

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(90) 368 final - SYN 294

Brussels, 29 October 1990

Proposal for a  
COUNCIL DIRECTIVE  
concerning the efficiency requirements for new, hot water  
boilers fired with liquid or gaseous fuels

---

(presented by the Commission)

C O N T E N T S

	<b>Page</b>
Summary .....	3
Explanatory memorandum .....	4
Introduction .....	4
Field of application .....	7
Minimum performance levels to be met .....	8
Quality label .....	10
Performance control .....	11
Results expected .....	12
Graphs .....	14
 Proposal for a Council Directive	 15

### S U M M A R Y

This Directive refers only to new, hot-water boilers fired with liquid or gaseous fuels which are used mainly for space heating and/or the production of hot water and have a rated output of between 10 kW and 400 kW.

The efficiency requirements of these devices differ considerably from one Member State to another.

As things currently stand, with the establishment of the internal market boilers (including less efficient ones) approved in one Member State would enjoy free movement throughout the Community. This could lead to a drop in the average efficiency of hot-water heating systems within the Community.

To take advantage of the internal market without compromising the objectives of rational use of energy, the efficiency requirements of hot-water boilers must be harmonized at a high level within the possibilities of technologies currently available.

In this way not only will a drop in the performance of this equipment be avoided, there will also be an increase in the performance levels in some Member States, with the double-edged benefit of a marked reduction in energy consumption and less air pollution.

## EXPLANATORY MEMORANDUM

### Introduction

Energy intensity in the Community, i.e. the ratio of final energy consumption to the gross domestic product, improved by 20% between 1973 and 1982.

This was made possible by the combination of a series of factors which include:

- the direct effect of prices;
- the psychological impact of the various oil crises;
- scientific and technical progress in general;
- the development of the general economic structure in the Community, which is marked by a growing trend towards services and the development in the secondary sector of activities with low energy consumption;
- the adoption of numerous legislative or regulatory measures, binding or by way of incentive, both at Community level and at Member State or local authority level;
- the mobilization of substantial funds to set up:
  - \* structures promoting the rational use of energy,
  - \* information and incentive campaigns,
  - \* training courses for energy managers, and
  - \* encouragement of investment in the rational use of energy.

An improvement of at least 20% in the efficiency of final energy demand was adopted as an objective in the Council Resolution of 16 September 1986 on new Community energy policy objectives for 1995 and the convergence of the policies of the Member States.<sup>1</sup> However, the drop in the price of petroleum products since the end of 1985, the abundance of all forms of energy combined with three particularly mild winters and the improvement in the general economic situation have led to a considerable slackening of efforts to improve energy efficiency and are reflected in particular by a substantial reduction in funds allocated to rational use of energy projects.

Recent developments confirm this stagnation in energy efficiency and it now seems certain that unless a series of concrete measures are taken immediately, the objective of a 20% reduction in energy intensity by 1995 will not be achieved.

In this respect the building sector (residential and commercial) warrants special attention. Not only is it the prime consumer of energy sector, absorbing more than 41% of the final consumption of energy in the Community, i.e. some 289 million toe in 1987, it is also an expanding sector with the forecasts for 1995 reaching 310 and perhaps even 340 million toe.

The improved general economic situation has led to an increase in the number of new buildings both in the residential and commercial sectors and to more widespread comfort and, in particular, central heating.

In this sector a sizeable proportion of the improvement in energy efficiency has come from the behaviour of individuals trying to save energy. Demotivation in this area is clearly visible, as is borne out by the indexes measuring energy consumption as a function of the outside temperature. Experience has shown that these behaviour patterns are readily reversible, and it is thus important to consolidate the results obtained by measures that have lasting effects.

---

<sup>1</sup> OJ C 241, 25.9.1986, p. 1.

One of these measures has already been covered, on two occasions, by a Community regulation. These involve two Directives (78/170/EEC and 82/885/EEC)<sup>2</sup> on " the performance of heat generators for space heating and the production of hot water in new or existing non-industrial buildings and on the insulation of heat and domestic hot-water distribution in new non-industrial buildings". In the former, Member States had to ensure that equipment that could be subject to inspection at the manufacturing stage complied with minimum performance levels. The latter laid down that these requirements had to be "economically justifiable" and extended the scope to the inspection of performance levels at the time of installation of the equipment.

The term "economically justifiable" has been subject to extremely varied interpretation by the Member States and transposition of these Directives into national regulations has resulted in equally differing requirements, as is shown by the attached graphs. These figures compare the performance requirements adopted in the various Member States.<sup>3</sup> They highlight both qualitative and quantitative differences:

- qualitative: some Member States base the measurement of performance on the useful heat supplied to the heat distribution network, which can only be measured in the laboratory; other Member States only take account of heat losses resulting from the discharge of hot gases at the stack. A measurement of this kind can be taken at the time of installation and during operation;
- quantitative: performance requirements vary between 74 and 90% at rated output.

The fairly low minimum performance levels adopted by certain Member states lag behind the current state of the art in this field and lead to inefficient use of energy. In these Member states, "economic justification" has probably been assessed only over the short term and only from the microeconomic viewpoint, i.e. taking account only of impact on the sales price of the apparatus and not the heating operation cost and social costs (pollution).

---

2 Council Directive 78/170/EEC of 13 February 1978 (OJ L 52, 23.2.1978, p. 32).

Council Directive 82/885/EEC of 10 December 1982 (OJ L 378, 31.12.1982, p. 19).

3 BAT Report 01/88: "Performance of heat generators in buildings. Comparison of requirements in Community Member States".

With the completion of the internal market, less efficient equipment could gain access to markets which are presently closed by national measures laying down higher minimum performance levels. The result would be a drop in energy efficiency in the Community.

There is, therefore, a need to introduce a regulation at Community level laying down minimum quantified performance levels to be achieved by new hot-water boilers placed on the market after 1 January 1993.

#### Field of application

The products referred to by the two Directives 78/170/EEC and 82/885/EEC were heat generators for space heating and the production of hot water in new or existing non-industrial buildings.

