

**DIRECTIVE 96/57/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

of 3 September 1996

**on energy efficiency requirements for household electric refrigerators, freezers and combinations thereof**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 100a thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the opinion of the Economic and Social Committee <sup>(2)</sup>,

Acting in accordance with the procedure laid down in Article 189b of the Treaty <sup>(3)</sup>,

- (1) Whereas it is important to promote measures aimed at the proper functioning of the internal market;
- (2) Whereas in its resolution of 15 January 1985 on the improvement of energy-saving programmes in the Member States <sup>(4)</sup> the Council invited the Member States to pursue and where necessary increase their efforts to promote the more rational use of energy by the further development of integrated energy-saving policies;
- (3) Whereas household refrigeration appliances account for a significant share of domestic electricity consumption in the Community and thus of total electricity consumption; whereas the various models of refrigeration appliances available on the Community market have very different levels of consumption for a given volume and similar features, i.e. extremely variable energy efficiency;
- (4) Whereas some Member States are on the point of adopting provisions relating to the efficiency of household refrigerators and freezers, which might create barriers to trade in these products in the Community;
- (5) Whereas it is appropriate to take as a base a high level of protection in proposals for the approximation of the provisions laid down by law, regulation or administrative action in Member States concerning

health, safety, environmental protection and consumer protection; whereas this Directive ensures a high level of protection for both the environment and the consumer, in aiming at a significant improvement of the energy efficiency of these appliances;

- (6) Whereas the adoption of such measures falls within Community competence; whereas the requirements of this Directive are within the limits of its objectives, thus conforming to the requirements of Article 3b of the Treaty;
- (7) Whereas, moreover, Article 130r of the Treaty calls for the protection and improvement of the environment and the prudent and rational utilization of natural resources, these two objectives being among those of the Community policy on the environment; whereas electricity generation and consumption account for 30 % of man-made carbon dioxide (CO<sub>2</sub>) emissions and some 35 % of primary energy consumption in the Community; whereas these percentages are increasing;
- (8) Whereas, furthermore, Council Decision 89/364/EEC of 5 June 1989 on a Community action programme for improving the efficiency of electricity use <sup>(5)</sup> has as its twin objectives to encourage consumers to favour appliances and equipment with high electrical efficiency and to improve the efficiency of appliances and equipment;
- (9) Whereas in its conclusions of 29 October 1990 the Council set an objective of stabilizing carbon dioxide (CO<sub>2</sub>) emissions in the Community at 1990 levels by the year 2000; whereas in order to achieve this objective stronger measures are required to stabilize CO<sub>2</sub> emissions within the Community;
- (10) Whereas Decision 91/565/EEC <sup>(6)</sup> established a programme to promote energy efficiency in the Community (the SAVE programme);
- (11) Whereas the energy efficiency measures incorporated in the most up-to-date models of refrigeration appliances available do not increase their production costs excessively and can pay for their initial cost through electricity savings within a few years or even

<sup>(1)</sup> OJ No C 390, 31. 12. 1994, p. 30; and OJ No C 49, 20. 2. 1996, p. 10.

<sup>(2)</sup> OJ No C 155, 21. 6. 1995, p. 18.

<sup>(3)</sup> Opinion of the European Parliament of 26 October 1995 (OJ No C 308, 20. 11. 1995, p. 134), Council common position of 11 March 1996 (OJ No C 120, 24. 4. 1996, p. 10) and Decision of the European Parliament of 18 June 1996 (OJ No C 198, 8. 7. 1996).

<sup>(4)</sup> OJ No C 20, 22. 1. 1985, p. 1.

<sup>(5)</sup> OJ No L 157, 9. 6. 1989, p. 32.

