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ASSOCIATION EUROPÉENNE DES CONSTRUCTEURS DE  
POMPES  
EUROPÄISCHE VEREINIGUNG DER  
PUMPENHERSTELLER



SECRETARIAT  
Standards Commission  
Lyoner Straße 18  
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**Guideline for the application of the  
EC-Directive "Electromagnetic Compatibility" 89/336/EEC  
for pump units**

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EMC Directive 89/336/EEC dated 3. May 1989, as amended by Directive 92/31/EEC dated 28. April 1992, and by Directive 93/68/EEC dated 22. July 1993 came into force in all territories of the European Union (EU) on 1. January 1996. From that date, relevant equipment placed on the market must conform to the requirements of local regulations implementing the Directives, and to carry a CE-marking.

The EMC-Directive applies to the Member States of the EU as well as to those states who are members of the European Economic Market (see Annex 1).

## **Scope; Definition**

Acc. to art. 2 (1) the Directive applies to:

"Apparatus liable to cause electromagnetic disturbance or the performance of which is liable to be affected by such disturbance.

It defines the protection requirements and inspection procedures relating thereto.";

whereas "apparatus" is defined acc. to art. 1 (1) as follows:

"Apparatus means all electrical and electronic appliances together with equipment and installations containing electrical and/or electronic components."

The word "equipment" is also used and is to be interpreted as the same as apparatus.

## **Conclusions for products of the pump industry**

Pumps and pump units incorporating electrical or magnetic apparatus fall within the scope of the EMC-Directive. Pumps and pump units supplied without electrical or magnetic parts do not fall within its scope, e.g. bare-shaft pumps, air-driven pumps etc.

In general pumps and pump units fall under the scope of the EC-Directive Machinery and for those machines respective EC-declarations (Declaration of incorporation or EC-Declaration of conformity) acc. to the EC-Directive Machinery have to be issued (see EUROPUMP-Guideline to the EC-Directive Machinery).

On that basis, and in applying the EMC-Directive, five cases can be distinguished:

- 1: A pump unit which is "ready for use" complies with both the EC-Directive Machinery and with the EMC-Directive.

An EC-Declaration of conformity in accordance with the EC-Directive Machinery is required referring also to the EMC-Directive and a CE-marking.

- 2: A pump unit which is not "ready for use" but which incorporates a complete electrical or magnetic system conforming fully to the EMC-Directive requirements.

The pump unit requires a Declaration of incorporation in accordance with the EC-Directive Machinery and a EC-Declaration of conformity in accordance with the EMC-Directive, and a CE-marking on the EMC-relevant parts.

- 3: A pump unit which is not "ready for use" which incorporates parts of an electrical or magnetic system conforming fully to the EMC-Directive requirements.

The pump unit requires a Declaration of incorporation in accordance with the EC-Directive Machinery. The individual parts of the electrical or magnetic system require an EC-Declaration of conformity in accordance with the EMC-Directive and a CE-marking. The pump unit must not carry a CE-marking.

- 4: An apparatus is not a machine acc. to the EC-Directive Machinery, however the scope of the EMC-Directive applies. The protection requirements of the EMC-Directive have been adhered to.

Conformity to the EMC-Directive is expressed by issuing an EC-Declaration of conformity. CE-marking is affixed.

- 5: An apparatus is not a machine acc. to the EC-Directive Machinery, however the scope of the EMC-Directive applies. Components used conform to the protection requirements of the EMC-Directive. Conformity with the EMC-Directive of the complete apparatus has not yet been proven.

For the complete apparatus no EC-Declaration of conformity and no CE-marking is affixed. Existing CE-marking on EMC-relevant components may remain affixed.

Typical examples for cases 1, 2 or 3 may be:

- Pump units with three-phase asynchronous motor for mains power supply;
- Pump units with three-phase asynchronous motor for operation with electronic speed control devices (e.g. frequency inverter);
- Pump units with three-phase asynchronous motor with integrated electronic control devices;
- Pump units with three-phase asynchronous motor for mains power supply with integrated active or passive electronic components;
- Compact units/systems intended for direct customer use, e.g. swimming pool pumps, heating pumps, effluent lifting plants;
- Compact plants, e.g. pressure boosting plants.

A typical example for case 4 would be

- a series switch box with always similar electrical or electronic components and similar wiring or cabling.

A typical example for case 5 would be

- a switch box acc. to customer's specification including electrical or electronic components.