The present Directive concerns only hot-water boilers fired with liquid or gaseous fuels with a rated output equal to or greater than 10 KW and less than 400 KW, which covers the vast majority of boilers used to heat buildings.

The term "boilers" covers burner/heating body units. Burners and heating bodies of different origins may be combined to form a boiler. The performance of the latter will depend on the suitability of one element for the other.

Hot-water boilers fired with solid fuels are excluded from this Directive because:

- the variability of the fuels used (ash and volatile matter content of coal, moisture content and calorific value of the wood, etc.) makes it extremely difficult to optimize the boiler for all types of use. Laying down a minimum performance level to guarantee high levels of performance for this type of boiler is a complex affair;
- the demand for central-heating boilers fired with solid fuels is low (1 to 5% in most Member States, less than 10% in the United Kingdom) and is in constant decline by 1 to 2% per year.

The following apparatus and equipment are also excluded from the field of application of this directive:

- steam boilers
- electric boilers
- condensation boilers, i.e. boilers with condensation of water vapour contained in the fumes
- heat pumps
- hot-air generators
- equipment for instantaneous preparation of sanitary hot water
- boilers designed to be fired using fuels whose properties differ appreciably from those of widely marketed liquid and gaseous fuels (industrial waste gas, biogas, etc.)
- furnaces for localized heating.

The reasons for these exclusions are varied and technical. Thus, the levels of performance that can be obtained are either largely superior or largely inferior and they are assessed according to various methods.

Taken overall, final energy consumption in liquid or gaseous form in the building sector was 204 mtoe in 1987 and should reach 219 mtoe in 1995. The proportionate share of this final energy which is used in hot water central heating boilers is put at 65%.

#### Minimum performance levels to be met

Useful efficiency means the quantity of heat transferred to the water circulating in the boiler in respect of the quantity of energy injected into the burner, expressed as the net calorific value of the fuel.

This efficiency takes account of pilot light consumption for gas boilers fitted with them, but not the consumption of electricity of burners, circulation pumps, ventilators, control, etc.

The higher the output levels of boilers the easier it is to obtain high useful efficiency levels.



Thus, at their nominal output  $P_n$  (expressed in kW) and in continuous operation at an average temperature of the water in the boiler, (i.e. the average water temperature between the entry and exit of the boiler) of 70°C, efficiency levels should reach at least a value expressed by the following empirical formula:

$$(84 + 2 \log P_n) \%$$

or, by way of example, the following minimum values as a function of the rated output:

86% for boilers of 10 kW  
87% for boilers of 31.6 kW  
88% for boilers of 100 kW  
89% for boilers of 316 kW

For reasons of operational safety, small gas boilers (10 to 31.6 kW) fitted with natural draught burners may show slightly lower performance levels. Useful efficiency should nonetheless reach values equal to or greater than

$$(81 + 4 \log P_n) \%$$

or, by way of example, the following minimum values as a function of the rated output:

85% for boilers of 10 kW  
86% for boilers of 17,8 kW  
87% for boilers of 31.6 kW

Any heating system is sized to cover at least the requirements of the coldest days. They thus operate for most of the time at a reduced load. Consequently, it is important also to maintain good performance levels at part load.

This condition is met if at 30% load and average water temperatures in the boilers of 50°C or more, (according to the regulation devices with which the boiler is originally fitted), the minimum useful efficiency levels are equal to or greater than

$$(80 + 3 \log P_n) \%$$

i.e., in practice, for boilers with the following rated outputs part load efficiency levels of:

83% for a rated output of 10 kW  
84.5% for a rated output of 31.6 kW  
86% for a rated output of 100 kW  
87.5% for a rated output of 316 kW

The relatively low temperature (50°C) of the water in the boiler is justified by the fact that some types of boiler are designed to supply in the between season period - when the boiler only operates at part load - the heating distribution network with less hot water than in mid-winter.

For the same reasons of security set out above, small gas boilers (10 to 31.6 kW) fitted with natural draught burners may show slightly lower performance levels. Nonetheless, the efficiency levels at 30% part load should remain equal to or greater than

$$(77 + 5 \log P_n) \%$$

or, by way of example, for boilers with the following rated outputs part load efficiency levels of at least

82%	for a rated output of 10 kW
83%	for a rated output of 15,9 kW
84%	for a rated output of 25,1 kW
84.5%	for a rated output of 31.6 kW

These figures are high but realistic. Requirements higher than these values, for example, are already the subject of voluntary labels attributed to more than 100 boiler units not only from various Member States but also from a number of EFTA countries (graph 4A).

#### Quality label

With the dual aim of maintaining healthy emulation between manufacturers in future and arousing the consumer's interest in high performance equipment, boilers may, if they largely exceed the requirements set out above, have quality labels attributed by way of an "\*" per efficiency point above the two nominal and part-load requirements.

Accordingly, a star can be attributed to boilers as long as they meet the following two requirements:

nominal load efficiency	$\geq (85 + 2 \log P_n)\%$
30% part-load efficiency	$\geq (81 + 3 \log P_n)\%$

By way of example, for a label "\*" the following minimum efficiency levels must be obtained for nominal load and part-load respectively:

87% and 84% for an output of 10 kW  
88% and 85.5% for an output of 31.6 kW  
89% and 87% for an output of 100 kW  
90% and 88.5% for an output of 316 kW.

For small gas boilers with natural draught burners a label "\*" can be given as long as the minimum efficiency levels meet the following requirements:

nominal load efficiency  $\geq (82 + 4 \log P_n)\%$   
30% part-load efficiency  $\geq (78 + 5 \log P_n)\%$

or, by way of example, minimum efficiency levels of 86% at nominal load and 83% at part-load, for a 10 kW boiler

Labels with several "\*\*\*\*" can be given to boilers where the efficiency at nominal load and part-load exceeds by several points the minimum efficiency levels laid down above.

#### Performance control

Since the equipment in question is generally produced in batches and the important thing is to check the useful efficiency, controls must be carried out on measuring benches before the equipment is placed on the market.

