



Technical guides for owners/managers of air conditioning  
systems: volume 6

**How to benefit from the Eurovent-  
Certification database and to retrieve  
past equipment data in the audit process**

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**Eurovent-Certification**

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## What is the efficiency of my system?

One simple problem that an auditor can meet is that of estimating the efficiency of the system actually in place. The simplest reference that the auditor can find is the manufacturer's catalogue values of capacity and absorbed power. Unfortunately, too often the initial and design documentation is lost, the maintenance logbook is obsolete and there is a lack of information about the system actually installed.

The first task consists then of recognising and specifying the nominal characteristics of the system in place with its ancillary systems, in order to have a first understanding of the current situation before the operational mode is analysed.

When the information available for the installed system is insufficient, a physical tour of the plant is required to identify from the equipment description plates the necessary information about the manufacturer, model, year of the model, nominal capacity and absorbed power. Sometimes even this tour is not sufficient as the equipment plates can be difficult or impossible to read because of damage or inaccessibility.

The auditor is therefore likely to face two situations:

**Situation 1:** the model and the manufacturer are known

**Situation 2:** the only information available for the system is its year of installation. (This might also be uncertain, when an approximation will be required).

In the first situation, AUDITAC can assist the auditor in retrieving the system characteristics through the freely available database it has created for current and historic Eurovent certified equipment.

When Eurovent has not certified the product, and no information can be retrieved by the first method, AUDITAC has proposed default EER values (Energy efficiency ratio) that can be used in calculations as a final resort.

These values are helpful in audit and inspection procedures because they allow the auditor to estimate the performance level of the existing equipment in use in the audited building, and its main characteristics.

Through this process, the auditor is better able to decide if the installed system is obsolete compared to present equipment, and then to advise on a retrofit with new technologies or a more recent system showing better EER that will provide energy savings and associated costs.

## Situation 1 (Plate information is OK)

### EUROVENT Directories - data for certified products

Since 1995 EUROVENT (see Annex for more information about the institution) has publishing an annual paper directory of certified products. In addition, a CD-ROM has been published since 2002, and the certified products of the current year have been

available on the EUROVENT website, [www.eurovent-certification.com](http://www.eurovent-certification.com), since 2000. The objective is to give to the market and consultants access to instantaneous information. As a partner of the AUDITAC project, EUROVENT has now published on its website the past directories of EUROVENT certified products starting from 1995 until nowadays. The database is accessible from the Internet and freely consultable. This will partly answer the increasing demand for data by inspectors and auditors. The data are published on the EUROVENT Certification site <http://www.eurovent-certification.com/>, in the “Consultants” section and are classified by year of certification (Figure 1).



**Figure 1 Eurovent-Certification web site, consultants section**

A query allows the user to display the certified characteristics of a defined equipment type depending on the programme of certification, the manufacturer and the model number. The testing conditions are fully described in the EUROVENT Certification site in the “Programmes” section.

The database contains the past directories of certification products with past information about:

- Comfort Air Conditioners of capacity < 12 kW (AC1)
- Comfort Air Conditioners of capacity between 12 – 45 kW (AC2)
- Comfort Air Conditioners of capacity between 45 – 100 kW (AC3)

- Close Control Air Conditioners (CC)
- Fan Coil Units (FC and FCP for ducted fan coils units)
- Liquid Chilling Packages (LCP)

Table 1 shows the increasing number of certified product.

	AC1	AC2	AC3	CC	FC	FCP	LCP
1995	1528	383	26	429	702		
1996	1127	320	72	232	847		125
1997	1563	455	66	238	1168		459
1998	1979	528	125	213	1630		552
1999	2070	566	140	257	1816		564
2000	1898	458	126	203	1106		764
2001	3107	708	145	250	2415		1079
2002	4005	816	172	187	3098		1777
2003	4944	1256	118	169	4100		4003
2004	4732	911	220	185	4373		3435
2005	4448	904	236	108	3942	386	5409

**Table 1: Number of certified units per year and programme**

Although the publication and certification of some characteristics has been introduced later it has been decided to use 2006 format for the old directories.

