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European Union

Government of Pakistan

Pakistan Council of Scientific & Industrial Research

United Nations Industrial Development Organization

International Trade Centre

WIPO

CE MARKING

FOR ELECTRIC FANS, APPLIANCES AND EQUIPMENT

GUIDE FOR MANUFACTURERS

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WORLD INTELLECTUAL PROPERTY ORGANIZATION

CE MARKING

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Guide for Manufacturers

PREFACE

The European Union's “CE” regulatory conformity marking is crucial to all Pakistani manufacturers of electrical appliances; without it, the very future of this major industry is called into question. Although it may seem burdensome and unnecessary, whether we like it or not, CE marking is compulsory for almost all electrical appliances sold in Europe, because Europe, with its population of about 500 million people, has to be one of, if not the most important market for Pakistani manufacturers. Therefore, we either accept and adopt the CE marking, or allow this crucial market to be closed to us. Without access to the European market, however, it is difficult to imagine a successful future for Pakistani appliance manufacturers.

Even for appliances not directly intended for the European market, the requirements of Europe, in terms of product performance and production system requirements (such as control of raw materials, in-production checks and assessment of finished products) can bring benefits to Pakistani manufacturers. These benefits, in particular, can be improvements in product quality, increased productivity and reduction of waste. While CE marking is only mandatory for products sold in Europe, it is recognised in many other countries where it can be used to provide a substantial marketing advantage.

This timely Guidance Document, funded by the European Union through the TRTA II project in Pakistan (managed by UNIDO in association with ITC and WIPO at Islamabad), provides an excellent presentation of the whole subject of CE marking. Its easy-to-read and clear style, combined with a presentation of all the stages which any manufacturer needs to go through in order to achieve CE marking, makes it an essential reading for any Pakistani manufacturer. It also provides an example Technical File, an essential component of the CE marking process, which can be copied by and adapted to the specific situation of any manufacturer. The development of the Technical File is one of the key stages in the whole process, and the example makes this stage a great deal easier.

Following the Guidance Document does not, of course, on its own guarantee that CE marking will be achieved; the products themselves need to be good enough to meet the performance required of them. This performance may, initially, be considered demanding and difficult to achieve but, by achieving it, our manufacturers can only stand to benefit.

The Guidance Document, indirectly, points to other areas where improvements can be made throughout the Pakistani appliance industry, some of which have already been mentioned. Wider adoption of ISO 9001 quality management systems brings a discipline from which all manufacturers can benefit; improved productivity allows us to compete more effectively and efficiently, while higher product performance levels allow us to compete on quality rather than simply price. We need to take these improvements to heart if we are to have a healthy future for our industry.

This document too, surely, presents us as an industry with as many challenges as it does opportunities. Can we, for example, enhance local testing capability so that we do not have to rely on laboratories in Europe? Can we design products so that they meet the performance requirements the first time, every time? Can we improve component supplies so that hazardous substances are no longer an issue? The choice seems clear: either we rise to and meet these challenges, in which case our industry will prosper, or we decline into relative obscurity, losing out to our better-prepared commercial rivals!

This Guidance Document is, therefore, highly recommended.

M. Azhar Aslam
Chairman
Pakistan Electric Fan Manufacturers Association (PEFMA)

FOREWORD

There are as many as 200 manufacturers of electrical appliances and other electrical equipment in Pakistan, based mainly in Gujrat and Gujranwala, providing high levels of employment in these areas. Among these manufacturers are those producing good quality products, some of which are already exported, others of which have the potential for export. For those manufacturers able to export, however, markets in the Middle East, Africa, Asia and, perhaps most importantly, in the European Union (EU), a market of some 500 million people, seem attractive.

A major reason preventing more manufacturers from exporting their products to the European Union is the regulatory requirements of Europe, which finds its evidence in the need for electrical products to bear the “CE” conformity assessment marking. Individual EU Member States have had safety requirements going back many years but, with the introduction of the EU's Single Market, especially since 1992, there is now just one set of regulatory requirements and one way of satisfying these requirements throughout the Union. These regulatory requirements, which relate mainly to safety, environmental protection and energy consumption, and re-cyclability, are set out in a series of directives which apply equally in all EU Member States.

The requirements, and the way to meet them are, however, no different for manufacturers in Pakistan than for manufacturers in any other country of the world, including the EU itself. While the market for comfort fans in Europe may not be the biggest in the world, the market for domestic electrical equipment, in general, is huge and growing; total annual sales of domestic appliances approach €50 000 000 and are growing at approximately 3 % per year. If Pakistani manufacturers are able to break into this market, the economic benefits could be substantial. The 'discipline' imposed by CE marking may help raise the overall safety and quality levels of Pakistani products.

It was to help Pakistani manufacturers meet the CE marking requirements that the EU-funded Trade Related Technical Assistance (TRTA II) programme, implemented by the United Nations Industrial Development Organization (UNIDO) in partnership with the International Trade Centre (ITC) and the World Intellectual Property Organization (WIPO), started a CE marking programme in 2012. This programme aimed to develop a sustainable CE marking procedure, applicable by any Pakistani manufacturer, to test and validate this procedure by assisting some fan manufacturers to achieve CE marking, and to train and qualify a group of Master Trainers to assist other manufacturers.

At the end of this programme, in 2014, all of these aims have been met. The procedure for CE marking is what is presented in this Guidance; three Pakistani fan manufacturers have achieved the marking for 17 different models in total, and a pool of Master Trainers (whose details can be found from TRTA II Islamabad) exists.

The efforts of the TRTA II CE marking programme team should be appreciated here, in particular Dr. Adam Pinney who, as an international CE marking expert, provided invaluable strategic and technical advice and who wrote this Guidance; Mr Badar ul Islam who managed the programme on behalf of TRTA II ; and Mr Qasar Wasique, TRTA II Sector Expert, who worked closely with the supported manufacturers. The Electrical Laboratory at PCSIR Lahore should also be thanked, in particular, Engr. Irfan Ahmad Rabbani and Mr. Muhammad Azhar, who provided invaluable testing and technical support throughout the project. Messrs Wasique and Azhar, in addition, both qualified as Master Trainers.

We greatly acknowledge and appreciate the support of the European Union Delegation to Pakistan, and the assistance of PITAD, in developing this Guidance.

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CONTENTS

Chapter 1: INTRODUCTION

1.1) CE marking procedure

The CE conformity marking (and other regulatory compliance) is required by law for all electric fans sold into the European Union, which means that products without the marking cannot be sold there. The CE marking is also required or recognised in other countries, such as the Middle East, North Africa, and some ex-Soviet republics. However, obtaining the CE marking is not an easy option. The technical standards required are high, the procedural aspects can be time-consuming, and the costs associated with testing and certification can also be relatively high. Attempts to obtain the CE marking should, therefore, be undertaken only by manufacturers who are serious about wanting it, who produce products of good quality, who possibly already operate a Quality Management system according to ISO 9001:2008, and who are willing to put in the necessary time and effort. For those manufacturers, therefore, this document explains the stages, and gives examples of documents, necessary to complete the process.

The stages towards CE marking are summarised below. Each stage is then discussed in more detail in the following chapters:

STAGE	DESCRIPTION
1) Identification of markets	CE marking represents a 'passport' for selling fans into Europe and to other countries where it is recognised, but it does not guarantee that anyone will buy the product. Before making any attempt to obtain it, therefore, manufacturers must identify potential markets and verify that their products will meet market needs (Section 3.2)
2) Operation of factory production control	All manufacturers must operate a production control system to guarantee the conformity of their products. Although not compulsory, an ISO 9001:2008 system, certified by a reputable third party, is recommended (Section 3.3)
3) Preparation of documentation	Possibly the most important and time-consuming of the tasks. Manufacturers must prepare technical documentation which includes a description of the product(s), the production system, the production control system, the marking, labelling and user information, and how the product meets regulatory requirements (Section 3.4)
4) Submission of products for testing	All products to be CE marked require testing. This may involve testing by a notified test laboratory based in Europe and/or testing by an accredited test laboratory in Pakistan. If a Notified Body is involved, screening tests in Pakistan may help remove some non-conformities in advance (Section 3.5.2 and 3.5.3)
5) Correction of defects	Screening tests and tests by a Notified Body may well show up defects and other non-conformities. Manufacturers must deal with these and re-submit products to the test laboratories until all of these are resolved (Section 3.5.4)
6) Drawing up of Declaration of Conformity (DoC)	On receipt of satisfactory reports from the test laboratories, the manufacturer must draw up a DoC as proof that his product meets all regulatory requirements. The DoC allows the manufacturer to affix the CE marking (Section 3.5.5)
7) Continuation of production / renewal of CE marking	The CE marking applies to a product defined by its design, its components, its production system, and its production control system. Any changes to one or more of these, which may have an effect on the conformity of the product, may require re-testing or re-assessment (Section 3.5.6)

All manufacturers wishing to obtain the CE marking are strongly advised to inform themselves of the procedure and the requirements. This can be done by studying this document, by reading guidance on the internet, by consulting with PCSIR Lahore, and by discussion with CE marking Expert Trainers. The Pakistan Electric Fan Manufacturers and Exporters Association in Gujrat, may also be able to provide assistance.

This document is written specifically for fan manufacturers. However, many of the principles and procedures apply equally to other electrical equipment.

1.2) Regulatory background to the CE marking

The European Union (EU) is currently made up of 28 Member States, with a combined population of approximately 500 million people. The EU is a well-developed market, but one which has high levels of safety, consumer protection and quality as its basis. All Member States operate as part of a Single Market, which means that any product which has been shown to be safe in one place and at one time can be placed on the market of all Member States, without restriction, and without any retesting or re-evaluation. This provision applies just as much to products entering the EU from third countries as it does to products made in Europe, as long as these products meet all EU requirements. The fact that a product is safe is usually demonstrated by it bearing the CE marking, which is why the CE marking represents the 'passport' which allows products to be sold in Europe.

'Safety' is a wide term which covers a number of different aspects. These include:

- absence of risk of personal injury (for fans, this includes avoidance of contact with moving and/or live parts),
- performance in use (for fans, this includes tests such as overload, performance in high temperatures, and the operation of thermal cut-outs. It also includes the degree of protection offered by the product and avoidance of electro-magnetic hazards),
- durability,
- environmental performance (this includes rated power and noise levels),
- absence of dangerous substances (certain substances, such as lead, are banned or strictly limited in electric equipment), and
- re-cyclability (electrical equipment should be recycled rather than thrown away as part of general household waste, and products must be marked accordingly to ensure this).

The above requirements are set out, in general terms, in a series of EU directives which apply equally in all Member States. This means that all Member States have agreed on what is meant by a 'safe' product; so a product judged safe in one Member State is also judged safe in all other Member States. It also means that no Member State is allowed to impose additional requirements (such as additional safety levels or mandatory product certification) beyond those laid down in the directives. The directives which apply to electric fans are:

1) the Low Voltage Directive (LVD, 2006/95/EC), which covers risks mainly of electrical and mechanical nature (note that 'industrial' fans are covered by the Machinery Directive (MD, 2006/42/EC) instead, which also applies to 'industrial' versions of other products),
2) the Electro-magnetic Compatibility Directive (EMC, 2004/108/EC), which covers the emission of and immunity to electro-magnetic radiation,
3) the Restriction of Hazardous Substances Directive (ROHS II, 2011/65/EC), which limits the content of certain dangerous substances,
4) the Eco-design Directive (2009/125/EC), which covers issues such as rated power and noise,
5) the Waste Electrical and Electronic Equipment Directive (WEEE, 2012/19/EC), which requires that fans be marked as unsuitable for normal waste streams,
6) the Registration, Evaluation, Authorization and Restriction of Chemicals Directive (REACH, EC/1907/2006) which restricts the use of dangerous substances (but see below), and
7) the Energy Labelling Directive (92/75/EEC)thatapplies to some electrical appliances but not fans.