Although important, control of chimney losses only is not sufficient to take account of performance levels at rated output and at reduced load.

It is important to check the efficiency levels of burner-heat exchanger units since performance levels are directly connected with a suitable combination of these two items. It is therefore necessary to state for each type of boiler the burners with which it can be fitted to meet the required performance levels. Similarly, for each type of burner it will be necessary to indicate which boilers are suited to meet performance requirements.

Results expected from the application of this Directive

The life of central heating boilers is of the order of 15 to 20 years. Only after the renewal of existing boilers will the application of this Directive have its full effect.

These effects will be felt above all in the areas of the internal market, the rational use of energy, the environment and micro and macroeconomics.

- Internal market

Harmonization of boiler efficiency at a high level will standardize production and permit economies of scale in mass production. The alternative would risk a drop of efficiency to a lower level with a consequent marked increase in energy consumption.

- Rational use of energy

A study<sup>4</sup> carried out for the Commission puts the potential reduction in the consumption of liquid and gaseous fuels in hot water boilers at between 5.3 and 7.2%, depending on whether account is taken only of the direct saving from increasing boiler efficiency at nominal load or whether account is also taken of the better seasonal efficiency resulting from improved boiler insulation. Taking the 1985 figures as a basis, the reduction in energy consumption would be between 6.4 and 8.7 mtoe/year, i.e. about 1% of final energy consumption for the Community as a whole and 2.5% of final energy consumption in the building sector. Towards the year 2010,<sup>5</sup> when this Directive will have its full effect, energy saving will reach 7.6 to 10.3 mtoe/year. Taking account of developments in this sector (increase in the number of buildings, more widespread central heating, greater comfort), real savings could be even higher.

4 BAT Report 01/89 "Effects of improved heat generator performance on the consumption of liquid and gaseous fuels".

5 Commission study: Major themes in energy, Scenario 1.

- Environment

Lower consumption of energy will automatically mean less CO<sub>2</sub> emissions. Thus, in a situation as set out in Scenario I of the Commission 2010 study,<sup>5</sup> emission reduction would be between 19 and 26 million tonnes of CO<sub>2</sub> a year. Similarly, a reduction in SO<sub>2</sub> emission from the use of liquid fuels of some 16 to 21 kt a year can be anticipated if the current properties of liquid fuels are maintained. NO<sub>x</sub> emission will be reduced by some 15 to 21 kt a year.

- Microeconomics

Mass production of high performance boilers does not cost appreciably more than the manufacture of conventional boilers. Modern technology allows better performance exchangers to be produced with less in the way of raw materials. Manufacture of larger batches reduces the cost. For the consumer a slight additional investment - should there be one - would soon be offset by the fuel savings made.

This payback time will be further shortened by the fact that better insulation and the requirement of high performance at part load will improve seasonal efficiency and reduce the negative effect of overdimensioning of boilers. This overdimensioning comes from the desire for a high level of comfort. Most central heating systems keep the boiler on for the entire heating season and cause energy losses even when there is no demand for heat from the heating system. The larger the boiler the more significant these losses are; the more the boiler is overdimensioned the longer the down times.

Although justified at the outset, this overdimensioning is very often out of all proportion. In this respect proper information would enable the consumer to reduce at once both investment costs by purchasing a smaller system and operating costs by way of better seasonal efficiency levels. Some Member States have in fact taken measures to restrict this overdimensioning.

- Macroeconomics

The saving in fossil fuels from this Directive will not only be reflected in reduced energy dependence on the part of the Community, it will also have a beneficial effect on the balance of payments. This effect, which will be a function of the price of a barrel of oil, can be estimated at around Mio ECU 1 200 to 1 500 per year at the current rate of exchange.

**ANNEX**

**Graphs  
comparing minimum efficiency requirements and  
standards in the Member States for  
hot-water boilers fired with liquid or gaseous fuels**

---

**1. Gaseous fuels with natural draught burners**

- 1 A: Efficiency in water, measured in the laboratory
- 1 B: Efficiency based on chimney losses and measured on-site

**2. Gaseous fuels with fan burners**

- 2 A: Efficiency in water, measured in the laboratory
- 2 B: Efficiency based on chimney losses and measured on-site

**3. Liquid fuels**

- 3 A: Efficiency in water, measured in the laboratory
- 3 B: Efficiency based on chimney losses and measured on-site

**4. Labels**

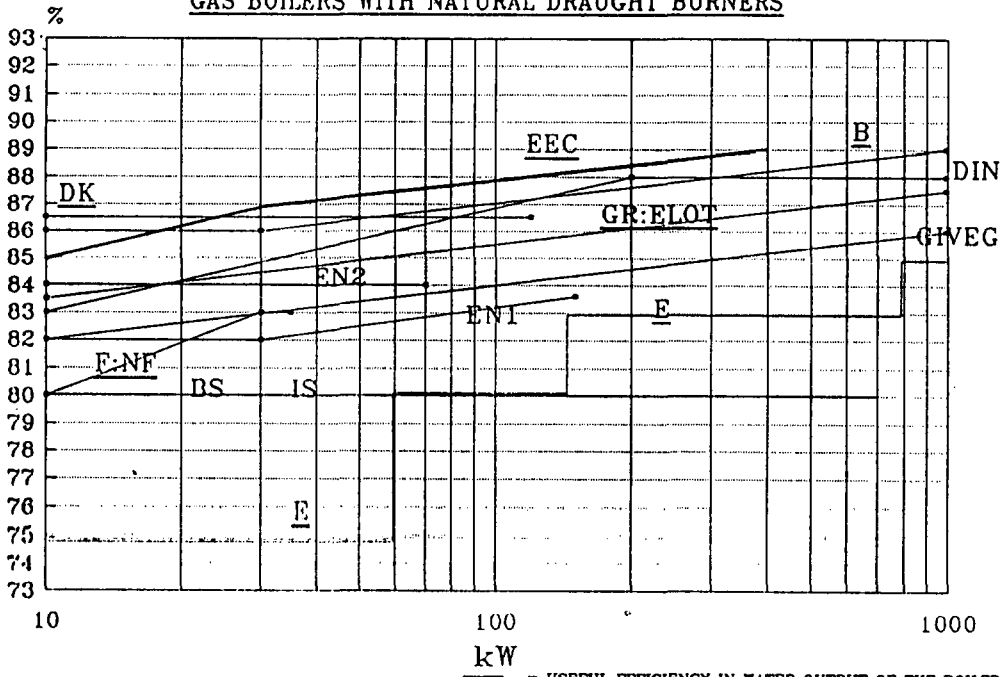
- 4 A: Existing labels
- 4 B: Proposal for EC quality labels