In addition, certification programmes started in different periods; so not all the directories are available for all the years (i.e. liquid chilling packages started in 1996, so while the directory for 1995 is empty, we consider that most of '95 models were still sold in '96!).

It is possible to download the data from each directory, allowing auditors or services to build statistics on the performance for a system type in relation to the year of certification, its capacity etc.

The EUROVENT web site also provides a quick link to the sites of the certified manufacturers allowing the quick research of documents and commercial information.

## **Situation 2 (plate information absent for one reason or another)**

### **EER default values for non-certified products**

When no information is found in the Eurovent directories, AUDITAC proposes default values be used – these have been established by a statistical method using the past directories of Eurovent both for cooling and heating efficiencies respectively (EER and COP),  $P_c$  cooling capacity.

### **Default EER values**

Splits and multi splits					
$P_C < 12\text{Kw}$		$12\text{kW} < P_C < 45\text{kW}$		$45\text{kW} < P_C < 100\text{kW}$	
Air cooled	Water cooled	Air cooled	Water cooled	Air cooled	Water cooled
2.21	2.50	2.21	x	2.22	x

Packaged units					
$P_C < 12\text{Kw}$		$12\text{kW} < P_C < 45\text{kW}$		$45\text{kW} < P_C < 100\text{kW}$	
Air cooled	Water cooled	Air cooled	Water cooled	Air cooled	Water cooled
2.01	2.91	2.01	2.90	2.01	3.06

Chillers				
Air cooled	Air cooled for cooling floor	Water cooled	With cooling tower	Water cooled for cooling floor
1.80	2.45	2.90	2.90	4.10

### **Default COP values**

Splits and multi splits					
$P_C < 12\text{Kw}$		$12\text{kW} < P_C < 45\text{kW}$		$45\text{kW} < P_C < 100\text{kW}$	
Air cooled	Water cooled	Air cooled	Water cooled	Air cooled	Water cooled
2.29	x	1.8	x	2.28	x

Packaged units					
$P_C < 12\text{Kw}$		$12\text{kW} < P_C < 45\text{kW}$		$45\text{kW} < P_C < 100\text{kW}$	
Air cooled	Water cooled	Air cooled	Water cooled	Air cooled	Water cooled
2.23	3.32	2.03	2.46	2.16	x

Chillers			
Air cooled	Air cooled for cooling floor	Water cooled	Water cooled for cooling floor
2.00	3.3	2.79	3.25

## **Annex**

### **Who is Eurovent-Certification?**

EUROVENT is the European Committee of Air Handling and Refrigeration Equipment Manufacturers. 14 associations from 11 countries are members of EUROVENT.

The purpose of EUROVENT is:

- To represent the European air conditioning, heating, ventilating and refrigeration manufacturers with national trade associations on International and European issues;
- To keep members informed of relevant legislation emanating from the European Union or other bodies;
- To develop a reliable global statistic reporting system;
- Through the EUROVENT Certification Company, develop product certification programmes for our industry;
- To assure participation in international standardization;
- To improve communication on general issues such as refrigerants, energy or indoor air quality;
- To publish guides and technical application manuals;
- To develop co-operative pre-competitive research;
- To prepare the Association as an organization that can self regulate our industry.

#### ***EUROVENT Certification Company:***

EUROVENT Certification Company was established in 1994 by initiative of a few manufacturers inside EUROVENT. The first certification committee for air conditioners and fan coil units was formed in 1990 and the first programme was started on 1st January 1994. Programmes for other products have followed and the number of certified manufacturers steadily increased from 32 in 1994 to 182 in 2006.

The purpose of EUROVENT Certification Company is:

- To administer the certification programmes;
- To publish and update lists of certified products;
- To promote the certification programmes.