Manufacturers must comply with all of these directives, although the Eco-design Directive is applied, for fans, through an implementing Regulation, EU/206/2012. Compliance with the first four of the directives leads to the product bearing the CE marking, while the WEEE Directive requires manufacturers to put a symbol on the product indicating that it should not be disposed off with general waste. The text of all of these directives and the implementing regulation can be found at the European Commission's website on the internet, and it is strongly suggested that all manufacturers seeking the CE marking read it.

CE MARKING FOR ELECTRIC FAN, APPLIANCES AND EQUIPMENT
GUIDE FOR MANUFACTURERS

Safety is generally expressed in performance, rather than prescriptive terms, and manufacturers have the choice of how to satisfy the requirements. An example of a performance requirement (from the LVD) is that “persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact”. The directive does not prescribe how protection against injury must be achieved; only stating that protection must be offered.

In many cases, the general safety requirements are made more specific in harmonised European Standards, written in support of one or more directives. For fans, the European Standards (based on IEC standards) EN 60335-2-80and EN 60335-1, include various requirements and test methods which must be satisfied for the 'protection against physical injury' requirement to be met.

Directives do not cover functionality, which means, for example, that they do not set requirements on whether fans have a certain number of speeds, whether they are designed for use in high temperatures or whether they have a particular power rating. These aspects are left to each manufacturer to decide, but once he has decided, the product must be tested accordingly. For example, if a manufacturer wants his fan to be suitable for use in temperatures of 40°C or above, then some of the tests have to be performed at this temperature.

One crucial aspect of all European Union (EU) directives is that conformity to their requirements is always done under the direct responsibility of the manufacturer. This means, in particular, that the manufacturer is responsible for ensuring that every product he places on the market complies with the requirements of the directives and is properly CE marked; if a product is found to not comply (i.e. is unsafe), action will be taken against the manufacturer in the first instance. If the manufacturer employs a third party (e.g. a product certification body or a test laboratory, see below), these parties do not authorize the affixing of the CE marking; they only provide information which assists the manufacturer in declaring that his products conform, which he does by using the CE marking.

All directives fix a system of attestation of conformity (AoC), which means who is involved in demonstrating that the product meets the requirements of the directives. For all of the directives listed above, the system is manufacturer's declaration of conformity, which means that the manufacturer may, if he has the necessary test equipment, test the product himself without the intervention of a third party. There is also no regulatory obligation for third party assessment of the manufacturer's factory production control system.

In practice, however, two factors make the intervention of a third party Notified Body necessary. Firstly, it is highly unlikely that manufacturers will have all the test equipment required for the full range of tests (and will have the equipment for testing electromagnetic compatibility or the content of hazardous substances). Secondly, many importers and purchasers require (indicating that this is a market need, not a regulatory one) that the products they buy are tested by a Notified Body. Notified Bodies are product certification bodies or test laboratories which are recognized, by EU Member States, as being competent to assess products under one or more directives. These bodies have to be based in Europe (although they may have representatives in other countries such as Pakistan); this means, therefore, that in order to obtain a CE type approval certificate test samples will have to be sent to Europe for testing.

In addition to responsibilities on manufacturers, EU provisions also impose obligations on importers and distributors. These must ensure that any products entering the EU market, or sold in that market, which are required to be CE marked, are CE marked and are accompanied by any necessary documentation. In short, they are committing an offence if they sell products without the CE marking when the products should indeed be marked. Manufacturers of fans, therefore, need to be aware of this provision and refuse to supply products to any importer in the EU that does not impose CE marking. Because market surveillance authorities in Europe concentrate a lot of their efforts on checking electrical products, products without CE marking are very likely to be subject to control actions very rapidly and, in the case of any problems, both the manufacturer and the importer could be found guilty of an offence.

Prior to sending products for testing in Europe, manufacturers must draw up technical documentation to identify the product and its production process, and how the manufacturer intends to demonstrate that his product complies with all relevant regulatory requirements. In some cases, the content of this documentation is described in the directive, but there is no defined format which has to be used.

The various steps which manufacturers need to go through to obtain the CE marking are described in Chapter 3. Before that, Chapter 2 discusses the application of directives, and also presents sources of information which are important in the CE marking procedure so that manufacturers can understand what is expected of them and why, allowing them to understand the steps given in Chapter 3.

Chapter 2: THE APPLICATION OF DIRECTIVES

2.1) Introduction

This chapter explains in more detail what the different directives require the manufacturer to do and how the manufacturer meets the directives' requirements. It also briefly covers the market surveillance activities and what manufacturers may expect from this. While it is not crucial for manufacturers to understand all of the details of all directives, the more they understand, the better their position will be when discussing with importers, Notified Bodies and customers.

2.2) The Low Voltage Directive (LVD)

The LVD is the directive which covers all the electrical and mechanical safety aspects of electric fans and most other electrical equipment. Although the EU's Machinery Directive also covers equipment with moving parts, where the equipment is predominantly electrical, only the LVD applies. It applies to:

> "any equipment designed for use with a voltage rating of between 50 and 1000 V for alternating current and between 75 and1 500 V for direct current"

This clearly means that it covers electric fans and all other electrical domestic appliances. The voltages above mean the input or output voltage; different voltages (e.g. for control) may exist within the equipment but the directive still applies. Some electrical equipment is excluded from the directive, and this includes (for example) plugs and sockets, equipment used in lifts, and equipment used in explosive atmospheres.

The LVD (and indeed other directives) apply to things which are sold together and are intended to be connected and/or used together. So if a manufacturer sells a fan and a separate control switch, or a fan with a remote control unit, then both the fan and the control switch/remote control unit would need to be shown to be safe and to function correctly together.

The LVD sets out the general and safety requirements which have to be met as follows:

1. General conditions

a) The essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the equipment, or, if this is not possible, on an accompanying notice.

b) The brand name or the trade mark should be clearly printed on the electrical equipment or, where that is not possible, on the packaging.

c) The electrical equipment, together with its component parts, should be made in such a way as to ensure that it can be safely and properly assembled and connected.

d) The electrical equipment should be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained.

2 Protection against hazards arising from the electrical equipment

Measures of a technical nature should be prescribed in accordance with point 1, in order to ensure:

a) that persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact;

b) that temperatures, arcs or radiation which would cause danger, are not produced;

c) that persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience;

d) that the insulation must be suitable for foreseeable conditions.

3. Protection against hazards which may be caused by external influences on the electrical equipment

Technical measures are to be laid down in accordance with point 1, in order to ensure:

a) that the electrical equipment meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered;

b) that the electrical equipment shall be resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered;

c) that the electrical equipment shall not endanger persons, domestic animals and property in foreseeable conditions of overload.

All of these requirements apply to all electrical equipment, including fans. In order to meet the requirements of the directive, the manufacturer has two main options:

1) he applies a harmonized European Standard which has been written in support of the LVD and, therefore, which has 'expanded' the requirements of the directive and given them in terms of requirements and test methods which apply specifically to certain products; or

2) he complies directly with the requirements given in the directive, in which case he has to perform a risk assessment, identify for himself the requirements on his product, and propose suitable test or assessment methods to satisfy them.

In reality, demonstrating conformity by applying a harmonized European Standard (where the word "harmonized" means "accepted by Member States as giving a presumption of conformity with the provisions of the directive") is so much simpler than direct compliance that only the standards approach will be discussed in the rest of this Guide.

Although many harmonized standards for electrical products are technically the same as IEC standards, it is only the European (EN) version of the standard which allows the provisions of the directive to be met. All harmonized standards (ENs) contain an Annex ZA which indicates which clauses of the standard are required for CE marking. For some products there may be requirements in the standard which do not need to be satisfied for CE marking, while some other standards may not cover all the essential requirements of the LVD (in which case the manufacturer must find an alternative route to comply with those missing requirements) this can only be known from the European version of any standard. Manufacturers must hold a copy of the main standard(s) (those which give product requirements) they rely on to demonstrate compliance with the directive, even if all the testing is done by a Notified Body.

For fans, the main harmonized European Standard to apply is EN 60335-2-80:2003 Household and similar electrical appliances Safety Part 2-80: Particular requirements for fans, which refers to EN 60335-1:2002 Household and similar electrical appliances Safety Part 1: General requirements. All harmonized standards which support the LVD can be found on the internet, at:

http://ec.europa.eu/enterprise/sectors/electrical/documents/lvd/standardisation/index_en.htm

So, while applying for CE marking for equipment other than fans, the appropriate standard to use can be found on this website.

It is important that manufacturers check the website above to ensure that they are applying the most recent version of the standard(s),which is a legal obligation. In addition, if either of the two standards for fans is changed technically (and therefore the new version would be listed on the website), manufacturers have to apply the new versions and this may well require new testing.

As already stated in Chapter 1, the LVD does not require the intervention of a Notified Body for the testing of electrical and mechanical safety. But, as also stated, there is a market requirement on manufacturers to use a Notified Body and so, for the rest of this Guide, it is assumed that manufacturers will do so. How a Notified Body can be selected is described below.

2.3) The Electromagnetic Compatibility (EMC) Directive

The EMC Directive ensures that electrical equipment neither emits high levels of electromagnetic radiation,nor is it affected by external electromagnetic radiation. This is expressed by the following requirements:

Protection requirements

Equipment shall be so designed and manufactured, having regard to the state of the art, as to ensure that:

a) the electromagnetic disturbance generated does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended;

b) it has a level of immunity to the electromagnetic disturbance to be expected in its intended use which allows it to operate without unacceptable degradation of its intended use.

In principle, not all equipment needs to be tested for EMC emission and immunity, although equipment containing electronic components will need testing. The so-called 'benign' equipment which, because of its design, can be known not to emit or be affected by radiation, is excluded from the scope of the directive. Having said that, different test laboratories interpret this differently and, if the laboratory chosen by the manufacturer recommends or insists on tests being done, it may be better for the manufacturer to accept this. With positive test results, there can be no doubt that the equipment meets both requirements.

There are three harmonized standards applied to assess EMC conformity of fans:

EN 55014-1:2006+A1:2009, EMC requirements for household appliances, electric tools and similar apparatus Part 1: Emission,

EN 61000-3-2:2006+A1:2009+A2:2009, Electromagnetic compatibility Part 3-2: Limits for harmonic current emissions,

EN 55014-2:1997+A1:2001+A2:2008, EMC requirements for household appliances, electric tools and similar apparatus Part 2: Product family standard.

A1 and A2 refer to the two Amendments which have been made to these standards. As for the LVD Directive, manufacturers should ensure that the current versions of these standards are used for testing, although a test laboratory should know this.