**Abbreviations**

	Regulations	Standards established by the standardization institutions
Present Directive	EEC	
European Committee for Standardization (CEN)		EN
Belgium	B	NBN
Denmark	DK	DS
Germany	D	DIN
Greece	GR	ELOT
Spain	E	UNE
France	F	NF
Ireland	<u>IRL</u>	IS
Italy	I	UNI
Luxembourg	L	
Netherlands	<u>NL</u>	NEN-gaz : GIVEG
Portugal	P	NP
United Kingdom	<u>UK</u>	BS

The initials underlined indicate obligatory national standards; those not underlined, reference standards.

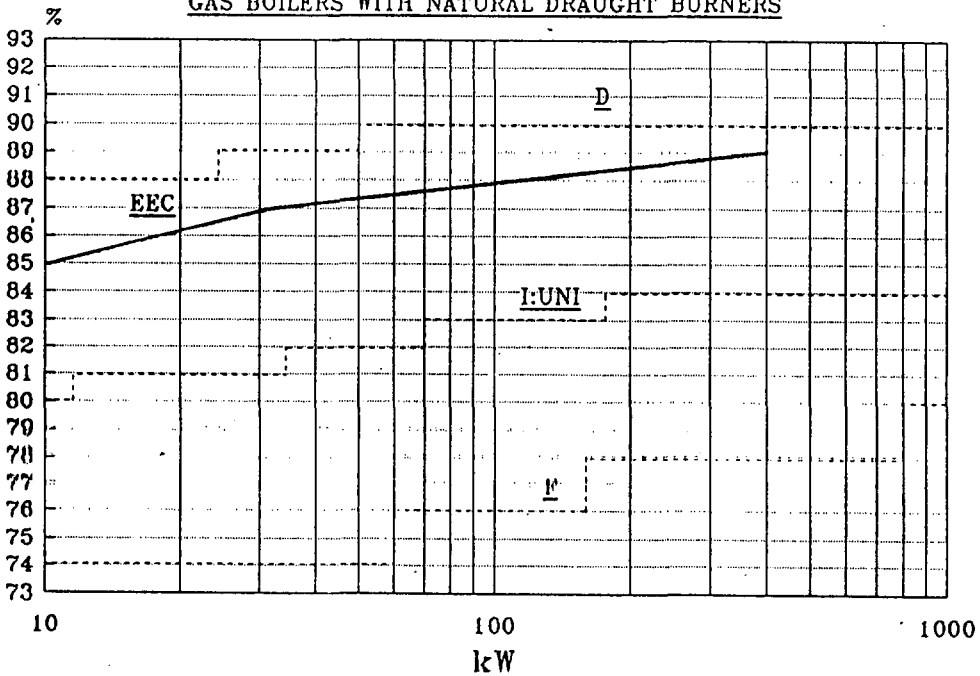
**HOT WATER BOILERS FOR CENTRAL HEATING  
GAS BOILERS WITH NATURAL DRAUGHT BURNERS**



