EUROPEAN ASSOCIATION OF PUMP MANUFACTURERS
ASSOCIATION EUROPÉENNE DES CONSTRUCTEURS DE POMPES
EUROPÄISCHE VEREINIGUNG DER PUMPENHERSTELLER

EUROPUMP ATEX Guideline

Part I

BASIC requirements of Directive 94/9/EC

January 2008

1. FOREWORD

Europump is the European Association of Pump Manufacturers. EUROPUMP has 18 members which are national industry associations representing pump manufacturers in Europe: Austria (FMMI), Belgium (Agoria), Czech Republic (Czech Pump Manufacturers Association), Denmark (Association of Danish Pump Manufacturers), Finland (The Federation of Finnish Technology Industries), France (Profluid), Germany (VDMA), Greece (Union Of Greek Metal Industries), Italy (Assopompe), Netherlands (Holland Pump Group), Poland (Stowarzyszenie Producentow), Romania (APPR), Russia (RPMA), Spain (Asociacion Espanola de Fabricantes de Bombas para Fluidos), Sweden (SWEPUMP), Switzerland (SWISSMEM), Turkey (POMSAD), United Kingdom (BPMA). Within the European Union (EU), the member associations represent more than 450 enterprises with a collective annual production worth more than 6 billion Euros.
This Europump Guideline has been prepared by the Europump Standards Commission.

2. INTRODUCTION

Hazards derived from ignition sources in potentially explosive atmospheres, have been recognised for many years. Formal requirements have been derived for electrical equipment, and experience has led to local or industry related requirements for mechanical or other hazards.
Electrical hazards have been reduced by the use of design standards and by different certification schemes. Non-electrical hazards are sometimes covered by legally enforceable requirements such as those concerning underground mining or gasoil pipelines. Others have been imposed by contract, national and commercial undertakings.
In order to fulfil the requirements of free trade in the EU, see article 95 of the Treaty of Rome, the member states of the EU have agreed essential safety requirements for equipment intended to be used in potentially explosive atmospheres. Conformity to these requirements is indicated by a CE marking, and member states may not hinder the sale of such equipment within their territories. These essential requirements cover potential sources of electrical and non-electrical explosive hazards.
The European Commission has published Directive 94/9/EC, often referred to as the ATEX Directive. Directive 94/9/EC came into force on 1st March 1996, with a transition period until 30th June 2003. Therefore from 1st July 2003, all products within the scope of ATEX Directive must comply.

This Directive is linked to the "user's ATEX Directive" (Directive 99/92/EC[1]), which aims to improve safety of workers exposed to explosion hazards. In this view, Directive 99/92/EC requires that employers take technical and/or organisational measures, in order of priority, and in accordance with the following basic principles:
Prevent the formation of explosive atmospheres;
Avoid the ignition of potentially explosive atmospheres that cannot prevent;
Ensure the health and safety of workers by controlling the detrimental effects of an explosion which cannot be avoided.

Disclaimer
This Europump Guideline "Part 1 - Basic requirements of ATEX Directive 94/9/EC" is intended to give basic guidance to pump manufacturers who wish to supply products that will be within the scope of Directive 94/9/EC. Europump recommends that manufacturers should use this document as guidance only. Its contents are given in good faith but Europump cannot accept any responsibility for misinterpretation.

3. SCOPE AND FIELD OF APPLICATION

3.1) Scope

The objective of Directive 94/9/EC is **to ensure free movement** in the EU territory, **for the products[2] to which it applies**. Therefore the Directive, **based on Article 95 of the EC Treaty**, provides for harmonised requirements and procedures to establish compliance.

Annex II of the Directive states the Essential Health and Safety Requirements (EHSR) related to ingnition prevention, with respect to:
Potential ignition sources of equipment intended for use in potentially explosive atmospheres;
Autonomous protective systems intended to come into operation following an explosion with the prime objective to halt the explosion immediately and/or limit the effects of explosion flames and pressures;
Safety devices intended to contribute to the safe functioning of such equipment with respect to ignition source and to the safe functioning of autonomous protective systems;
Components with no autonomous function, but are essential to the safe functioning of such equipment or autonomous protective system(s).

[1] Directive 1999/92/EC of the European Parliament and of the Council of 16 December 1999 on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.
[2] Wherever the term "products" is used in the text of this guideline the reader should be reminded, that all recommendations and interpretations made in this guideline are refering to pumps.

Since 1 July 2003 relevant products could only be placed on the market in the EU territory, freely moved and operated as designed and intended, in the expected environment, if they comply with Directive 94/9/EC (and other relevant legislation).

Directive 94/9/EC provides, for the first time, harmonised requirements for non-electrical equipment and protective systems. Safety devices intended for use outside explosive atmospheres which are required for, or contribute to, the safe functioning of equipment or protective systems with respect to risks of explosion are also included. This is an increase in scope compared to former national regulations for equipment and systems intended for use in potentially explosive atmospheres.