The same situation applies, in respect of EMC testing, as for the LVD. The EMC Directive does not require the intervention of a Notified Body, but importers and customers do. In addition, there are no commercial EMC testing facilities in Pakistan, so manufacturers are obliged to have their products tested by a foreign test laboratory.

2.4) The Restriction of Hazardous Substances Directive (ROHS II)

This directive is relatively recent, but it is important because it is the one which can cause problems for Pakistani fan manufacturers. Its basic aim is to limit the content of six potentially hazardous substancesbelow the percentages by mass shown below:

Lead (Pb)	0.1 %
Mercury (Hg)	0.1 %
Cadmium (Cd)	0.01 %
Hexavalent Chromium (Cr_{vi})	0.1 %
Polybrominated biphenyls (PBB)	0.1 %
Polybrominated diphenyl ethers (PBDE)	0.1 %

These substances are most usually found in impure wires and cables, chrome plated nuts, bolts and screws, and flame retardant plastic products; manufacturers should aim to avoid using any of these (lead in solder is excluded from the ROHS Directive).

There are three main ways in which manufacturers can satisfy the requirements of this directive:

1) by using materials and components which have already been shown to be ROHS compliant by their suppliers, and which are delivered with a ROHS - compliant certificate,

2) by testing of materials and components,

3) by risk assessment of deemed-to-satisfy materials and components.

Option 1) should be possible for most major materials (such as steel, wires and cables, capacitors, and switches), especially when these come from large international suppliers (although Pakistani manufacturers should check

whether certificates they receive from suppliers are credible), but it is not possible for many minor components (such as screws, nuts and bolts),nor is it currently possible for many components and materials manufactured in Pakistan.

Option 3), if a third party test laboratory is involved, depends on the approach taken by that laboratory. Some laboratories are willing to exempt from testing those components and materials which clearly do not contain any of the restricted substances, such as paper; other laboratories insist on testing everything which is not covered by an ROHS certificate.

In order to allow testing to take place, manufacturers must, as part of the preparation of their Technical Files (see Chapter 4), include a detailed list of all materials and components used in their fans, together with the specification, the name and address of the supplier, and a copy of any ROHS certificate if this is used instead of testing. This list needs to be thorough and accurate, and should avoid using names for components which would not be understood by a test laboratory.

2.5) The Eco-design Directive (2009/125/EC)

The directive itself does not apply directly to products; it only sets out the basic regulatory framework. Whether the requirements apply to a specific product depends on there being an implementing regulation, such as is the case of fans (Regulation EU/206/2012). For products other than fans, whether implementing regulations exist can be found by looking at the list at:

http://ec.europa.eu/energy/efficiency/ecodesign/doc/overview_legislation_eco-design.pdf

For fans, the characteristics which need to be tested and declared are:

Description	Symbol	Value	Unit
Maximum fan flow rate	F	[x,x]	m^3/min
Fan power input	P	[x,x]	W
Service value	SV	[x,x]	(m^3/min)/W
Standby power consumption	P_{SB}	[x,x]	W
Fan sound power level	L_{WA}	[x]	dB(A)
Maximum air velocity	c	[x,x]	meters/sec

There is, however, no specification of which test methods have to be used to determine these characteristics. IEC 60879 is the most appropriate standard for most parameters, apart from sound power level, where any suitable test method may be used.

The attestation of conformity procedure referred to in the regulation is “Internal design control”. This means, in practice, that the manufacturer must fully describe, in his Technical File, the design of his products, and then operate an FPC system to ensure that all products comply with this design. As long as the Technical File is prepared as shown in Annex 1 of this Guide, and the manufacturer is operating an FPC system suitable for controlling LVD and EMC parameters, he will also meet the requirements of the Eco-design Directive.

There is no obligation to involve a Notified Body and, in fact, there are no Notified Bodies under this directive. Unless the manufacturer has the necessary test equipment, however, he will need to have the parameters tested by a third party test laboratory and, for practical reasons, it may be best to use the same body as for LVD and EMC testing.

2.6) The Waste Electrical and Electronic Equipment Directive (WEEE)

This directive is very easy to apply, in that it only requires that the product (usually on its data plate) is marked with the “Do not include in normal waste” symbol:

As long as this symbol is used, nothing else is required to comply with the WEEE Directive.

2.7) The Reach Directive

In principle, the REACH Directive applies to every product placed on the EU market, and it has an extensive list (about 600 pages) of all the restricted or banned substances which cannot be used in products. In practice, however, as long as electrical products comply with the ROHS Directive, no additional assessment is usually needed to satisfy REACH, but, for example, for something like an oil-filled radiator, the oil may need to be REACH compliant.

2.8) Identification and selection of a Notified Body

This Guide is unable to recommend any specific Notified Body or Bodies, but it does show how manufacturers can identify them and then gives some considerations for how to select them.

All Notified Bodies working under the LVD and EMC are listed on the EU's NANDO website:

http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=search.main

On entry to this web page, there is a 'Free search' screen as follows:

Free Search:

Keyword On Bodies:	
Keyword On Legislations:	
Keyword On Articles / Annexes:	
Keyword On Procedures:	
Keyword On Products:	
Keyword On Horizontal Technical Competence:	

Typing “Low Voltage” or “Electromagnetic Compatibility” into “Keyword on Legislation” will produce the list of Notified Bodies competent to work under the LVD or EMC Directives respectively. By clicking on the name of the body its details can be found, below which can be found the list of which legislation it is competent to perform type approval testing for. The scope of competence of each body can then be found by clicking on the “HTML” or “PDF” tabs against the legislation, which will call up the accreditation scope of the body.

A manufacturer in Pakistan is entitled to use any of the bodies given in the NANDO lists and, in principle, all bodies are equally technically competent and their results equally acceptable. However, a number of considerations may help in guiding manufacturers on how to choose a suitable body:

- because the demand for the Notified Body is coming from the market and not from regulation, manufacturers should check that the body they use will be accepted by their customers; this may mean choosing a well-known body with a good international reputation,
- for practical reasons, it may be better to choose a body able to perform all tests (those of LVD and EMC as well as ROHS and Eco-design [although the body will not be acting as a Notified Body in respect of ROHS or Eco-design]),
- ensure that the body is willing to provide only type approval certification (as required for CE marking), and is not suggesting full product certification or wants to assess the manufacturer's FPC system, which would be beyond the requirements of CE marking (this does not prevent manufacturers from seeking voluntary product certification, if they so wish),
- typical costs of testing, per model (see below) are likely to be between €3 000 and €4 000. The cost per model, especially for ROHS testing, will be proportionally higher per model if the manufacturer submits only one or two models, but will be cheaper if he submits more models at the same time (see below),
- bodies which offer a price much below or much above the price range given above should be treated with some suspicion,
- a body which has a representative in Pakistan may make contact between the manufacturer and the body easier, but this is not essential,
- the body needs to be willing to work in English,

- there could be some economies if the manufacturer uses the same body for type-approval testing as for third party ISO 9001 system certification, if the manufacturer opts for this,
- the turn-around time will typically be quoted as 4-6 weeks, but this does not automatically mean that results will be received within 6 weeks of the laboratory receiving the samples; this time is often the total time taken to perform the tests, and manufacturers should seek, from bodies, agreement on starting and finishing times,
- although difficult to judge, the cost of any retesting (in the event of failure) should be discussed, and
- the length of validity of the type-approval certificate, and the cost of renewing it, is a factor*.

*As long as nothing changes, with the product, its design, materials, etc., the production method, the production control method or the harmonized standard(s), no retesting or repeat testing is necessary for CE marking purposes. The body may require that the type-approval certificate is renewed from time to time (every 3 to 5 years is typical), but this renewal is intended mainly to ensure that nothing has changed. This renewal is, therefore, an administrative rather than a technical exercise, and should not be expensive (€300-€500). Manufacturers should be cautious of bodies requesting renewal of the certificate more frequently than this and/or charging substantially more.

Beyond these considerations, it is suggested that manufacturers identify a number of possible Notified Bodies, send the draft Technical File to each of them and then make a selection based on the offers received. Lowest cost should not necessarily be used as the only criterion on which the decision is made.

Two questions which are often asked are:

1) can manufacturers use test laboratories in Pakistan in support of CE marking, and
2) does the manufacturer need an Authorised Representative based in the EU?

The need to use a Notified Body in support of the LVD and EMC has been discussed above and, currently, Notified Bodies cannot exist in Pakistan. A fan manufacturer is entitled, though, to use a laboratory in Pakistan to test Eco-design Directive parameters (where no Notified Body is required) and may also use a national laboratory to undertake both screening tests (prior to CE marking, see Chapter 4 below) and to perform testing in support of FPC (if any such tests are required).

The only other way in which a Pakistani test lab could undertake CE marking tests is by entering into an agreement with an EU-based Notified Body. Then, by sub-contract, the Notified Body would authorize the Pakistani test lab to perform tests on its behalf. For this to happen, however, the Pakistani test laboratory would need to be performing at a very high level of competence; no such arrangements exist at present.

The Authorised Representative (AR, a term which appears in many directives) is an organization, based some where in the EU, which is contracted by the manufacturer to perform certain tasks on the manufacturer's behalf. The AR may, for example, hold the Declaration of Conformity and Technical File on the manufacturer's behalf, and act as the contact point for market surveillance authorities. The AR may also coordinate the work of one or more Notified Bodies, but is not permitted to take on any of the responsibilities placed on the manufacturer.

Pakistani manufacturers have no obligation to appoint an AR. The one instance where having one could be beneficial would be to coordinate the sending out of test samples, if more than one test laboratory in the EU is involved in type approval testing. The AR may also act as the importer, in which case he takes on the responsibilities of an importer, as described above.

2.9) Market surveillance

The CE marking of a product shows that, in the European Union at least, it is given a presumption of conformity with all applicable regulatory requirements, which means that the letters indicate that the product has already been tested and shown to be safe. As a matter of principle, therefore, a manufacturer who has followed all the steps in this Guide and has applied the CE marking correctly, should not be subject to any market surveillance (which includes customs) actions. Nonetheless, because of the inherent risks involved with electrical goods, this is a sector where market surveillance authorities are particularly active. This section describes briefly the possible actions, and how manufacturers should respond.

Market surveillance authorities have three main ways of checking whether a product is legally placed in the

European market:

- checking the presence of the CE marking symbol, and that technical information and user instructions are present and credible. A lack of CE marking, on a product which should bear it, or a lack of technical information or user instructions, is itself an offence, whether the product is safe or not;
- documentary checks, where the authorities ask to see proof of conformity via the Technical File. If a manufacturer does not hold a TF, if the file is incomplete (does not contain test results, for example) or the manufacturer refuses to send the TF to the authorities, this is also an offence; and
- visual assessment and/or product tests. Authorities will easily spot obvious faults and, in such cases, they may conduct testing. It is unlikely that the detailed ROHS testing would be repeated, but action will be taken if ROHS requirements are clearly not met (use of chrome plated screws, for example, or very shiny paint which indicates the presence of lead).

The simplest ways in which manufacturers can avoid market surveillance actions are by, firstly, keeping their Technical File fully up to date and correct, which includes ensuring that certificates are up to date and that any new test reports are included. Secondly, they should verify every product or batch of products they supply, including its marking and accompanying information, and they should be very careful of making any changes to the product, its design or its component parts without informing the Notified Body of this.

