes place on-site and assesses the conformity with ISO 13485:2003. The audit team usually consists of a lead auditor as well as an auditor with expertise in the manufactured product. Once the company has demonstrated compliance with all requirements and has passed the audit, it can prepare the *Declaration of Conformity*.

Notified Bodies also conduct periodic surveillance audits to ensure the maintenance of quality standards.

All class IIa, IIb and III devices require certification with a Notified Body. In addition, class I devices with a measuring function or sterile packaging function also require certification.

² British Standards Institution. (2010). *The CE marking process with BSI*. Retrieved February 24, 2010, from <http://www.bsigroup.com/en/ProductServices/About-CE-Marking/The-CE-marking-Process/>

Technical file

Every product manufacturer is required to maintain a technical file with documentation that demonstrates the product complies with the appropriate Directives. The following items should be included in the technical file:

- description of the apparatus
- wiring and circuit diagrams, if applicable
- general arrangement drawing
- list of standards applied
- records of assessments to standards
- description of control philosophy/logic
- datasheets for critical sub-assemblies
- part list
- copies of any markings and labels
- copy of instructions (user, maintenance, installation)
- test reports
- quality-control and commissioning procedures
- *Declaration of Conformity*³

Declaration of Conformity

The *Declaration of Conformity* is a formal, signed document that indicates a product meets the requirements of the Directive. It permits regulators to identify who is responsible for a product and what the person claims to have done to permit CE marking. This document is to be issued by the manufacturer, not the Notified Body, although the Notified Body can assist in its preparation. It should be signed by the individual in the company who can be held responsible if the CE marking is found to be invalid. The following information should appear on the *Declaration of Conformity*:

- name and address of manufacturer (and, where applicable, the designated person responsible)
- model and/or serial number of equipment
- list of relevant Directives
- list of standards used, with dates and amendments
- declaration statement
- name and position of person signing
- signature
- date

If a Notified Body is involved in the certification process, its identity should be included as well.

Authorized representatives

For manufacturers not based in the EU, an authorized representative must take responsibility for CE marking. This person must be based in the EU, their address must appear on the product, and they must take responsibility for compliance with CE marking. The authorized representative is not a person who imports a product to sell it in the EU. The authorized representative is someone who has a formal contract with the manufacturer to represent them within the EU.

Clinical investigations

For most devices that require clinical investigation, manufacturers must inform the relevant regulatory agency 60 days in advance of the start date of a clinical investigation they intend to run. If the manufacturer does not receive notice opposing the trial from the regulator, the trial can start after 60 days and after it has obtained approval from the local ethics committee .

Post-marketing surveillance and safety reporting

Manufacturers are required to monitor the performance of their products once they are marketed. A manufacturer must have in place a safety system to track any adverse events or product malfunctions that affect the health and safety of a patient, user or anyone else. This includes death or serious injury, as well as events that could have led to such an outcome.

³ Conformance Ltd. (n.d.). Retrieved February 24, 2010, from <http://www.conformance.co.uk/info/technicalfile.php>