GRAPH 1A

= USEFUL EFFICIENCY IN WATER OUTPUT OF THE BOILER  
TAKING ACCOUNT OF ALL LOSSES

**HOT WATER BOILERS FOR CENTRAL HEATING  
GAS BOILERS WITH NATURAL DRAUGHT BURNERS**

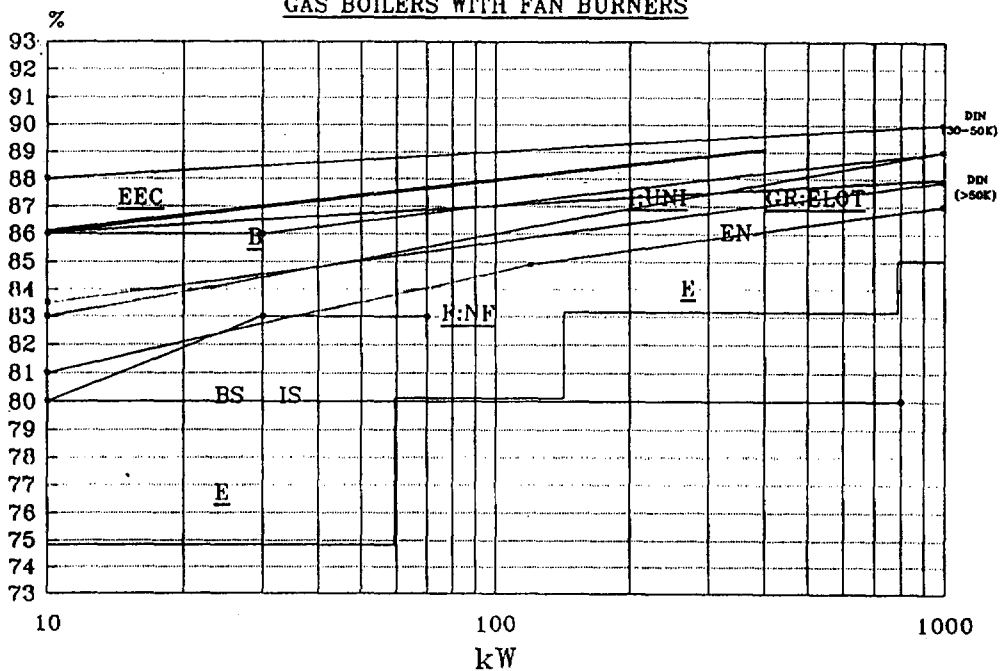


-- ON SITE MEASUREMENT OF EFFICIENCY  
TAKING ACCOUNT OF CHIMNEY LOSSES ONLY

— USEFUL EFFICIENCY IN WATER OUTPUT OF THE BOILER  
TAKING ACCOUNT OF ALL LOSSES

GRAPH 1B

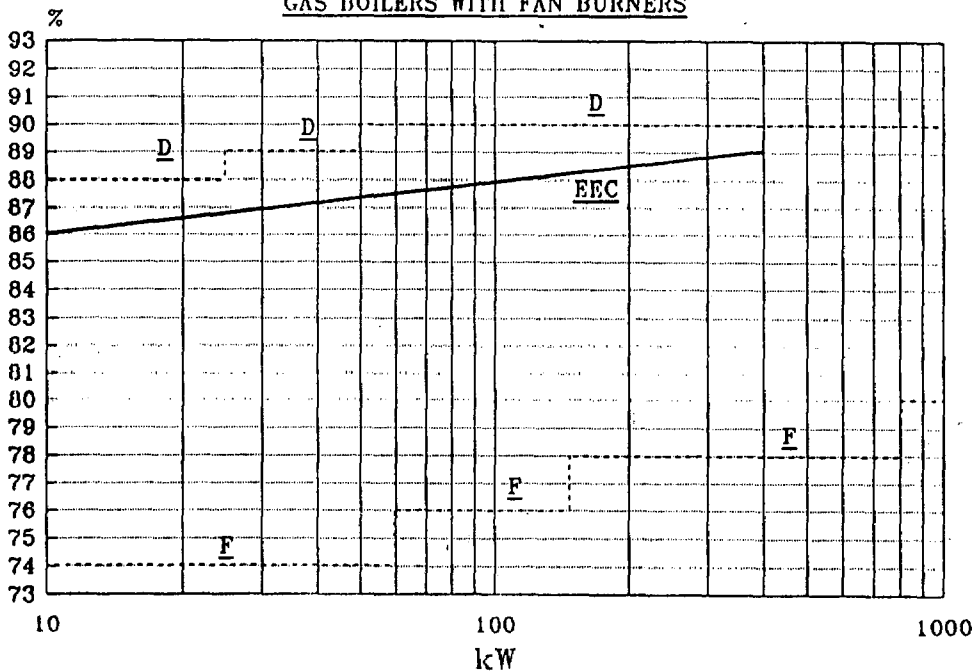
**HOT WATER BOILERS FOR CENTRAL HEATING**  
**GAS BOILERS WITH FAN BURNERS**



— = USEFUL EFFICIENCY IN WATER OUTPUT OF THE BOILER  
 TAKING ACCOUNT OF ALL LOSSES

GRAPH 2A

**HOT WATER BOILERS FOR CENTRAL HEATING**  
**GAS BOILERS WITH FAN BURNERS**



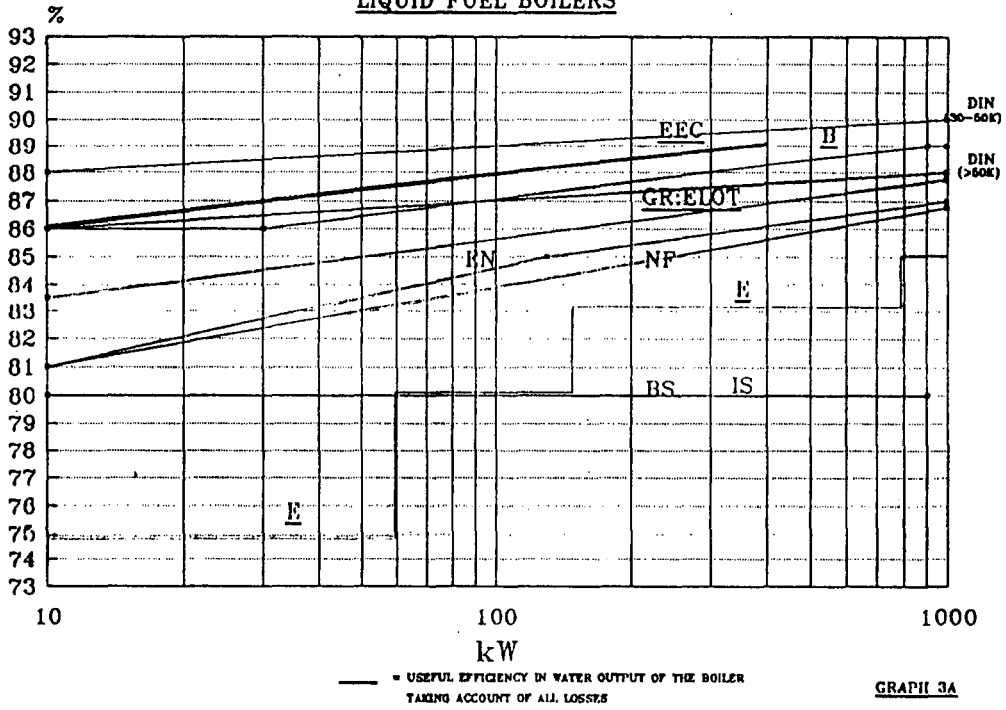
- - - ON SITE MEASUREMENT OF EFFICIENCY  
 TAKING ACCOUNT OF CHIMNEY LOSSES ONLY