<sup>(6)</sup> OJ No L 307, 8. 11. 1991, p. 34.

more rapidly; whereas this calculation does not take into account the added benefit of the external costs of electricity generation thereby avoided, such as emissions of carbon dioxide (CO<sub>2</sub>) and other pollutants;

- (12) Whereas the 'natural' gain in energy efficiency due to market pressures and improved production processes, estimated at around 2 % per year, will contribute to efforts to achieve stricter energy consumption standards;
- (13) Whereas Directive 92/75/EEC<sup>(1)</sup> (the framework Directive) and Commission Directive 94/2/EC<sup>(2)</sup> (the Directive implementing Directive 92/75/EEC), which require the compulsory labelling of appliances and an indication in other forms of the energy consumption, will increase consumers' awareness of the energy efficiency of household refrigeration appliances; whereas this measure will therefore also encourage the various competitors to offer levels of energy efficiency for their appliances higher than the standards required by this Directive; whereas, however, the provision of information to consumers must nevertheless be accompanied by an indication of the standards in order to achieve full benefit and lead to a real improvement in the total average efficiency of the appliances sold;
- (14) Whereas this Directive, which is aimed at eliminating technical barriers with regard to improving the energy efficiency of household refrigeration appliances, must follow the 'new approach' established by the Council resolution of 7 May 1985 on a new approach to technical harmonization and standards<sup>(3)</sup> which specifically lays down that legislative harmonization is limited to the adoption, by means of directives, of the essential requirements with which products put on the market must conform;
- (15) Whereas an effective enforcement system is necessary to ensure that the Directive is implemented properly, guarantee fair conditions of competition for producers and protect consumer rights;
- (16) Whereas regard should be had to Council Decision 93/465/EEC of 22 July 1993 concerning the modules for the various phases of the conformity assessment procedures and the rules for the affixing and use of the CE conformity marking<sup>(4)</sup>, which are intended to be used in the technical harmonization directives;
- (17) Whereas in the interest of international trade, international standards should be used wherever appropriate; whereas the electricity consumption of a refri-

geration appliance is defined by the European Committee for Standardization Standard EN 153 of July 1995 which is based on an international standard;

- (18) Whereas household refrigeration appliances complying with the energy efficiency requirements of this Directive must bear the 'CE' marking and associated information, in order to enable them to move freely;
- (19) Whereas this Directive is confined to household refrigeration appliances for foodstuffs, supplied by mains electricity, excluding those manufactured on a one-off basis; whereas refrigeration equipment for commercial use is much more varied and not appropriate for inclusion in this Directive,

HAVE ADOPTED THIS DIRECTIVE:

#### *Article 1*

This Directive shall apply to new electric mains-operated household refrigerators, frozen food storage cabinets, food freezers, and combinations of these as defined in Annex I and referred to hereafter as 'refrigeration appliances'. Appliances which can also use other energy sources, particularly accumulators, and household refrigeration appliances working on the absorption principle and appliances manufactured on a one-off basis shall be excluded.

#### *Article 2*

1. Member States shall take all necessary measures to ensure that refrigeration appliances covered by this Directive can be placed on the Community market only if the electricity consumption of the appliance in question is less than or equal to the maximum allowable electricity consumption value for its category as calculated according to the procedures defined in Annex I.
2. The manufacturer of a refrigeration appliance covered by this Directive, his authorized representative established in the Community or the person responsible for placing the appliance on the Community market shall be responsible for ensuring that each appliance placed on the market conforms with the requirement referred to in paragraph 1.

#### *Article 3*

1. Member States may not prohibit, restrict or impede the placing on the market in their territory of refrigeration appliances which bear the 'CE' marking attesting to their conformity with all the provisions of this Directive.

<sup>(1)</sup> OJ No L 297, 13. 10. 1992, p. 16.

<sup>(2)</sup> OJ No L 45, 17. 2. 1994, p. 1.

<sup>(3)</sup> OJ No C 136, 4. 6. 1985, p. 1.

<sup>(4)</sup> OJ No L 220, 30. 8. 1993, p. 23.

2. Unless they have evidence to the contrary, Member States shall presume that refrigeration appliances bearing the 'CE' marking required under Article 5 comply with all the provisions of this Directive.

3. (a) Where refrigeration appliances are subject to other directives covering other aspects which also provide for affixing of the 'CE' marking, the latter shall indicate that the refrigeration appliances in question are also presumed, unless evidence to the contrary exists, to conform to the provisions of those other directives.