In the unlikely event that market surveillance action is taken, the importer and/or the manufacturer will receive a notice explaining the reasons for the action, what needs to be done to correct it, and the time allowed for this. In such cases, the required actions must be taken and the authorities must be informed, or there is a risk that the product will be suspended or removed from the market.

2.10) Further information

There is a great deal of information related to EU regulations, directives and CE marking on the internet, and it is recommended that manufacturers consult this from time to time so as to better understand the process and requirements. Perhaps the best source is what is known as the Blue Guide 2014, which gives a good and thorough presentation of the subject and can be found at:

http://ec.europa.eu/enterprise/policies/single-market-goods/documents/internal-market-for-products/new-legislative-framework/index_en.htm

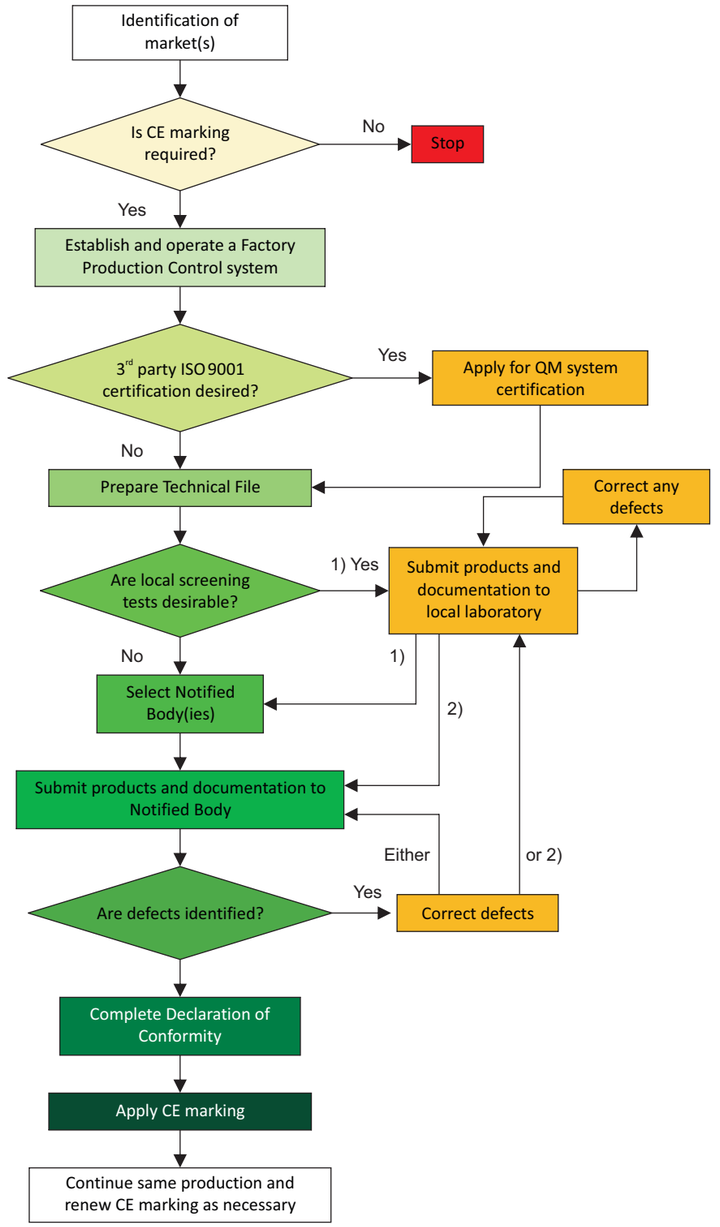
Other guidance can be found simply by typing the name of a directive into a search engine, but different levels of information need to be treated differently. The European Commission's website (anything starting with ec.europa.eu) can be considered to be definitive and correct, but will often lack the technical details required by manufacturers. At a second level, many Notified Bodies provide information through their websites (often in the form of a flowchart or guidance document for CE marking) and these sites can also be considered to be accurate. At a third level, websites of manufacturers' associations and other organizations may provide useful information, but the accuracy of the information they provide may need to be verified.

CE MARKING FOR ELECTRIC FAN, APPLIANCES AND EQUIPMENT
GUIDE FOR MANUFACTURERS

Chapter 3: STAGES TO BE FOLLOWED FOR CE MARKING

3.1) Presentation of stages

The stages towards CE marking, as shown in the Introduction, are given in the following flowchart. Each stage is then described in detail in the following sections of this chapter, although some of the stages shown in this figure are combined in the explanation sections.



3.2) Identification of markets

There is very little point in making any preparations for CE marking (apart, perhaps, from seeking a third party certified Quality Management System according to ISO 9001, which has benefits independent of CE marking), unless the manufacturer first identifies that there is a market for his products in Europe or in other countries. Having identified such markets, the manufacturer then needs to decide whether CE marking is mandatory from a regulatory point of view (the case for European Union and EFTA countries), whether it is required by or advisable for the market (Middle East, some north African countries), whether it brings a marketing advantage even if not required (for example ex-Yugoslavian and ex-Soviet countries), or whether it is not necessary at all. This section is not a guide on how to identify potential markets, but it does give some guidelines which might prove helpful.

While the CE marking allows products to demonstrate that they are legally entitled to be placed on the market (and is, therefore, a marking primarily intended for customs and market surveillance authorities), it does not indicate that customer requirements will be satisfied. Customer requirements often go beyond the requirements of CE marking, and cover aspects such as price, functionality, appearance, durability (although some CE marking tests also cover durability),the manufacturer's reputation and after-sales service; all of these aspects should be considered by manufacturers before starting the CE marking process.

There is an initial cost associated with obtaining the CE marking (mainly covering type approval testing and certification, and the cost of purchasing standards). Typically, this cost will be in the broad range of €5 000 to €15 000 depending on how many models are considered at the same time. This should add very little to the unit cost for any fans sold in large or normal quantities, but manufacturers should also be aware that the demand for fans in some EU countries may well depend on the weather (there might be few sales in a cold winter or cool summer, many more in a hot summer). Cost should not, though, really be a factor in deciding whether to obtain CE marking or not.

Manufacturers should also take into account the time required to obtain the CE marking. This is likely to be 6 months minimum (even while assuming that everything proceeds smoothly and no re-design or re-testing of the product is necessary) and could easily extend to 18 months. Manufacturers should not, therefore, undertake to supply CE marked products until they are certain that they will be able to.

Manufacturers should also be aware that CE marking requirements can be technically demanding, especially with regard to user safety and avoidance of hazardous substances content. Products which can be sold in Pakistan, for example, may require a re-design to be suitable for use in the EU, and the difficulties associated with this re-design, together with the time necessary to implement it, should be considered before opting for CE marking.

There are a few technical considerations which may also be important. For example, EU countries use a voltage of 230 V and a frequency of 50 Hz. Non-EU countries tend to have a range of both voltage and frequency, so ensuring that the fan is qualified for a voltage range of 220-240 V and a frequency range of 50-60 Hz will ensure suitability for a wide range of countries. The same is true of ambient conditions; a few, if any, EU Member States will require suitability for tropical conditions (40°C or above), but this is very likely to be required in Middle Eastern countries, for example.

In summary, CE marking is not something which should be taken lightly. It should only be considered by manufacturers who believe that their products are capable of meeting the requirements for CE marking, who have identified that a market exists for their products in countries where CE marking is either mandatory or required by the market, and who are serious about supplying these markets. Finally, it is only something to be considered by those manufacturers willing to put in the resources and effort required to achieve it!

3.3) Operation of factory production control

All directives require, in greater or lesser detail, that manufacturers must operate some sort of factory production control (FPC) system. However, this is not the same as a Quality Management system (see below). CE marking should not be confused with normal third party product certification, where the certification body will test products in order to issue a certificate in the first place, but will then, from time to time, test further samples to ensure continued compliance, and where the product certificate may be suspended or withdrawn if the product no longer complies. For CE marking, the product needs to be initially tested in order to demonstrate conformity (and, as explained below, this will usually be done by a Notified Body based in the EU) but after this initial testing there is no further repeat or routine testing (as a condition of CE marking).

The primary purpose of FPC, therefore, is to ensure that all future products manufactured remain the same as those submitted for type approval; this means that the results of the type approval tests remain valid for all future

CE MARKING FOR ELECTRIC FAN, APPLIANCES AND EQUIPMENT
GUIDE FOR MANUFACTURERS

products. As examples of this, the Low Voltage Directive states that:

- "Internal production control is the procedure whereby the manufacturer … ensures and declares that the electrical equipment satisfies the requirements of this Directive that apply to it" (LVD Annex IV.1).
- "The manufacturer must take all measures necessary in order that the manufacturing process shall ensure compliance of the manufactured products with the technical documentation and with the requirements of this Directive that apply to them" (LVD Annex IV.5).

The Restriction of Hazardous Substances (ROHS) Directive requires that:

- "manufacturers [shall] ensure that procedures are in place for series production to remain in conformity. Changes in product design or characteristics and changes in the harmonized standards or in technical specifications by reference to which conformity of EEE [electrical and electronic equipment] is declared shall be adequately taken into account".

As long as the primary objective, that of ensuring the production of conforming products for which the type approval test results remain valid, is met, there are no other, more specific, requirements or definitions of FPC. In practice, an FPC system will be made up of incoming material and component checks, in-process tests and controls, finished product testing, and packaging/shipment controls, but the types and frequencies of these tests and controls are left to each individual manufacturer's discretion.

There is no direct third party control of FPC as a requirement for CE marking. The FPC system has to be described, in appropriate detail, in the Technical File (see the example in Annex 1), and the Notified Body should check that what is described is credible and adequate. The directives also require manufacturers to hold FPC records (for 10 years). What this means, therefore, is that the obligation to control production appropriately falls entirely on the manufacturer. Importantly, if any non-conformities with the product are detected, or an accident is caused as a result of the product and the manufacturer could not produce results to demonstrate that FPC had been applied correctly, he may well have committed an offence.

The EU directives themselves do not make the use of a certified ISO 9001 Quality Management system mandatory. It is accepted, though, that if manufacturers have such a certified system, which has been assessed by a duly accredited certification body, then they will be considered to have met the regulatory requirements for FPC. Manufacturers should, therefore, consider attaining ISO 9001 certification, not only for CE marking purposes but also as a benefit in its own right.

If a manufacturer uses ISO 9001 certification as the basis on which he claims satisfactory FPC, a copy of his certificate (which must be current) has to be given in the Technical File. Even in this case, he must still describe the main stages of his control system.

Strictly speaking, a manufacturer does not need to have a functioning FPC system before he submits his products for type approval testing. However, because it can take time (typically 6 months to a year) to implement such a system, it is recommended that this system is operational before type approval testing starts.

3.4) Preparation of documentation

3.4.1) Introduction

Although this section covers mainly the preparation of the Technical File (TF) required to fully identify the product, there are in fact a number of decisions and actions that need to be taken in order to prepare this file. When EU directives talk about a "product", the "product" in question is actually defined not only by the physical item to be tested, but also by the materials and components from which it is made, its manufacturing process, its factory production control system, its marking and labelling, the harmonized standard applied, and even, in some cases, by who manufacturers it. Because the TF is required to uniquely identify the "product" which is CE marked, all of the information which goes to define it needs to be included in the TF. The various sub-sections in this section cover how the TF should be prepared, and Annex 1 gives an example which can be used as the basis for a manufacturer to prepare his own. While each directive requires that the manufacturer prepares a TF, all the information can be put into one single document covering all directives.