— = USEFUL EFFICIENCY IN WATER OUTPUT OF THE BOILER  
 TAKING ACCOUNT OF ALL LOSSES

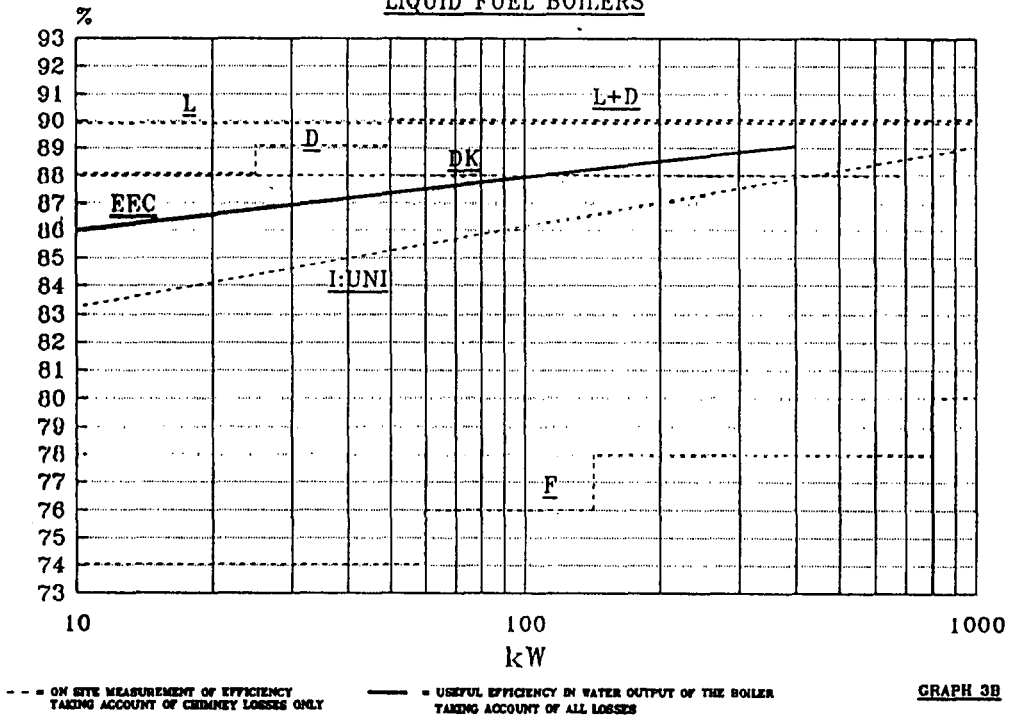
GRAPH 2B



**HOT WATER BOILERS FOR CENTRAL HEATING**  
**LIQUID FUEL BOILERS**

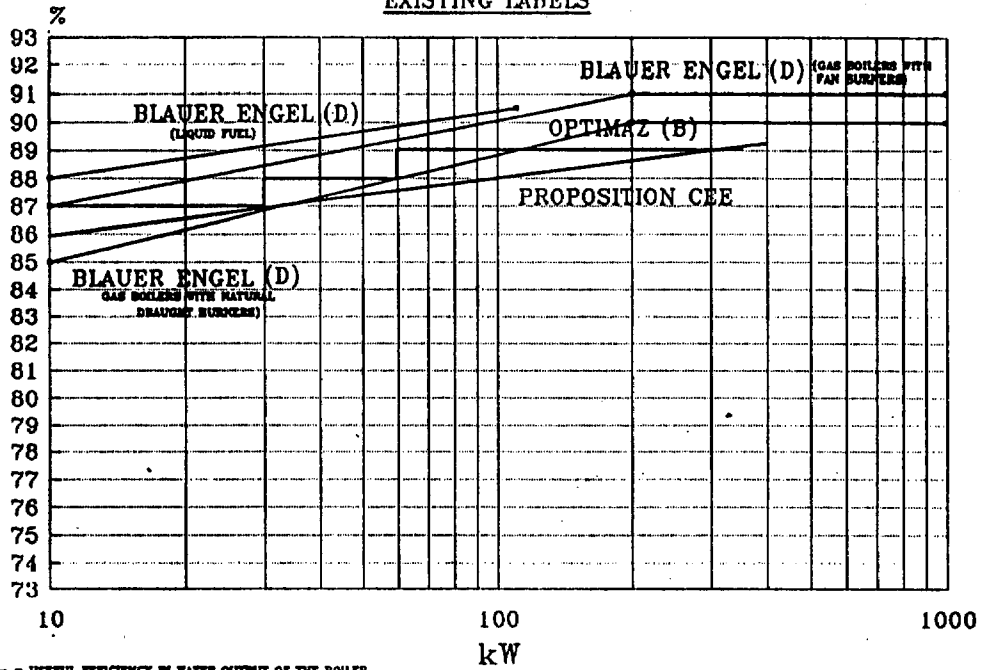


**HOT WATER BOILERS FOR CENTRAL HEATING**  
**LIQUID FUEL BOILERS**



**HOT WATER BOILERS FOR CENTRAL HEATING**

**EXISTING LABELS**

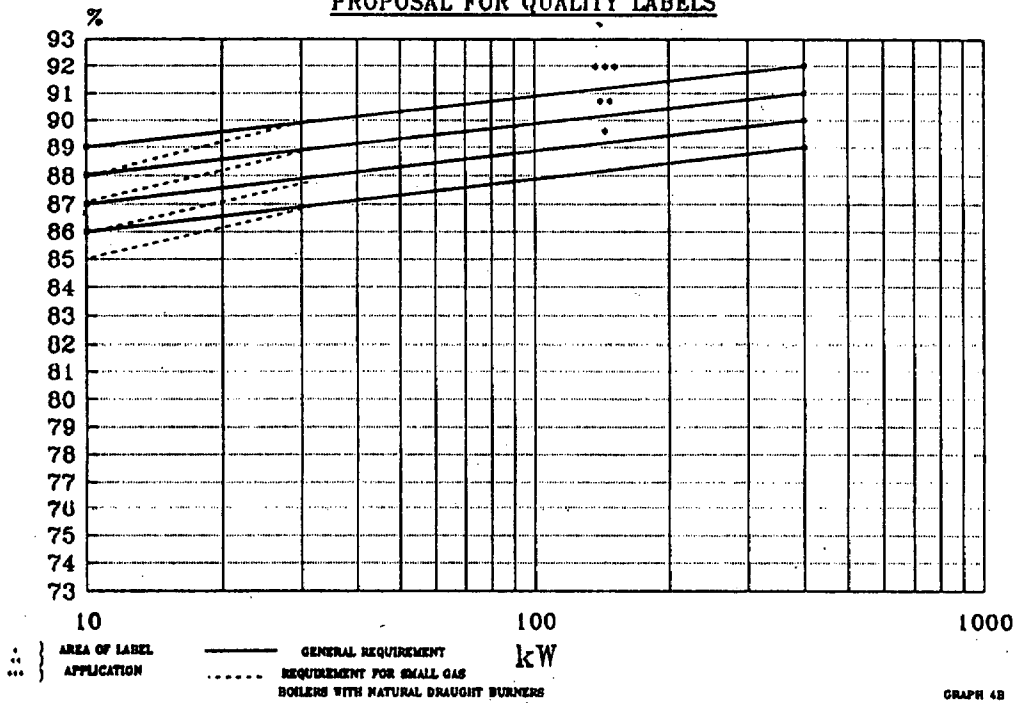


- - USEFUL EFFICIENCY IN WATER OUTPUT OF THE BOILER  
TAKING ACCOUNT OF ALL LOSSES

GRAPH 4A

**HOT WATER BOILERS FOR CENTRAL HEATING**

**PROPOSAL FOR QUALITY LABELS**



GRAPH 4B

**Proposal for a  
COUNCIL DIRECTIVE  
concerning the efficiency requirements for new, hot water  
boilers fired with liquid or gaseous fuels**

---

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

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

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

In cooperation with the European Parliament,<sup>(2)</sup>

Having regard to the opinion of the Economic and Social Committee,<sup>(3)</sup>

Whereas it is important to promote measures aimed at the progressive establishment of the internal market in the period up to 31 December 1992; whereas the internal market encompasses a space without frontiers, in which the free circulation of goods, persons, services and capital is assured;

Whereas the Council Resolution of 15 January 1985 on the improvement of energy-saving programmes in the Member States<sup>(4)</sup>, invites 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;

Whereas the Council Resolution of 16 September 1986<sup>(5)</sup> concerns new Community energy policy objectives for 1995 and convergence of the policies of the Member States, and in particular the objective to improve the efficiency of final energy demand by at least 20%;

Whereas Article 130r of the Treaty on the environment calls for prudent and rational utilization of natural resources;

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 and concerning health, safety, environmental protection and consumer protection;

---

(1) OJ No C

(2) OJ No C

(3) OJ No C

(4) OJ No C 20, 22.1.1985, p. 1.

(5) OJ No C 241, 25.9.1986, p. 1.

Whereas the Council Resolution of 21 June 1989<sup>(6)</sup> declares "that the Community should take proper account of potential climatic change linked to the greenhouse effect";

Whereas Council Directive / /EEC<sup>(7)</sup> of 29 June 1990 concerns the approximation of national legislation on gas appliances;

Whereas the importance of the domestic and tertiary sector, which absorbs a major proportion of the final consumption of energy in the Community, is considerable;

Whereas this sector will become even more important through trends towards more central heating and a general increase in comfort;

Whereas better boiler efficiency is in the consumer's interest; whereas energy saving will be reflected by fewer imports of hydrocarbons; whereas a drop in the Community's energy dependence will have a positive impact on its trade balance;