## Conformity with the EMC-Directive

The conformity with the protection requirements of the EMC-Directive for cases 1, 2 or 4 requires that the apparatus must not give rise to electro-magnetic disturbance. There are no specific EMC Standards written for pumps and conformity should be assessed against generic standards:

For household or similar appliances:

radiated disturbance	EN 55014
supply current disturbance	EN 60555-2
supply voltage disturbance	EN 60555-3

For residential, commercial or light industry environments:

emission of radiated disturbances	EN 50081-1
immunity from radiated disturbance	EN 50082-1

For industrial environments:

emission of radiated disturbances	EN 50081-2
immunity from radiated disturbance	EN 50082-2

For non-household or similar electrical appliances:

various equipment, components and appliances	EN 61000 series
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The selection of the standards most appropriate to the product, and the route to demonstrating conformity, are made by the manufacturer. They include

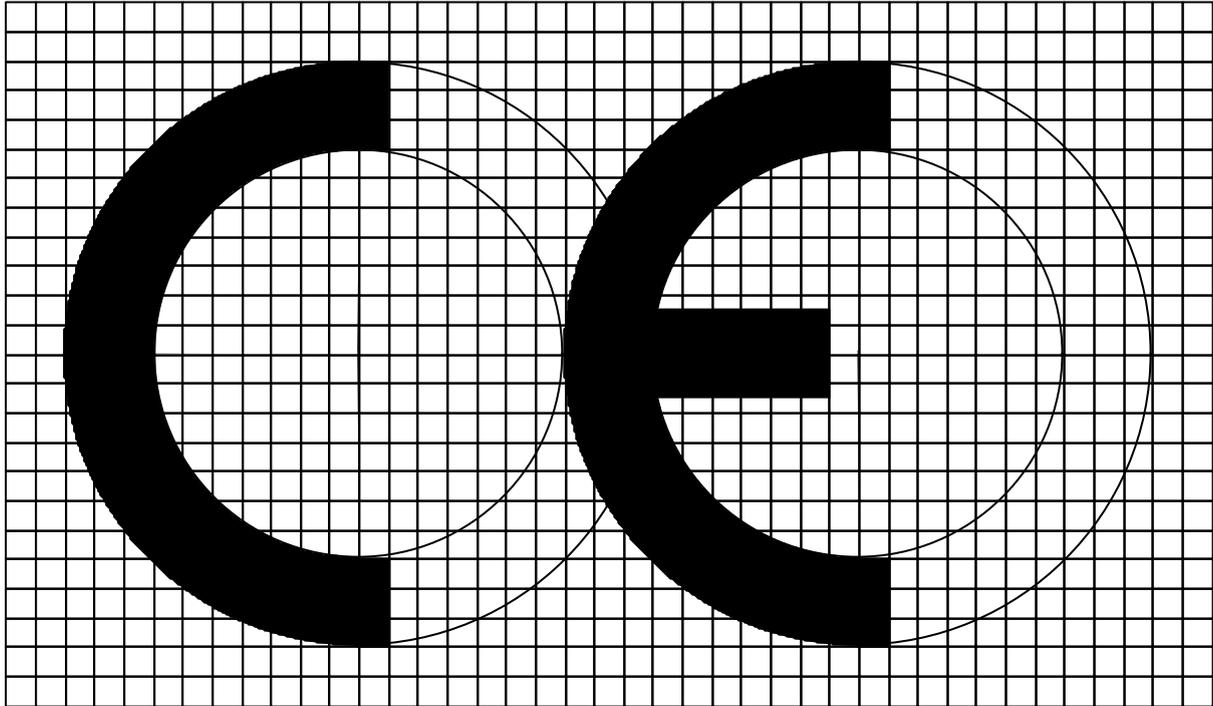
- a) conformity assessment carried out by the manufacturer who undertakes, or arranges for any testing considered to be necessary taking into account the status of the components used and the product offered. EUROPUMP advises that electrical and magnetic systems, assembled from standard parts carrying the CE-marking and being used within the supplier's limitations of use, do not require further testing;
- b) preparation of a technical construction file and submit it to a competent body who will assess the file and if satisfied, will issue a certificate confirming conformity to the EMC-Directive which can justify the EC-Declaration of conformity;
- c) radio transmission equipment incorporated into a pump unit is required to have a certificate following an EC type-examination by a notified body.

Products not "ready for use" and not offered to the general market which are supplied directly for industrial use i.e. for inclusion in larger plant does not have to fulfil the safety requirements in which case they must not carry the CE-marking. Conformity to the EMC-Directive will be assessed after assembly to the larger plant or machine which is "ready for use". EUROPUMP recommends that in this case only components which conform to the EMC-Directive are used.

This recommendation also applies to plants which are assembled on site.

### **CE-marking**

According to the Directive 93/68/EEC the CE-marking consists of the letters "CE" with the following face:



The background-grid should be considered only as an aid and is not part of the CE-marking. If reduction or enlargement of the CE-marking is necessary, the proportions given by the above background-grid shall be followed. The height of the CE-marking should not be less than 5 mm.