The Technical File serves quite a number of purposes, beyond just the needs of CE marking:

1) it is the complete definition of the "product" as discussed above, serving as a reference for the manufacturer as part of any Quality Management system,

2) it is the main document which satisfies the regulatory obligations on the manufacturer by describing how he has met the provisions of all applicable directives,

3) it can prove to market surveillance authorities that the product conforms, because when they question the conformity, they will usually ask to see the Technical File first,

4) it allows the manufacturer to obtain an outline quotation from candidate Notified Bodies before test samples are sent,

5) it allows the manufacturer to indicate his preferences, in terms of performance parameters, to the Notified Body, allowing the scope of testing to be identified,

6) it permits the Notified Body to verify that the samples received for testing are really those which the manufacturer intends to produce, by checking that the samples delivered are the same as those described in the TF, and

7) it may be used, in full or in part, by the manufacturer as a 'sales brochure' for purchasers, importers, etc.

Or these reasons, the TF is a crucial document, and its preparation needs to be as complete and accurate as possible. If the product samples sent to the Notified Body for testing do not fully correspond to what is described in the TF, the body will most likely reject them and not start testing, causing delay. The same is true if the list of components given in respect of ROHS testing is incomplete or inaccurate, or if any supporting ROHS certificates are not supplied. For these reasons, manufacturers might consider getting external expert advice in the preparation of their file. If nothing else, it is worth checking the English (grammar and spelling), because poor English gives a poor initial impression as far as the Notified Body is concerned (in the same way that poor language in the User Instructions gives a bad impression to purchasers).

Before reading the sections which follow, manufacturers should read earlier chapters of this Guide so that they fully understand the reasons for the TF and its contents. When and if following the model TF given in Annex 1, manufacturers must ensure that all sections of the file are made specific to their products and their production systems.

3.4.2) Identification of the manufacturer(s)

In EU legislation, the 'manufacturer' is defined as the person responsible for affixing the CE marking, and whose name appears on or with the product. In most cases, the manufacturer will be the company which makes the product, and consequently it is the details of this company which appear at the beginning of the TF. In some cases, however, the product may be sold entirely in someone else's name, in which case, from a legal point of view, it is that 'someone else' who becomes the 'manufacturer' of the product and acquires, as a consequence, all the responsibilities imposed on the manufacturer, which includes the need to hold a Technical File in his own name. The second 'manufacturer' may be the company which makes the product but sell sit under a different name.

It is beyond the scope of this Guide to go into details of the different responsibilities if the same product, made by one company, is sold by two or more different legal entities, and advice should be sought if this situation arises. If the same product is sold under two different names, both of which are trade names of the manufacturer who takes responsibility for the CE marking, then the TF needs to make clear that both names will be used to sell it.

If the product is to be distributed in someone else's name (i.e. the name of the distributor), without the distributor taking any responsibility for CE marking, then, strictly speaking, a distinction should be made between the manufacturer (with responsibility for CE marking) and the distributor on the product, its packaging, or the commercial documents. This could be done by the mention of “Manufa3ctured by: ...” and “Distributed by ...”.

3.4.3) Identification of the product(s)

There are no strict rules on how many or how few products can be included in the same Technical File; hence common sense and one important principle can be applied. If products from the same manufacturer are significantly different (their materials are different, their production system is different, etc.),so that there would basically be at least two separate sets of information in most sections of the TF, then it is probably better to prepare two or more separate documents.

The important principle, however, for type approval testing is that it is possible to 'group' similar products or models together, in what are called “variants” or “families”, in order to reduce the number of tests that need to be done. Grouping is actually done on the basis of a performance requirement which can be expressed as follows:

Products may be grouped together into families whenever it is clear that the results of testing any one product within the family are applicable to all other products within the same family. Products may be grouped differently depending on the characteristics being considered.

This can perhaps be better explained by giving some examples. Firstly, if a manufacturer makes a bracket fan, a table fan, and a pedestal fan, and all of these models use exactly the same motor and enclosure, then the electrical and mechanical safety, and ROHS tests of the motor would need to be done only once on one model, and the results would apply to the other two (the stability test of the pedestal fan would, of course, still need to be done on that model). Secondly, if a manufacturer makes several models of ceiling fans which differ only in the colour of the casing and the blades, but are all in the same family with respect to motor characteristics, still separate ROHS tests might need to be performed on the different materials of the casing and blades. In both of these two cases, it would be sensible for all models in each family to be included in the same TF. Finally, if a manufacturer made fans using the same materials for the casing and blades, but different motor designs, then these fans would be in one family for ROHS tests on the casing and blade materials, but motor and other tests would need to be done on each different model (in the latter case, it might be best to prepare two separate TFs but with instructions to the laboratory to not to repeat the ROHS tests).

Where a manufacturer proposes the use of variants or families, this needs to be stated in the Technical File, together with the details of each family. The test laboratory will verify that the requirement for different models being grouped is met, but will refuse the manufacturer's proposal if it is not met. Once families are accepted, the test reports and type approval certificates need to state not only which model(s) were tested but also for which other models the results remain valid. In this way, it is clear that all models proposed by the manufacturer have been approved.

It is helpful (and often required) for photographs of the fan models (together with any other products such as control units or remote controls) to be included, along with a circuit diagram. Each model should be given a name and a type designation, for identification purposes, but there are no rules on how the type designation is created.

As already stated above, the TF must contain a complete and accurate list of all the component parts used to make up the product. This list should give the components as they would be broken down for ROHS testing to be performed; hence describing one component as the “Motor unit” would be inadequate because the whole motor unit will never be ROHS tested as a whole, instead, it will be broken down into rotor, armature, copper wire, etc. The specification of each component part needs to be given in sufficient detail for it to be properly and uniquely identified, and this may include, for example, the material, any reference number or identifier, the technical specification (in brief), and the name and address of the supplier. The supplier information is important because if the supplier is changed, even if the specification of the component part appears to be the same, one or more of the performance or ROHS test results could be invalidated.

Finally, although not essential, drawings of the main components of the fan may be included (this is not done in the Annex 1 example). But care should be taken that this does not make the whole TF too large to be sent easily by E-mail (typically no more than 3-5 MB).

3.4.4) Description of the production method and factory production control system

It is necessary to describe both the production method and the FPC system in enough detail that they can be understood and that the adequacy of the FPC system can be judged. They do not, however, need to be described in full detail, and an outline flowchart is often sufficient. The level of detail given in the example TF in Annex 1 is appropriate but, if in any doubt, it is better to give too much detail rather than too little. All key stages related to production and production control should be shown, including, for example, ordering and reception of materials and component parts, and packing, labelling and dispatch, because both of these have a bearing on the conformity of products. Stages unrelated to production and production control, such as handling of customer orders or complaints, do not need to be given; it is best not to identify, by name, the people responsible for different stages, because, if one person leaves, the TF would need to be changed (the function, however, e.g. “Production control supervisor” may be identified).

Even if third party ISO 9001 certification is used as partial proof of the adequacy of FPC (in which case a copy of a valid certificate has to be included in the TF), the key stages of the FPC system still need to be listed and/or described. This helps to ensure, should there be any doubt, that the third party certification is both genuine and adequate.

3.4.5) User information

The LVD, in particular, requires that adequate user information be given to allow the product to be correctly installed and operated, and also to place any limitations on the use of the product. Because of liability laws, especially in the EU, any restrictions on the use of the product (such as indoor use only, that the product must not be used if damaged and that no parts are repairable or replaceable by the user) need to be given in the user information, since the manufacturer is then not responsible if the product is used in conditions outside of his specifications and an accident occurs.

If the manufacturer already has user instructions (perhaps in the form of a User Manual), these may be copied directly into the TF (provided that they are in a language [usually English] which can be understood by the Notified Body). If at the time the TF is being prepared, a User Manual does not yet exist and the text is, therefore, written for the first time in the file, when the User Manual or user instructions are printed, the text needs to be the same as that given in the TF because the Notified Body will have assessed its adequacy.

There are no minimum or maximum specifications on the length or content of the user information, but the example given in Annex 1 is both typical and sufficient. Although unrelated to conformity, as stated above, spelling and grammatical errors should be eliminated from the user instructions because, otherwise, this gives a bad impression to anyone reading those instructions.

3.4.6) Compliance with regulatory requirements, i.e. with all applicable directives

It is the manufacturer's responsibility to identify all of the regulatory requirements (i.e. directives) with which he must comply in order for his product to be legally placed on the market. In a very few cases, there may be other national requirements, not covered by EU directives and not included in the CE marking, which also need to be complied with, but it is beyond the scope of this Guide to attempt to identify these. Ignorance of the existence of a regulatory requirement would not be accepted, in the EU, as justification for the manufacturer not applying it.

At the moment (2014), the regulatory requirements on fans appear to be stable and unlikely to change immediately. But to give examples of how requirements can change the ROHS requirements for fans only entered into force in July 2011, while the Eco-design Directive did not start to apply to fans until January 2013. Manufacturers need, therefore, to remain aware of all applicable regulatory provisions and also of any changes to the harmonized European Standards.

This section of the TF needs to contain all of the directives which apply to the product, and to show how the manufacturer complies with them. When (as is assumed, in this Guide, to be the case) conformity is based on the application of harmonized European Standards, these standards need to be listed here and, in the case of the LVD, the clauses of the standard which are applied also need to be listed.

When listing the clauses of an LVD standard (as is done in the example Technical File in Annex 1), it is better to list all requirement clauses in the standard and then indicate any which do not apply. By listing all clauses, it is clear that no requirement has accidentally been overlooked. If a fan is intended for tropical conditions (40°C or above), this should be mentioned here.

The name and address of the body(ies) used to perform the type approval, ROHS and Eco-design tests appear in this section. When the first draft of the Technical File is being prepared and the names of the bodies are not known, this information should be left blank, but once the body(ies) are known, the relevant information can be included.

3.4.7) Product marking

There are three locations where information regarding performance and CE marking may appear: on the product itself (usually a data plate), on the packaging, and on accompanying documentation (which is usually the User Manual). This section of the Technical File indicates, by way of descriptions and examples, what information appears in which location.

To know what needs to be marked on the data plate, the manufacturer has to read the EN 60335-2-80:2008 standard (together with EN 60335-1) and follow the prescriptions given there. The example data plate shown in Annex 1 of this Guide comes from the standards and includes the CE marking symbol and the “Do not dispose” symbol of the WEEE Directive. Eco-design parameters do not need to appear on the data plate, unless the manufacturer wants them to.

All information related to CE marking needs to appear together (LVD information, the WEEE symbol and Eco-design parameters) in one location, even if this means repeating what is given on the data plate. This location may

be the packaging (as is the case of Annex 1) or it may be the User Manual, or it could be both. It is convenient and easiest to simply copy the data plate format, adding the Eco-design parameters, and use this as the information to be given.

As with the user information discussed above, the example data plate(s) and information to be given on the packaging and/or User Manual, and which appears in the Technical File, must be the same as what appears on and with the product.

There is no need to provide any specific information in relation to electromagnetic compatibility or ROHS. The CE marking symbol itself shows that the product has met these requirements.