Whereas Council Directive 78/170/EEC of 13 February 1978 on the performance of heat generators for space heating and the production of hot water in new or existing non-industrial buildings and on the insulation of heat and domestic hot-water distribution in new non-industrial buildings<sup>(8)</sup>, as amended by Directive 82/885/EEC<sup>(9)</sup>, has given rise to the establishment of substantially different efficiency levels between one Member State and another;

Whereas the Member States which have only stipulated low efficiency requirements have not "elaborated efficient standards of performance and operation for heating systems and boilers", contrary to the provision in the Council Resolution of 15 January 1985 on the improvements of energy-saving programmes in the Member States;

Whereas the requirement of high efficiency for hot-water boilers will reduce the range of technical properties of equipment placed on the market, thus facilitating mass production and making for economies of scale; whereas the absence of a measure laying down minimum energy requirements at a sufficiently high level may result, with the completion of the internal market, in a significant drop in the efficiency levels of heating installations through the spread on the market of low-efficiency boilers,

---

(6) OJ No C 183, 20.7.1989, p. 4.

(7) OJ No

(8) OJ No L 52, 23.2.1978, p. 32.

(9) OJ No L 378, 31.12.1982, p. 19.

HAS ADOPTED THIS DIRECTIVE:

**Article 1**

This Directive applies to new, hot-water boilers fired by liquid or gaseous fuels with a nominal output equal to or greater than 10 kW but less than 400 kW, hereinafter called "appliances".

**Article 2**

For the purposes of this Directive the following definitions shall apply:

- boiler: the boiler heating body-burner unit;
- rated output, expressed in KW: the calorific output laid down and guaranteed by the manufacturer as being maintainable during continuous operation while complying with the performance levels indicated by the manufacturer;
- useful efficiency, expressed in %: the ratio between the useful heat output transmitted to the boiler water and the product of the net calorific value at constant fuel pressure and the consumption expressed as a quantity of fuel per unit time;
- part load, expressed in %: the ratio between the heat output of a boiler operating intermittently or at an output lower than the rated output and the heat output at that same rated output;
- average temperature of the water in the boiler: the average of the water temperatures at the entry and exit of the boiler.

### Article 3

The following shall be excluded from this Directive:

- hot-water boilers fired with solid fuels,
- steam boilers,
- electric boilers,
- condensation boilers i.e. boilers with condensation of the water vapour contained in the fumes,
- heat pumps,
- hot-air generators,
- equipment for the instantaneous preparation of sanitary hot water,
- boilers designed to be fired with fuels whose properties differ appreciably from the properties of liquid and gaseous fuels commonly marketed (industrial waste gas, biogas, etc.).