(b) However, where one or more of those directives allows the manufacturer, during a transitional period, to choose which rules to apply, the 'CE' marking shall indicate conformity solely with the provisions of those directives applied by the manufacturer. In that case, the reference numbers of the directives applied, as published in the *Official Journal of the European Communities*, must be given in the documents, notices or instructions accompanying the refrigeration appliances.

#### Article 4

The conformity assessment procedures and the obligations relating to the 'CE' marking of refrigeration appliances are laid down in Annex II.

#### Article 5

1. When appliances are placed on the market, they must bear the 'CE' marking, which shall consist of the initials 'CE'. The form of the marking to be used is shown in Annex III. The 'CE' marking shall be affixed visibly, legibly and indelibly to refrigeration appliances and, where appropriate, to the packaging.

2. The affixing on refrigeration appliances of any markings which are likely to mislead third parties as to the meaning and form of the 'CE' marking shall be prohibited. Any other marking may be affixed to the appliances, their packaging, the instruction sheet or other documents, provided that the 'CE' marking remains visible and legible.

#### Article 6

1. Where a Member State establishes that the 'CE' marking has been affixed improperly, the manufacturer or his authorized representative established within the Community shall be obliged to bring the product into conformity and to end the infringement in accordance with conditions imposed by the Member State. Where neither the manufacturer nor his authorized representative is established within the Community, the person who places the refrigeration appliance on the Community market shall undertake these obligations.

2. Where the product continues not to be in conformity, the Member State shall take all necessary measures pursuant to Article 7 to restrict or prohibit the placing on the market of the product in question or to ensure that it is withdrawn from the market.

#### Article 7

1. Any decision taken pursuant to this Directive which contains a restriction on the placing on the market of refrigeration appliances shall state the precise grounds on which it is based. The party concerned shall be notified without delay of the decision and shall be informed at the same time of the possibilities and time limits regarding the legal remedies available to it under the laws in force in the Member State in question.

2. The Member State shall immediately inform the Commission of any such measure, indicating the reasons for its decision. The Commission shall make this information known to the other Member States.

#### Article 8

Before the expiry of a period of four years from the adoption of this Directive, the Commission shall make an assessment of the results obtained as compared with those expected. With a view to advancing to a second stage in energy efficiency improvement, the Commission shall then consider, in consultation with the interested parties, the need to lay down a second set of appropriate measures for significantly improving the energy efficiency of household refrigeration appliances. In that case, each energy efficiency measure and the date of its entry into force will be based on energy efficiency levels which can be economically and technically justified in the light of the circumstances at the time. Any other measure judged appropriate to improve the efficiency of household refrigeration appliances shall also be considered.

#### Article 9

1. Member States shall adopt and publish the laws, regulations and administrative provisions necessary to comply with this Directive within a year of its adoption. They shall immediately inform the Commission thereof.

Member States shall apply these provisions on the expiry of a period of three years counting from the date of adoption of this Directive.

When Member States adopt these provisions, these shall contain a reference to this Directive or shall be accompanied by such reference at the time of their official publication. The procedure for such reference shall be adopted by Member States.

2. Member States shall communicate to the Commission the texts of the provisions of national law which they adopt in the field covered by this Directive.

3. During a three-year period following adoption of this Directive, Member States shall permit the placing on the market of refrigeration appliances which comply with the same conditions as those which were applied on their territory at the date of adoption of this Directive.

*Article 10*

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Communities*.

*Article 11*

This Directive is addressed to the Member States.

Done at Brussels, 3 September 1996.

*For the European Parliament*

*The President*

K. HÄNSCH

*For the Council*

*The President*

I. YATES

## ANNEX I

**METHOD FOR CALCULATING THE MAXIMUM ALLOWABLE ELECTRICITY CONSUMPTION OF A REFRIGERATION APPLIANCE AND PROCEDURE FOR CHECKING CONFORMITY**

The electricity consumption of a refrigeration appliance (which may be expressed in kWh per 24 hours) is a function of the category of appliance to which it belongs (e.g. 1-star refrigerator, chest freezer, etc.), its volume and the energy efficiency of its construction, (thickness of insulation, compressor efficiency, etc.) and the difference between ambient temperature and the temperature inside the appliance. In setting energy efficiency standards therefore, allowance must be made for the main endogenous factors which influence energy consumption (i.e. the category of the appliance and its volume). For this reason the maximum allowable electricity consumption of a refrigeration appliance is defined by a linear equation which is a function of the volume of the appliance, with different equations laid down for each category of appliance.