One parameter coming from IEC 60879, if the manufacturer has chosen to declare this parameter, is the fan speed in rpm, which is not needed for CE marking purposes. As such, when it is declared (for example on the packaging), it needs to be kept separate from the CE marking because the CE marking does not 'guarantee' the value as it does for the other parameters.

3.4.8) Test reports and certificates

These two final sections of the Technical File have to contain copies of all test reports, the type approval certificate received from the Notified Body, and any ROHS certificates received from component-part manufacturers.

Once the Technical File is complete, with test reports and certificates included, and the Declaration of Conformity signed and dated, the complete File should be sent once again to the Notified Body for final verification.

3.4.9) The Declaration of Conformity

All directives require that the manufacturer prepares and then signs a Declaration of Conformity (DOC) and that a copy of this appears in the Technical File. The DOC is the statement given by the manufacturer, acknowledging that he has ensured, on his own responsibility that the products he sells conform to all applicable regulatory requirements. There is no definitive model for the DOC to follow, but that given in Annex 1 is adequate.

At the time that the TF is first prepared, the DOC cannot be signed, because this can only happen when test results and a type approval certificate have been received. As soon as these are received, however, the DOC needs to be signed and a copy included in the TF.

The DOC also needs to be kept up to date. So, for example, if the harmonized standard changes, and the product is retested, a new DOC will need to be prepared and signed.

3.5) EC type approval stages

3.5.1) Introduction

Having prepared the Technical File as described in 3.4), ensured that a Factory Production Control system is in place according to 3.3), and selected a Notified Body according to 2.8), type approval testing can begin. Prior to this, however, manufacturers may decide to have 'screening' tests performed by a laboratory in Pakistan (such as PCSIR in Lahore) since this can help in eliminating major non-conformities prior to sending the samples to the Notified Body in Europe.

3.5.2) Screening tests

Although screening tests add time and some cost to the procedure, local testing will be cheaper than Notified Body testing and will save the time and expense of having to resend the sample to the Notified Body for retesting. Experience with the TRTA II programme has shown that fans made in Pakistan struggle to achieve positive results in all tests when they are first sent to the Notified Body (and this, even after screening tests at PCSIR,has eliminated many other deficiencies); hence screening tests are highly recommended.

PCSIR are competent to perform LVD testing, and they can also perform Eco-design testing so that, because no Notified Body is involved in Eco-design, these tests do not need to be repeated by the Notified Body, unless the manufacturer wishes them to be. Unlike most LVD tests, Eco-design parameters are not “pass/fail”; the value of each parameter is determined in the tests and it is these values which are then declared with the CE marking.

PCSIR are not able to perform EMC tests and, while they offer some testing of ROHS, any results in this area should be considered as indicative only. As stated above, however, even though tests done in Pakistan can help remove many defects in the products, they cannot (with the one exception of Eco-design) be used as the basis for

CE marking, in a way which will satisfy the demands of customers and importers. Strictly speaking, because all directives for fans rely on manufacturer's declaration of conformity, a manufacturer could, if he so wished, use a non-Notified Body to carry out the type approval testing. However, as already discussed, there is no commercial test laboratory in Pakistan capable of performing the required EMC tests, and relying on national testing alone is unlikely to give the degree of confidence required for CE marking, nor satisfy the needs of customers.

Finally, PCSIR may also be able to assist with the checking of the Technical File and aspects such as product marking, before products are sent to the Notified Body.

3.5.3) Type-approval testing and certification by the Notified Body

It has already been assumed that manufacturers will use the same Notified Body to carry out all required tests for LVD, EMC, ROHS and Eco-design unless these are done locally. This is certainly advisable although, strictly speaking, there is no obligation on the manufacturer to choose just one body and if, for example, he can get a better total price by having a Notified Body perform LVD and EMC tests, and a different body (non-notified) to perform ROHS testing and assessment, he is entitled to do so.

The chosen Notified Body will provide the manufacturer with a quote which will include an amount for testing and, usually, a separate amount for certification. Some Notified Bodies may offer a service for “Preparation of the Technical File”, but as long as the manufacturer has followed the example given in this Guide, this service is not necessary. The quotation should indicate the number of samples which need to be submitted, and the Notified Body should, having assessed the Technical File prior to giving a quote, have considered any grouping of products into families proposed in the File. Even where families are grouped, the Notified Body may well ask for one sample of all models in each family so as to verify that they really are the same, and may in addition ask for one of more samples of all models in order to cover those tests which are not covered by the notion of families.

The Notified Body will provide a contract to be signed by the manufacturer and will usually request that the entire testing fee be paid in advance, with the certification fee being paid only once testing has been successfully completed. If testing is successful, a draft report will be issued to the manufacturer and, once the manufacturer agrees, and the final version of the Technical File is accepted by the Notified Body, the EC type approval certificate will be issued. If some tests are not successfully passed, the manufacturer will be informed and the advice in the following section should then be followed. Finally, although this Guide uses the term “Notified Body” and assumes that manufacturers will select such a body, the body may decline to be referred to as such and will, instead, ask to be considered only as a “third party”. The manufacturer should follow the wishes of the body, although it makes no difference to the general guidance given in this document.

3.5.4) Correction of defects

Any one unsuccessful test will mean that the type-approval certificate will not be issued and consequently, CE marking cannot be applied; there is no 'acceptable degree of non-conformity' permitted by EU directives, 100 % of the requirements must be met. On receipt of a failed test report from the Notified Body, therefore, the manufacturer must take action to correct the problems.

Manufacturers have to accept that the Notified Body has absolute authority in deciding whether a product meets the requirements or not. With this in mind, there is very little point in the manufacturer trying to persuade the Notified Body to change its mind, and there is even less point in trying to argue that the standard is 'unfair'. It is not advisable for the manufacturer to try to change from one Notified Body to another, in the hope of finding a 'less demanding' one (even if, for other reasons, a manufacturer may change from one body to another if he so chooses). All Notified Bodies are accredited to perform the tests in exactly the same way (within the normal limits of uncertainty of each test) as any other body and, therefore, while one body might give a different level of customer satisfaction from another, the notion of 'demanding' versus 'easy' bodies does not exist in Europe.

If failures are identified by the Notified Body, then the manufacturer must simply address them and then resubmit samples to the Notified Body for repeat testing. If the failures are minor, the samples may be resubmitted directly to the Notified Body, while if they are more serious or there are too many of them, it may be worth considering further screening tests first. The Notified Body should only repeat those tests and/or assessments which led to the failure and, therefore, the cost of this should be small; however, manufacturers need to be careful while changing the product to address one failure that they do not change it in a way that leads to a problem which did not exist before.

3.5.5) Drawing up of the Declaration of Conformity (DOC)

A draft DOC will have been drawn up in the preparation of the Technical File. Once all the documentation required for CE marking (test reports for LVD, EMC and Eco-design, EC type approval certificate, test reports/certificates for ROHS components parts where these have been tested on behalf of the manufacturer, and ROHS certificates from component part suppliers)is available, the manufacturer signs and dates the Declaration and includes this in the complete Technical File accepted by the Notified Body. This is a crucial point in the process, because it is the signature which indicates that the manufacturer accepts full responsibility for the safety and conformity of his products.

The manufacturer has to take this responsibility himself, because after the initial type-approval testing there is no third party involvement in the production process. The manufacturer must, therefore, continue to produce the same products as were subject to type-approval, as described in the following, final section.

Because the manufacturer claims conformity on the basis of applying standards, it is difficult for him to accept his responsibility if he does not hold a copy of all the standards which have been applied, even if these have actually been applied by the Notified Body or another third party. He should, therefore, purchase and hold a copy of all standards related to product requirements, but he does not need to hold test method standards.

3.5.6) Continuation of production

In order to maintain conformity, the manufacturer must do the following:

- keep the product and its component parts fundamentally unchanged,
- inform the Notified Body of any changes to the product or its component parts which might have an effect on the product's conformity in respect of LVD, EMC and Eco-design,
- for ROHS conformity, if any component part is replaced, either ensure that it has a ROHS certificate or have it tested,
- have the type-approval certificate renewed at whatever interval the Notified Body specifies,
- monitor the European Commission's website to check for changes or updates to the relevant standards, and
- maintain the Technical File fully up to date, replacing test reports, ROHS reports and/or certificates, the type approval certificate and the ISO 9001 certificate if applicable.

The Notified Body might require, in the test report, to be informed of any 'major' changes and might not, therefore, need to know about the 'minor' changes. In practice however, from a technical point of view, it is irrelevant whether a change is 'major' or 'minor'; what is important is whether the change has an effect on continued conformity. Changing nuts and bolts may be a minor technical change, but the new ones could affect continued ROHS compliance. If the manufacturer has any doubts about a change, he should consult the Notified Body anyway.

Changes to standards should be checked at least once every five years after the date of the standards (all standards are reviewed every five years, whether they are changed or not). Standards may, of course, be amended more frequently than this. If the manufacturer becomes aware of a new version of a standard, he should consult the Notified Body to identify whether any repeat testing is required.

Apart from these measures, however, as long as nothing changes, the manufacturer may continue to apply CE marking to his products.

Annex 1: EXAMPLE TECHNICAL FILE

Note that this example is used only to show the principles and layout of a Technical File. It does not correspond to any particular real fans and it might not be fully complete or internally consistent.

Principal standards applied EN 60335-2-80:2008 IEC 60879:1986	International Fans Limited Pakistan	Technical File Number IFL-1, Revision 0 Issue date: 19/04/2014

CE MARKING TECHNICAL DOCUMENTATION

Class I electric bracket and pedestal fans

Council Directives 2006/95/EC, 2004/108/EEC, ROHS Directive 2011/65/EU,
WEEE Directive 2012/19/EU and the Eco-design Directive 2009/125/EC

International Fans Limited, 123 Main Road, Gujrat, Pakistan
Tel./fax: +92 53 1234 5678, Web site: www.IFLfans.com

TABLE OF CONTENTS

Preparation: This Technical File is prepared initially without test reports (in respect of CE marking-related characteristics), Declaration of Conformity or identification of the Notified Body. These are added on receipt of the EC type-approval certificate from the Notified Body. For re-validation of the type-approval certificate, the full Technical File is submitted to the Notified Body.

CE MARKING FOR ELECTRIC FAN, APPLIANCES AND EQUIPMENT
GUIDE FOR MANUFACTURERS

1) Document introduction and scope

This Technical File describes the International Fans Limited Class I bracket and pedestal fans and demonstrates how these fans meet the requirements of the EU Low Voltage Directive 2006/95/EEC (originally Directive 73/23/EEC modified by Directive 93/68/EEC). This document has been produced according to the requirements of Annex IV of the directive. International Fans Ltd. is a major manufacturer of electric fans, founded in 1985, selling its products nationally, in the Middle and Far East, and in the EU.

This Technical File identifies the products and their materials, the manufacturing process and production control method, the Principle Elements of the Safety Objectives (Essential Requirements) of Annex I of the directive, and the harmonized European Standard applied to demonstrate conformity with these Requirements. The European Standard applied demonstrates that the fans submitted for EC type approval meet the provisions of the directive, while the production control method ensures that all production continues to meet these provisions.