The scope of this guideline is restricted to pumps. It outlines the compliance approach for all groups and categories, but gives details for Group I Category M2 and Group II Categories 2 and 3 only, which will be the very large majority of pumps.

Readers having a good knowledge of ATEX may move to Europump Guidelines Part II. Both Parts I and II are based on the official ATEX Guidelines issued by the European Commission and which can be downloaded from **DG Enterprise web site**. In this Europump Guide, each time a paragraph is related to a section in the EC Guidelines, reference is given in the heading. See also Europump Guide Part I Section 12.

3.2) Excluded products

Directive 94/9/EC specifically identifies excluded products which may involve some types of pumps. Pump manufacturers will need to examine the areas of applicability and exclusions to determine whether or not the pump is subject to Directive 94/9/EC.
Products intended for the following purposes are excluded from Directive 94/9/EC (Chapter 1, Art. 1.4):
Medical devices intended for use in a medical environment;
Equipment and protective systems where the explosion hazard results exclusively from the presence of explosive or chemically unstable substances;
Equipment intended for use in domestic and non-commercial environments where potentially explosive atmosphere may only rarely be created, solely as a result of the accidental leakage of a fuel gas;
Personal protective equipment subject to other directives;
Seagoing vessels and mobile offshore units together with equipment on board such vessels or units;
Means of transport for goods or people, other than vehicles intended for use in explosive atmospheres;
Equipment for military purposes.

4. DEFINITIONS

Directive 94/9/EC contains the following definitions (Chapter 1, Art. 1.3):

Equipment

Machines, apparatus, fixed or mobile devices, control components and instrumentation thereof and detection or prevention systems which, separately or jointly, are intended for the generation, transfer, storage, measurement, control and conversion of energy or the processing of material and which are capable of causing an explosion through their own potential sources of ignition.

Protective system

Design units which are intended to halt incipient explosions immediately and/or to limit the effective range of explosion flames and explosion pressures; protective systems may be integrated into equipment or separately placed on the market for use as autonomous systems.

Device

Safety devices, controlling devices and regulating devices intended to be used outside potentially explosive atmospheres but required for, or contributing to, the safe functioning of equipment and protective systems with respect to the risks of explosion.

Component

Any item which is essential to the safe functioning of equipment and protective systems but with no autonomous function.

Intended use

The use of equipment, protective systems, and devices in accordance with the equipment group and category and with all the information supplied by the manufacturer which is required for the safe functioning of equipment, protective systems and devices.

Explosive atmosphere

The mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapours, mists or dusts in which, after ignition has occurred, combustion spreads to the entire unburned mixture.

Potentially explosive atmosphere

An atmosphere which could become explosive due to local and/or operational conditions.

NOTE: Further definitions are given in EN 1127-1: “Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology” and EN 50014: “Electrical apparatus for potentially explosive atmospheres - General requirements”.

5. GENERAL CONCEPTS

5.1) Placing ATEX products on the market

This means the first making available in the European Union (EU), against payment or free of charge, of products, for the purpose of distribution and/or use in the EU territory. The concept of placing on the market determines the moment when products pass for the first time from the manufacturing stage to the market of the EU or the importing stage from a non-EU country to that of distribution and/or use in the EU. Since the concept of placing on the market refers only to the first time products are made available in the EU for the purpose of distribution and/or use in the EU, Directive 94/9/EC covers only:
New products manufactured within the EU;
“As-new” products according to the EC Guidelines section 3.3;
New or used products imported from a non-EU country;
New or “as-new” products labelled by a person who is not the original manufacturer.
Directive 94/9/EC does not cover installed equipment which is the scope of Directive 99/92/EC
The Directive’s provisions and obligations, concerning placing on the market, have applied after 30th June 2003 to each product individually and are irrespective of the date and place of manufacturing.
It is the manufacturer’s responsibility to ensure that each and all of his products comply where they fall under the scope of the Directive. "Making available" means the transfer of the product, that is, either the transfer of ownership, or the physical hand-over of the product by the manufacturer, his authorised representative in the EU or the importer to the person responsible for distributing these onto the EU market or the passing of the product to the final consumer, intermediate supplier or user in a commercial transaction, for payment or free of charge, regardless of the legal instrument upon which the transfer is based (sale, loan, hire, leasing, gift, or any other type of commercial legal instrument). The ATEX product must comply with Directive 94/9/EC at the moment of transfer.
The placing of products on the market does not concern:
The disposal of products from the manufacturer to his authorised representative established in the EU who is responsible on behalf of the manufacturer for ensuring compliance with the Directive;
Imports into the EU for the purpose of re-export, i.e., under the processing arrangements;
The manufacture of products in the EU for export to a non-EU country;
The display of products at trade fairs and exhibitions. These do not have to be in full conformity with the provisions of Directive 94/9/EC, but this fact must be clearly advertised next to the products being exhibited.