To calculate the maximum allowable electricity consumption of a given appliance, it must therefore first be allocated to the appropriate category from the following list:

Category	Description
1	Refrigerator, without low temperature compartment <sup>(1)</sup>
2	Refrigerator/chiller, with compartment at 5 °C and/or 12 °C
3	Refrigerator, with no-star low temperature compartment
4	Refrigerator, with low temperature compartment <sup>(1)</sup>
5	Refrigerator, with low temperature compartment <sup>(**)</sup>
6	Refrigerator, with low temperature compartment <sup>(***)</sup>
7	Refrigerator/freezer, with freezer compartment <sup>(****)</sup>
8	Food freezer, upright
9	Food freezer, chest
10	Refrigerator/freezer with more than two doors, or other appliances not covered above.

<sup>(1)</sup> Any compartment with a temperature at or below - 6 °C.

Because refrigeration appliances contain different compartments maintained at different temperatures, (which will significantly influence electricity consumption), maximum allowable electricity consumption is defined in practice as a function of the adjusted volume, which is the weighted sum of the volumes of the different compartments.

Thus, for the purposes of this Directive, the adjusted volume ( $V_{adj}$ ) of a refrigeration appliance is defined as:

$$V_{adj} = \sum V_c \times W_c \times F_c \times C_c$$

$$W_c = (25 - T_c) / 20$$

where  $T_c$  is the design temperature in each compartment (in °C),

where  $V_c$  is the net volume of a given type of compartment in the appliance and  $F_c$  is a factor which equals 1,2 for no frost compartments and 1 for other compartments,

$C_c = 1$  for refrigeration appliances belonging to the normal (N) and subnormal (SN) climate classes

$C_c = X_c$  for refrigeration appliances belonging to the sub-tropical (ST) climate class

$C_c = Y_c$  for refrigeration appliances belonging to the tropical (T) climate class.

The weighting co-efficients  $X_c$  and  $Y_c$  for the different types of compartment are:

Table of weighting coefficients  $X_c$  and  $Y_c$  according to the temperature of the compartment

	$X_c$	$Y_c$
Cellar compartment	1,25	1,35
Fresh food compartment	1,20	1,30
0 °C compartment	1,15	1,25
No-star compartment	1,15	1,25
1-star (*) compartment	1,12	1,20
2-star (**) compartment	1,08	1,15
3 (***) and 4-star (****) compartments	1,05	1,10

Both the adjusted volume and the net volume are expressed in litres.

The maximum allowable electricity consumption ( $E_{max}$  expressed in kWh per 24 hours calculated to two decimal places), for an appliance type with adjusted volume  $V_{adj}$  is defined by the following equations for each appliance category:

Category	Description	$E_{max}$ (kWh/24 h)
1	Refrigerator, without low temperature compartment	$(0,207 \times V_{adj} + 218) / 365$
2	Refrigerator/chiller, with compartment at 5 °C and/or 12 °C	$(0,207 \times V_{adj} + 218) / 365$
3	Refrigerator, with no-star low temperature compartment	$(0,207 \times V_{adj} + 218) / 365$
4	Refrigerator, with low temperature compartment (*)	$(0,557 \times V_{adj} + 166) / 365$
5	Refrigerator, with low temperature compartment (**)	$(0,402 \times V_{adj} + 219) / 365$
6	Refrigerator, with low temperature compartment (***)	$(0,573 \times V_{adj} + 206) / 365$
7	Refrigerator/freezer, with freezer compartment (****)	$(0,697 \times V_{adj} + 272) / 365$
8	Food freezer, upright	$(0,434 \times V_{adj} + 262) / 365$
9	Food freezer, chest	$(0,480 \times V_{adj} + 195) / 365$

For refrigerators/freezers with more than two doors, or other appliances not covered above, the maximum allowable electricity consumption ( $E_{max}$ ) is determined by the temperature and the star rating of the compartment with the lowest temperature, as follows:

Temperature of the coldest compartment	Category	$E_{max}$ (kWh/24 hours)
$> -6$ °C	1/2/3	$(0,207 \times V_{adj} + 218) / 365$
$\leq -6$ °C (*)	4	$(0,557 \times V_{adj} + 166) / 365$
$\leq -12$ °C (**)	5	$(0,402 \times V_{adj} + 219) / 365$
$\leq -18$ °C (***)	6	$(0,573 \times V_{adj} + 206) / 365$
$\leq -18$ °C (****)	7	$(0,697 \times V_{adj} + 272) / 365$

#### Test procedures for checking whether an appliance complies with the electricity consumption requirements of this Directive

If the electricity consumption of a refrigeration appliance submitted for verification is less than or equal to  $E_{max}$  (the maximum allowable electricity consumption value for its category, as defined above), plus 15 %, the appliance is certified as conforming to the electricity consumption requirements of this Directive. If the electricity consumption of the appliance is greater than  $E_{max}$  plus 15 %, the electricity consumption of a further three appliances must be measured. If the arithmetic mean of the electricity consumptions of these three appliances is less than or equal to  $E_{max}$  plus 10 %, the appliance is certified as conforming to the electricity consumption requirements of this Directive. If the arithmetic mean exceeds  $E_{max}$  plus 10 %, the appliance must be judged not to conform to the electricity consumption requirements of this Directive.

#### Definitions

The terms used in this Annex correspond to the definitions in European Standard EN 153 of July 1995 laid down by the European Committee for Standardization.

## ANNEX II

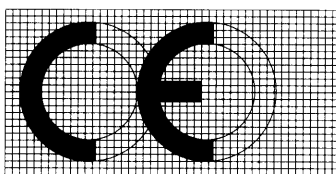
## CONFORMITY ASSESSMENT PROCEDURES (MODULE A)

1. This module describes the procedure whereby the manufacturer or his authorized representative established within the Community, who carries out the obligations laid down in point 2, ensures and declares that the refrigeration appliance satisfies the relevant requirements of this Directive. The manufacturer must affix the 'CE' marking to each refrigeration appliance which he manufactures and draw up a written declaration of conformity.
2. The manufacturer must establish the technical documentation described in paragraph 3 and he or his authorized representative established within the Community must keep it at the disposal of the relevant national authorities for inspection purposes for a period of not less than three years from the date on which the last appliance has been manufactured.  

Where neither the manufacturer nor his authorized representative is established within the Community, the obligation to keep the technical documentation available is the responsibility of the person who places the refrigeration appliance on the Community market.
3. Technical documentation must enable the conformity of the refrigeration appliance with the requirements of this Directive to be assessed. It must, as far as relevant for such assessment, cover the design, manufacture and operation of the refrigeration appliance and comprise:
  - (i) the name and the address of the manufacturer;
  - (ii) a general description of the model sufficient for unambiguous identification;
  - (iii) information, including drawings as relevant, on the main design features of the model and in particular on items which appreciably affect its electricity consumption, such as dimensions, volume(s), compressor characteristics, special features, etc.;
  - (iv) the operating instructions, if any;
  - (v) the results of electricity consumption measurements carried out as required by point 5;
  - (vi) details of the conformity of these measurements as compared to the energy consumption requirements set out in Annex I.
4. Technical documentation established for other Community legislation may be used in so far as it meets the requirements of this Annex.
5. Manufacturers of refrigeration appliances are responsible for establishing the electricity consumption of each refrigeration appliance covered by this Directive according to the procedures specified in European Standard EN 153, as well as the appliance's conformity with the requirements of Article 2.
6. The manufacturer or his authorized representative must keep a copy of the declaration of conformity with the technical documentation.
7. The manufacturer must take all measures necessary in order that the manufacturing process ensures that the manufactured refrigeration appliances comply with the technical documentation referred to in point 2 and with the relevant requirements of the Directive.

*ANNEX III***'CE' CONFORMITY MARKING**

The conformity marking shall consist of the initials 'CE' taking the following form:



If the 'CE' marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.

The various components of the 'CE' marking must have substantially the same vertical dimension, which may not be less than 5 mm.

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