This Technical File also identifies that the products meet the provisions of the EU ROHS2 Directive(2011/65/EU), the EU REACH Directive (EC/1907/2006), demonstrated in part by certificates from material/ component suppliers (see Section 11) and in part by testing, and the Electromagnetic Compatibility Directive(2004/108/EC).Finally, it identifies that the products meet the EU Eco-design Directive (2009/125/EU) and the EU Waste Electrical and Electronic Equipment Directive (2012/19/EU). This Technical File also demonstrates that the fans have been tested according to International Standard IEC 60879.

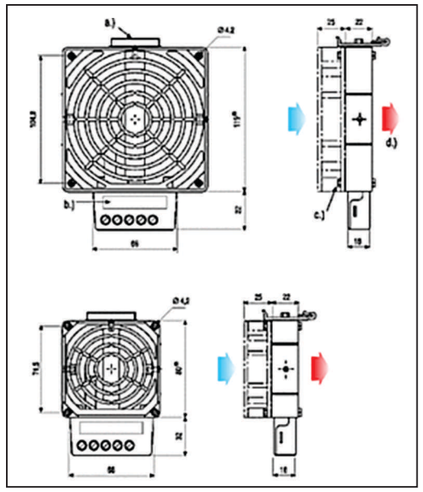
2) Product description

Product:	IFL bracket and pedestal fans
Brand name:	International Fans Limited
Class:	Insulation Class I to EN ISO 60335-1
Models:	Acme wall bracket (IFA-WB) and Acme pedestal (IFA-PL)
Type of appliance:	Mains (220-240 V, 50/60 Hz) powered, manual and electronically operated (for the pedestal fan) with incorporation of supply cord, with plug for the pedestal fan, without plug for the bracket fan. The fan unit is the same for the pedestal and bracket models
Colour:	White (see Section 3)
Usage:	Suitable for tropical climates.

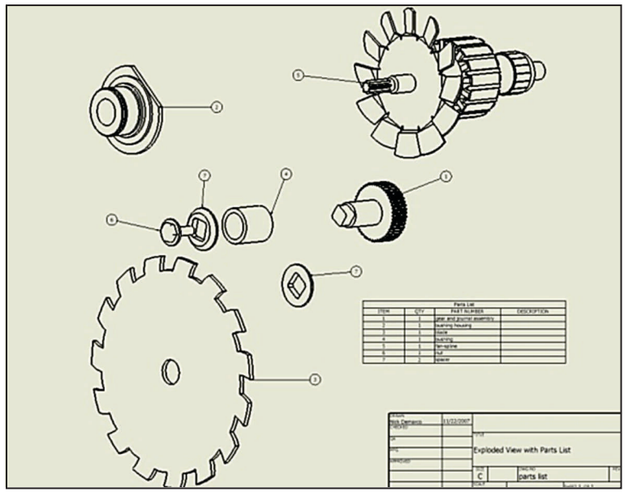
3) Images and technical drawings

Bracket fan

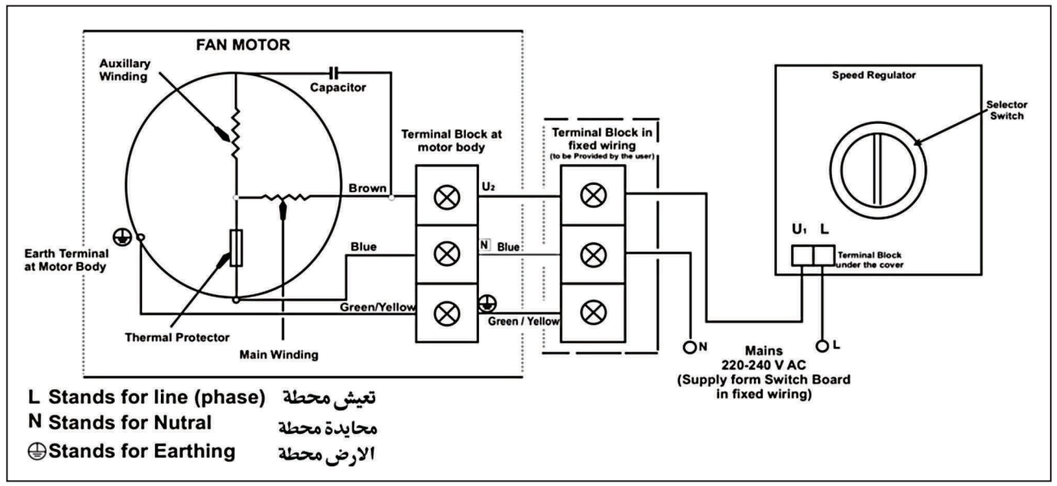
Pedestal fan



Overall fan unit design



Details of motor construction



Circuit diagram

4) Description of materials and components in the product

The motor unit is produced in-house from electrical-grade steel, certified copper wire, Type 1 ball bearings, high-temperature solder and varnish. Suppliers are:

Electrical-grade steel: The Electrical-Grade Steel Company, Tokyo, Japan

Copper wire: The Copper Wire Supply Company, Tokyo, Japan

Ball bearings: The Ball Bearing Supply Company, Lahore, Pakistan

Solder: The Solder Supply Company, Lahore, Pakistan

Varnish: The Varnish Supply Company, Lahore, Pakistan

Casings, guard and fan blades are injection moulded in-house using Acrylonitrile Butadiene Styrene (ABS), supplied as pellets and designated “Polylac”, and Polypropylene, supplied as pellets. The pedestal fan base and column are bought in. Suppliers are:

Polylac: The Polylac Supply Company, Taiwan

Polypropylene: Either: The Polypropylene Supply Company 1 or The Polypropylene Supply Company 2

Fan base and column: General Fan Supply Company, Gujrat, Pakistan

The hand-held remote control unit and Control module are supplied by: Controls-R-us, Tokyo, Japan

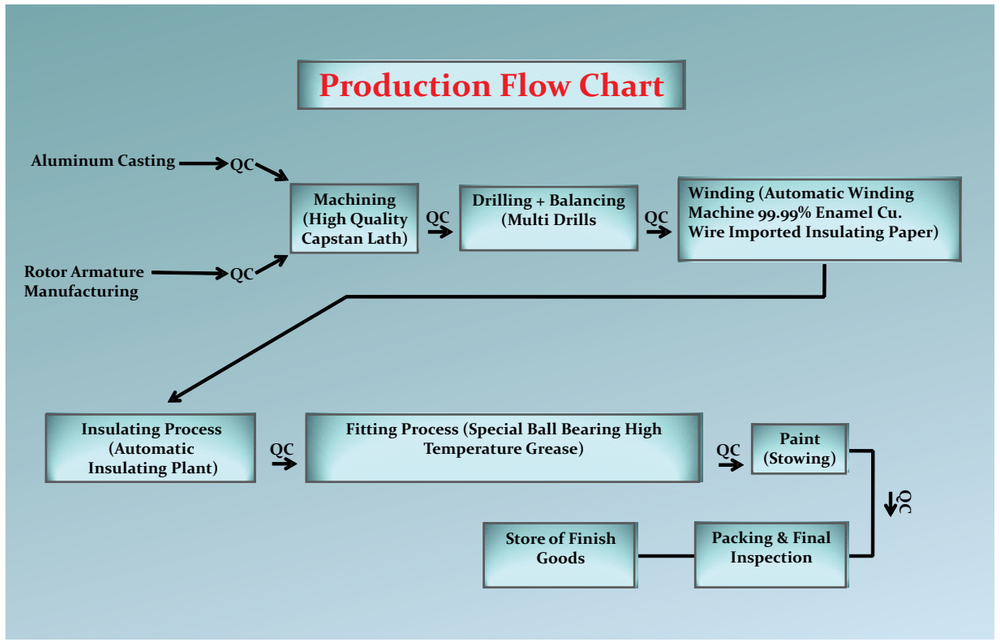
Paint: The Paint Company, Sialkot, Pakistan

LIST OF COMPONENTS

Part#	Part Name	Mat#	Material composition	Colour	Mass (g)	Certified	Supplier[1)]	ROHS No.
IFL 2001-14	Electric motor	2001-14-AA	Induction motor	Sl	2 385.0	In-house		
IFL 2001-14	Electrical steel sheet	1601-12-A	Electrical steel sheet: Si 0.06%	GY	800.0		EGS Co., Japan	SHAEC1204205525
IFL 2002-14	Rotor	1602-12-B	Rotor – Electrical steel	Si	402.0		EGS Co., Japan	
IFL 2003-14	Copper wire	1603-12-C	Copper wire 99.99%	GD	375.0		CWSC, Japan	
IFL 2004-14	Insulation paper	1604-12-D	Laminated paper	WH	10.0			SHAEC1000606505
IFL 2005-14	Silicate sleeve	1605-12-E	Insulating sleeve	WH	12.0			A001R130116035001 -2
IFL 2006-14	Thermal protector	1606-12-F	Thermal cut out - 160 °C	Si	5.0	UL		RLSHD000823580017R2
IFL 2007-14	Body	1607-12-G	Aluminium body	Si	98.0			
IFL 2008-14	Plate	1608-12-H	Aluminium plate	Si	100.0			
IFL 2009-14	Bush	1609-12-I	Bush universal – 9.0 mm	GD	11.0			
IFL 2010-14	Tie lock	1610-12-J	Nylon tie lock	WH	5.0			GZ0718/CHEM
IFL 2011-14	Single core wire	1611-12-K	20 AWG – copper 99.99%	GD	35.0			
IFL 2012-14	Axle	1612-12-L	Round – standard	Si	110.0			
IFL 2013-14	Screw RH	1612-12-M	Round head screw – 3/8 x 3/16	Si	10.0			
IFL 2015-14	Capacitor	1612-12-O	2.5 MFD – 450 V AC	BK	25.0	DIN -UL		SH591521/CHEM
IFL 2017-14	Wire connector	1612-12-Q	Wire connector	WH	5.0	UL		CE2012/64948
IFL 2018-14	Switch	1612-12-R	1-2-3-G-0	BK	39.0	UL		CE/2005/A0861C
IFL 2019-14	Power cable	1612-12-S	3 x 1.00 mm^2– 300 volt	BK	439.0	VDE		CANML1202337704
IFL 2020-14	Plug	1612-12-T	UK – BS 1363 – 9518	BK	52.0	Kitemark		PMS-AC000458
IFL 2021-14	Insulating bushing	1612-12-U	Wire washer 6N-4	BK	4.0	UL		CE/2012/64942
IFL 2022-14	Plastic material	1612-12-V	Polylac– PA707	WH		UL		KA/2011/C1859
IFL 2022-14	Paint	1612-12-W	Stoving paint	WH				HKGEC1300244901

1) In an actual Technical File, a supplier should be shown against every component in this list. In this example, only a few are shown.

5) Manufacturing process



The manufacturing process of these fans comprises the following main stages:

i) Purchase of raw materials

All purchase orders for materials and components are placed according to our own technical specifications.

ii) Material/component reception inspection

All (100 %) deliveries are inspected and tested according to the following characteristics:

a) material/component quantity,

b) material/component quality (visual inspection),

c) material hardness/softness (where applicable),

d) material colour and thickness, and

e) material delivery report/certificate.

Accepted materials/components are delivered to storage; rejected materials/components are returned to the supplier, giving the reasons for rejection.

iii) Motor and blade assembly

After moulding, blades are weighed and sized and are then segregated to provide optimum balance.