### Article 4

1. Member States will take all useful steps to ensure that appliances cannot be put on the market and into service until they have satisfied the minimum performance standards set down in Article 5.
2. Member States shall not prohibit, restrict or impede access to the market or the placing in service of appliances which satisfy this Directive.

### Article 5

The appliances must comply with the following minimum useful efficiency levels:

- 1(a) Operating at rated output  $P_n$  expressed in kW, at an average temperature of the water in the boiler of 70°C:

useful efficiency  $\geq (84 + 2 \log P_n)\%$ ,

i.e., for the outputs listed below, by way of example, the following minimum values:

86% for boilers of 10 kW  
87% for boilers of 31.6 kW  
88% for boilers of 100 kW  
89% for boilers of 316 kW.

- (b) In the output range between 10 kW and 31.6 kW inclusive, for gas boilers fitted with natural draught burners, the requirement is:

$$\text{useful efficiency} \geq (81 + 4 \log P_n) \%$$

- 2(a) Operating at 30% part load, at an average temperature of the water in the boiler of not less than 50°C:

$$\text{useful efficiency} \geq (80 + 3 \log P_n) \%$$

i.e., for the nominal outputs listed below, the following minimum values:

83% for boilers of 10 kW  
84.5% for boilers of 31.6 kW  
86% for boilers of 100 kW  
87.5% for boilers of 316 kW.

- (b) In the output range between 10 kW and 31.6 kW inclusive, for gas boilers fitted with natural draught burners, the requirement is:

$$\text{useful efficiency} \geq (77 + 5 \log P_n) \%$$

#### Article 6

1. Quality labels can be attributed to appliances showing higher performance levels than the requirements set out in Article 5. For each extra point in both nominal load efficiency and part-load efficiency a "\*" shall be attributed, i.e.

\* If the efficiency at nominal load  $\geq (85 + 2 \log P_n) \%$   
and if efficiency at 30% part-load  $\geq (81 + 3 \log P_n) \%$

\*\* If the efficiency at nominal load  $\geq (86 + 2 \log P_n) \%$   
and if the efficiency at 30% part-load  $\geq (82 + 3 \log P_n) \%$

\*\*\* If the efficiency at nominal load  $\geq (87 + 2 \log P_n) \%$   
and if the efficiency at 30% part-load  $\geq (83 + 3 \log P_n) \%$ .

2. For small gas boilers fitted with natural draught burners in the output range of 1070-31.6 kW the required useful efficiency at nominal load to obtain:

\*  $\eta_{30} \geq (82 + 4 \log P_n) \%$

\*\*  $\eta_{30} \geq (83 + 4 \log P_n) \%$

\*\*\*  $\eta_{30} \geq (84 + 4 \log P_n) \%$

provided that the 30% part load efficiency requirement is met at the same time:

\*  $\eta_{30} \geq (78 + 5 \log P_n) \%$

\*\*  $\eta_{30} \geq (79 + 5 \log P_n) \%$

\*\*\*  $\eta_{30} \geq (80 + 5 \log P_n) \%$

#### Article 7

1. Before launching on the market boiler bodies and burners commercialized separately, the manufacturers, agents or importers must obtain certificates specifying the parameters that will allow, after assembling, to reach the minimum useful efficiency set out in Article 5.

If applicable, these certificates will also attribute quality labels provided for in Article 6.

2. Before launching on the market complete appliances the manufacturers, agents or importers must obtain certificates guaranteeing their ability to reach the minimum useful efficiency set up in Article 5.

If applicable, these certificates will also attribute quality labels provided for in Article 6.

Boiler bodies and burners thus being successfully certified, can be marketed separately through a relevant indication of burners and boiler bodies, that will allow to reach the minimum useful efficiency set out in Article 5 and the quality label provided for in Article 6.

#### Article 8

Member States shall inform the Commission and the other Member States of the bodies empowered to carry out the inspection and issue the approval certificate referred to in Article 7.



**Article 9**

1. Member States shall adopt and publish before 1 January 1992 the provisions necessary to comply with this Directive. They shall immediately so inform the Commission. The Member States shall apply these provisions from 1 January 1993.

When Member States adopt these provisions, they 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, for the period up to 31 December 1995, permit the placing on the market and putting into service of appliances complying with national rules in force in their territory on 31 December 1992.

**Article 10**

This Directive is addressed to the Member States.

Done at Brussels,

For the Council

The President

## Directive chaudières

### Fiche d'impact PME/EMPLOI

#### 1. Obligations administratives

La plupart des Etats membres ont des contraintes de rendement et des systèmes de contrôle de ces rendements. Il n'y a donc que peu de changement à prévoir à ce niveau.

#### 2. Avantages pour l'entreprise

Les entreprises qui ont fourni un effort de progrès technologique verront celui-ci valorisé. Les autres entreprises devront fournir cet effort.

#### 3. Inconvénients pour l'entreprise

Même si une large majorité d'entreprises sont prêtes à répondre aux exigences de cette directive, certaines devront envisager un nouveau design de leurs équipements, ce qui nécessitera des investissements principalement dans le secteur des chaudières en fonte.

#### 4. Effets sur l'emploi

L'application de la directive devrait, pour les constructeurs qui ne sont pas encore à même de répondre aux nouvelles exigences, accélérer le processus d'évolution technologique avec vraisemblablement quelques pertes d'emploi.

#### 5. Concertation sociale préalable

Non

#### 6. La directive 82/885/CEE avait proposé une approche moins contraignante en demandant des rendements "économiquement justifiés".

Une telle approche a donné lieu à des applications très divergentes nullement compatibles avec un marché intérieur et une utilisation rationnelle de l'énergie.

ISSN 0254-1475

COM(90) 368 final

# DOCUMENTS

**EN**

**12 15**

---

Catalogue number : CB-CO-90-544-EN-C

ISBN 92-77-65476-7

PRICE	1 - 30 pages: 3.50 ECU	per additional 10 pages: 1.25 ECU
-------	------------------------	-----------------------------------

Office for Official Publications of the European Communities

L-2985 Luxembourg