According to the EMC-Directive the CE-marking shall be affixed to the apparatus or else to the packaging, instruction for use or guarantee certificate. If necessary the sign of the competent body responsible for the EC-type-examination certificate should be added.

If the CE-marking is affixed, an EC-Declaration of conformity together with a technical construction file shall be available.

NOTE: When apparatus fall under the scope of other Directives, which foresee CE-marking, the use of the CE-marking implies conformity with the respective requirements of these other Directives.

## **EC-Declaration of conformity**

The EC-Declaration of conformity is not necessarily to be submitted to the customer, however, on customer's request, the transmission of the EC-Declaration may be sensible.

In respect to a complete manufacturers technical construction file sub-supplies should be requested to submit the EC-Declaration of conformity or a separate declaration.

The EC-Declaration of conformity shall be held at the disposal of the competent authorities for ten years following the placing on the market of the apparatus.

## **Documentation**

According to the EMC-Directive a technical construction file shall be held available comprising:

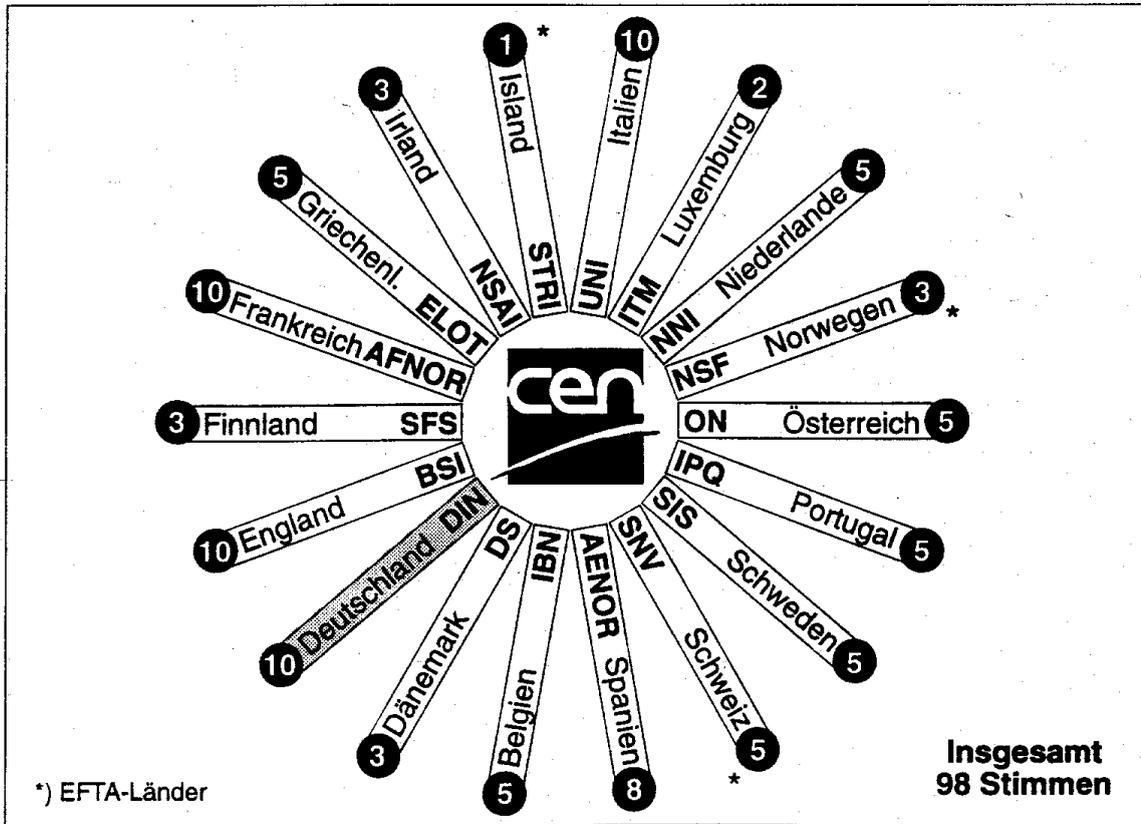
- Technical documents for describing the apparatus, e.g. drawings, part lists;
- EC-Declaration of conformity and, if necessary, in addition the certificate of the competent body expressing conformity to the EMC-Directive;
- the product related technical test report.

A technical documentation comprising additional construction drawings, lists of all relevant parts, test reports etc. should be made available for justified inspections by competent authorities.

The technical construction file shall also be held at the disposal of the competent authorities for ten years following the placing on the market of the apparatus (last product of the product group).

## **Instruction for use/Information for use**

The EMC-Directive does not specify any requirements concerning the instruction for use/information for use. In respect to the execution of other language versions no special requirements are to be fulfilled from the EMC-Directive. Therefore, the language of the country where the apparatus has been manufactured is considered to be sufficient.



Source: DIN NAM