The rotor unit is pressed as-one from electrical-grade steel and is visually examined before being machine-wound. Connections are made by manual soldering and all units are tested prior to assembly. After assembly, including bearings, the unit is tested for functionality and correct performance. Defective units are returned for reworking or scrap.

iv) Final 100 % inspection

After final assembly, all (100 %) of the fans are inspected by Quality Control staff, to ensure that they have been properly manufactured, and that they operate correctly. The criteria used are:

a) finish (visual inspection),

b) operating switch function (including remote control unit when included),

c) sweep function (where specified), and

d) information label/logo.

v) Packing

Following finished product inspection, products are sent for packing in pre-printed packaging. The product label is checked against information on packaging, and packed products are then stored by order and type, ready for distribution/shipping.

6) User information

The following user instructions are to be included in the packaging of each fan. Operating instructions (to be included in this Technical File) are also provided with each fan, as are mounting and wiring connection details for bracket fans.

"CAREFULLY READ THESE INSTRUCTIONS BEFORE USING THIS PRODUCT

This fan is intended for indoor use only. Do not use in humid conditions such as bathrooms. Unplug or disconnect the unit before undertaking any cleaning, and especially before removing the safety grill. Cleaning should be done using a soft cloth and warm water only. This product comes with a lifetime guarantee and is not designed to be repaired. In case of problem, return the product to the retailer.

Position the pedestal fan on a flat surface. Do not allow children to play with the remote control unit.

1. Improper installation may result in risk of fire, electrical shock, or injury to persons.
2. Be sure that the fan is connected with a grounded outlet box.
3. It is ESSENTIAL that adequate clearance exists between the blades of the fan and adjacent walls, furnishings, etc.
4. If the fan is operating abnormally, cut the power off immediately for inspection.
5. "T" indicates suitable for tropical climates.
6. Children should be supervised to ensure that they do not play with the appliance.
7. For cleaning, first of all disconnect the electrical supply for safety purposes. Use a cloth with a neutral cleaning agent to clean the fan. Then wipe it with a dry cloth.
8. To vary the speeds, select the position marked "1" for slow speed. Position "3" for high speed of fan. The position "0" is only for the off position.
9. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
10. Type "Y" attachment; if the supply card is damaged, it must be replaced by the manufacturer, his service agent or similarly qualified persons in order to avoid a hazard.
11. There are no user-repairable or user-replaceable parts in the fan unit. Any repairs must be made by an authorised agent.

CAUTION: PLEASE DO NOT IMMERSE MOTOR HEAD IN WATER"

The documentation also includes the CE marking symbol and the parameters of the Eco-design Directive, namely:

Description	Symbol	Value	Unit
Maximum fan flow rate	F	[x,x]	m^3/min
Fan power input	P	[x,x]	W
Service value	SV	[x,x]	(m^3/min)/W
Standby power consumption	P_{SB}	[x,x]	W
Fan sound power level	L_{WA}	[x]	dB(A)
Maximum air velocity	c	[x,x]	meters/sec

7) Quality management system

International Fans Limited, Pakistan, operates a Quality Manager System according to ISO 9001, certified by QEC, UK (see certificate below). In summary, the Quality Plan comprises the following:

Item	Activity/process	Procedure No.	Inspection point No.	Person responsible
1	Material/component purchase	QMP-05		Purchasing Department
2	Material reception inspection	QMP-06	QMI-06	Quality Control Department
3	Rotor and stator stamping	QMP-07		Production Department
4	Rotor and stator inspection	QMP-08	QMI-08	Quality Control Department
5	Component moulding	QMP-09		Production Department
6	Blade size checking and pairing	QMP-10		Production Department
7	Component finishing	QMP-11		Production Depar tment
8	Motor assembly and varnishing	QMP-12		Production Department
9	Motor testing	QMP-13		Production Department
10	Unit cleaning, painting and curing	QMP-14		Production Department
11	Unit assembly	QMP-15		Production Department
12	Final testing and i nspection	QMP-16	QMI-10	Quality Control Department
13	Packing	QMP-17		Packing Department
14	Storage	QMP-18		Storage Supervisor
15	Distribution/shipping	QMP-19		Export Department


QEC CERTIFICATION

CERTIFICATION

Quality Management System

Certificate of Approval

This is to certify that the QMS of

U.I Industries

182-C , S.I.E G. T ROAD
Gujrat, Punjab , 50200 Pakistan

Has been assessed and found to meet the requirements of

ISO 9001:2008

This certificate is valid for the following scope of operations:

Manufacture and Sales of Electrical Fans and Related Products:
Clauses 7.3, 7.5.2 and 7.5.4 are excluded with justification as detailed in Company's Quality Manual

Authorised by:

RN Cooke
Chief Executive

Date of Certificate Issue: 10 December 2012
Certificate Valid until: 9 December 2015
Recertification audit before 10 November 2015
This certificate is the property of QEC Certification and remains valid subject to satisfactory annual Surveillance audits.

QEC Certification
Registration House, 22b Church Street
Rushden, Northamptonshire, NN10 9YT
Tel: 01933 383261
email: info@qec.co.uk
Web: www.qec.co.uk
Company number: 02812220

Certificate Number: 489357/PK/Q

8) Compliance with LVD 2006/95/EC, EMC Directive 2004/108/EEC and other directives

The products covered by this Technical File meet the following clauses of harmonized European Standard EN 60335-2-80:2008 and, on this basis, are considered to satisfy all applicable provisions of Directive 2006/95/EC (see the test reports in Section 9):

Clause 8, Access to live parts - always applies

Clause 9, Motor starting - this requirement does not apply

Clause 10, Power input and current - always applies

Clause 11, Heating - always applies

Clause 13, Leakage current and electric strength at operating temperature - always applies

Clause 14, Transient over voltage - always applies

Clause 15, Moisture resistance - applies except to IPXO products, if permitted

Clause 16, Leakage current and electric strength - always applies

Clause 17, Overload protection - does not apply unless fan contains a transformer

Clause 18, Endurance - this requirement does not apply

Clause 19, Abnormal operation - always applies

Clause 20, Stability and mechanical hazards - applies to pedestal but not to bracket fans

Clause 21, Mechanical strength - always applies

Clause 22, Construction - always applies

Clause 23, Internal wiring - always applies

Clause 24, Components - always applies

Clause 25, Supply connection/external flex - always applies

Clause 26, Terminals for external conductors - this requirement does not apply

Clause 27, Provisions for earthing - always applies

Clause 28, Screws and connections - always applies

Clause 29, Clearances, creepage and solid insulation - always applies

Clause 30, Resistance to heat and fire - applies to non-metallic parts

Clause 31, Resistance to rusting - may require visual inspection

Clause 32, Radiation, toxicity and similar hazards - See certificates in Section 11.

The tests of Clauses 10, 11 and 13 are carried out at 40°C and the appliance is marked "T" only.

Conformity with the provisions of the EMC Directive 2004/108/EEC was demonstrated by applying the following two standards: EN 55014-1:2006+A2:2011, EN 55014-2:1997+A2:2008.

Compliance with these provisions is demonstrated by applying the harmonized European Standard with EC type-examination performed by Notified Body ABC.

Satisfaction of the provisions of the ROHS Directive 2011/65/EU and the EU REACH Directive is demonstrated by the fact that all materials and components are certified to contain no regulated dangerous substances above the limits prescribed (see certificates in Section 11 below).

Satisfaction of the Eco-design Directive 2009/125/EU is demonstrated by assessment of: maximum fan flow rate, fan power input, service value, standby power consumption, fan sound power level, and maximum air velocity.

These tests are performed by PCSIR Lahore. Finally, satisfaction of the Waste Electrical and Electronic Equipment (WEEE) Directive 2009/19/EU is ensured by marking the product with the symbol

9) Product marking

IFL bracket and pedestal fans, 500 mm, mains powered, are marked on the data plate with:

i) the CE marking symbol, indicating conformity with the Directives 2006/95/EC, 2004/108/EEC, 2011/65/EU and 2009/125/EC,

ii) identification of the manufacturer and country of origin,

iii) the model (IFA-WB or IFA-PL Class 1) and diameter,

iv) the rated voltage, supply frequency, the rated power, and the letter "T" indicating suitability for operation in tropical conditions,

v) The "do not dispose" symbol of the WEEE directive:

The data plates for International Fans Ltd. fans tested at 40°C are as follows:

IFL BRACKET FAN			
Model	Type	Size	
Acme	IFA-WB	1 400 mm	
Voltage	Frequency	Power	Usage
220-240V~	50/60 Hz	80 W	T
International Fans, Gujrat (Made in Pakistan)			

IFL PEDESTAL FAN			
Model	Type	Size	
Acme	IFA-PL	1 400 mm	
Voltage	Frequency	Power	Usage
220-240V~	50/60 Hz	80 W	T
International Fans, Gujrat (Made in Pakistan)			

The packaging shall be marked with the above information, together with the other performance information from IEC 60879. Air delivery and service value is shown with the CE marking, whereas maximum speed, as non-harmonised information, is presented separately, as follows:

IFL BRACKET FAN			
Model	Type	Size	
Acme	IFA-WB	1 400 mm	
Voltage	Frequency	Power	Usage
220-240V~	50/60 Hz	80 W	T
Air delivery		Min. service value	
230 m^3/min		2.55 (m^3/min)/W	
International Fans, Gujrat (Made in Pakistan)			

Max. speed
330 rpm

IFL PEDESTAL FAN			
Model	Type	Size	
Acme	IFA-PL	1 400 mm	
Voltage	Frequency	Power	Usage
220-240V~	50/60 Hz	80 W	T
Air delivery		Min. service value	
230 m^3/min		2.55 (m^3/min)/W	
International Fans, Gujrat (Made in Pakistan)			

Max. speed
330 rpm

When the ILF fans are sold in the name of "Second supplier", in packaging with this name, it is ILF's name which is shown with the CE marking.

10) Test reports

This section will contain all test reports as received from the Notified Body, together with the Eco-design test reports.

11) Material and product certificates

This section will contain certificates from material and component suppliers, and the EC type-approval certificate and ROHS certificate issued by the Notified Body.

Declaration of Conformity

1) Products: Acme bracket and pedestal fans, mains powered, Models IFA-WB and IFA-PL.

2) Description: Class 1, mains (220-240 V~, 50/60 Hz) powered electrical equipment for internal use.

3) Directives: 2006/95/EC (LVD, electrical safety of low voltage devices)
2004/108/EC (EMC, electromagnetic compatibility)
2011/65/EU (ROHS, restriction of hazardous substances)
2009/125/EC (Eco-design)

4) Harmonized standards and other regulations:

EN 60335-2-80:2008

EN 55014-1:2006+A2:2011, EN 55014-2:1997+A2:2008

EN 50581:2012

Directive 2012/19/EU (WEEE, waste electrical and electronic equipment)

Regulation (EU) No 206/2012 implementing Directive 2009/125/EC, Eco-design requirements for air conditioners and comfort fans

5) Manufacturer:

International Fans Limited, 123 Main Road, Gujrat, 50200 Pakistan

As the manufacturer of the above products, we declare on our own responsibility that the products referred to in 1) above are in conformity with all relevant requirements of the European Union specified in 3) and 4).

This conformity is demonstrated by the following marking:

Stamp and signature

Signed: ..... Position: .....

Signed in: ..... Date: .....