5.2) Putting ATEX products into service

This means the first use of products referred to in Directive 94/9/EC in the EU territory, by its end user. Products covered by Directive 94/9/EC are put into service at the moment of first use. However, a product which is ready for use as soon as it is placed on the market and which does not have to be assembled or installed, and where the distribution conditions (storage, transport, etc.) makes no difference to the performance or safety characteristics of the product with reference to the EHSRs[3] of Directive 94/9/EC, is considered to have been put into service as soon as it is placed on the market, if it is impossible to determine when it is first used.

5.3) Which kinds of products are covered by Directive 94/9/EC?

3.8. Protective Systems
3.9. Components

To be within the scope of Directive 94/9/EC, a product has to be:
Equipment, as defined in Article 1.3.(a) [in Directive 94/9/EC]; or
A protective system, as defined in Article 1.3.(b); or
A component, as defined in Article 1.3.(c); or
A safety, controlling or regulating device as defined in Article 1.2.

[3] Essential Health and Safety Requirements listed in Annex II of Directive 94/9/EC.

6. CRITERIA DETERMINING THE CLASSIFICATION OF EQUIPMENT-GROUPS

6.1) Groups and Categories

Annex I of Directive 94/9/EC indicates the criteria determining the classification of equipment.

Equipment intended for use in potentially explosive atmospheres is divided into Groups and Categories which relate to the degree of protection. The divisions and their associated zones are shown in Table 1:

Equipment Groups (Annex I of Directive 94/9/EC)							
Group I (mines, mine gas and dust)		Group II (other explosive atmospheres gas/dust)					
		Category 1		Category 2		Category 3	
Category M 1	Category M 2	G (gas) (Zone 0)	D (dust) (Zone 20)	G (gas) (Zone 1)	D (dust) (Zone 21)	G (gas) (Zone 2)	D (dust) (Zone 22)
For equipment providing a very high level of protection when endangered by an explosive atmosphere	For equipment providing a high level of protection when likely to be endangered by an explosive atmosphere	For equipment providing a very high level of protection when used in areas where an explosive atmosphere is very likely to occur		For equipment providing a high level of protection when used in areas where an explosive atmosphere is likely to occur		For equipment providing a normal level of protection when used in areas where an explosive atmosphere is less likely to occur	

Table 1: Equipment groups and categories

Note:
Pumps for use in potentially explosive atmospheres will **normally** be classified under **Group II, Categories 2 or 3**. However pumps are also used in mines, classified as **Group 1, Category M2.** Equipment in this Group is intended for use in underground parts of mines as well as those parts of surface installation of such mines, which are endangered by firedamp and/or combustable dust.

It is the responsibility of the user to classify the zone, the corresponding equipment group and the gas or dust characteristics in accordance with Directive 99/92/EC. The group, category, gas/dust group and temperature (class) shall be clearly specified in the enquiry to enable the pump manufacturer to correctly select the pump.

6.2) Temperature classification

Pumps for potentially explosive gas atmospheres must be characterised by a temperature class, related to the maximum surface temperature that can occur on the machine.
A lower temperature class (higher number) means that the pump can operate in hazardous atmospheres having lower ignition temperatures.
The pump surface temperature is greatly affected by the temperature of the pumped liquid, but is also influenced by the heat generated by the bearings, by the temperature rise occurring when the pump is operating at low flow and by the ambient temperature.

Temperature class	Permitted maximum surface temperature
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

Table 2: Temperature classes

If the potentially explosive atmosphere is dust then the maximum allowable surface temperature is stated rather than a temperature class.

- According to EN 13463-1, the design ambient temperature range for pumps is from -20°C to +40°C. Exceptions must be clearly indicated.

6.3) Gas Groups

Gases are grouped as A, B, or C in increasing risk of ignition.
The additional restriction arising from gas groups, is that the permitted area of non-conducting material is reduced on gas group C for Category 2 equipment. There is no difference in the restrictions between the three gas groups on Category 3 equipment.
Group I Category M2 equipment, for mines which may be endangered by firedamp (methane) or combustible dust, never has a gas group identified, because it must be safe specifically in firedamp and dust.
When the use of a gas group is applicable, ie in Group II Category 2 equipment, the gas group letter is always shown in the marking with the 'II' from the Group II, i.e. IIA, IIB and IIC.
IIB equipment can be used also with A gases and IIC equipment used also with A and B gases.

6.4) Details of the conformity assessment procedures

The ATEX Directive 94/9/EC specifies a number of conformity assessments and the circumstances when they must be used. Table 3 outlines the procedures, and details follow.

Conformity Assessment Procedures

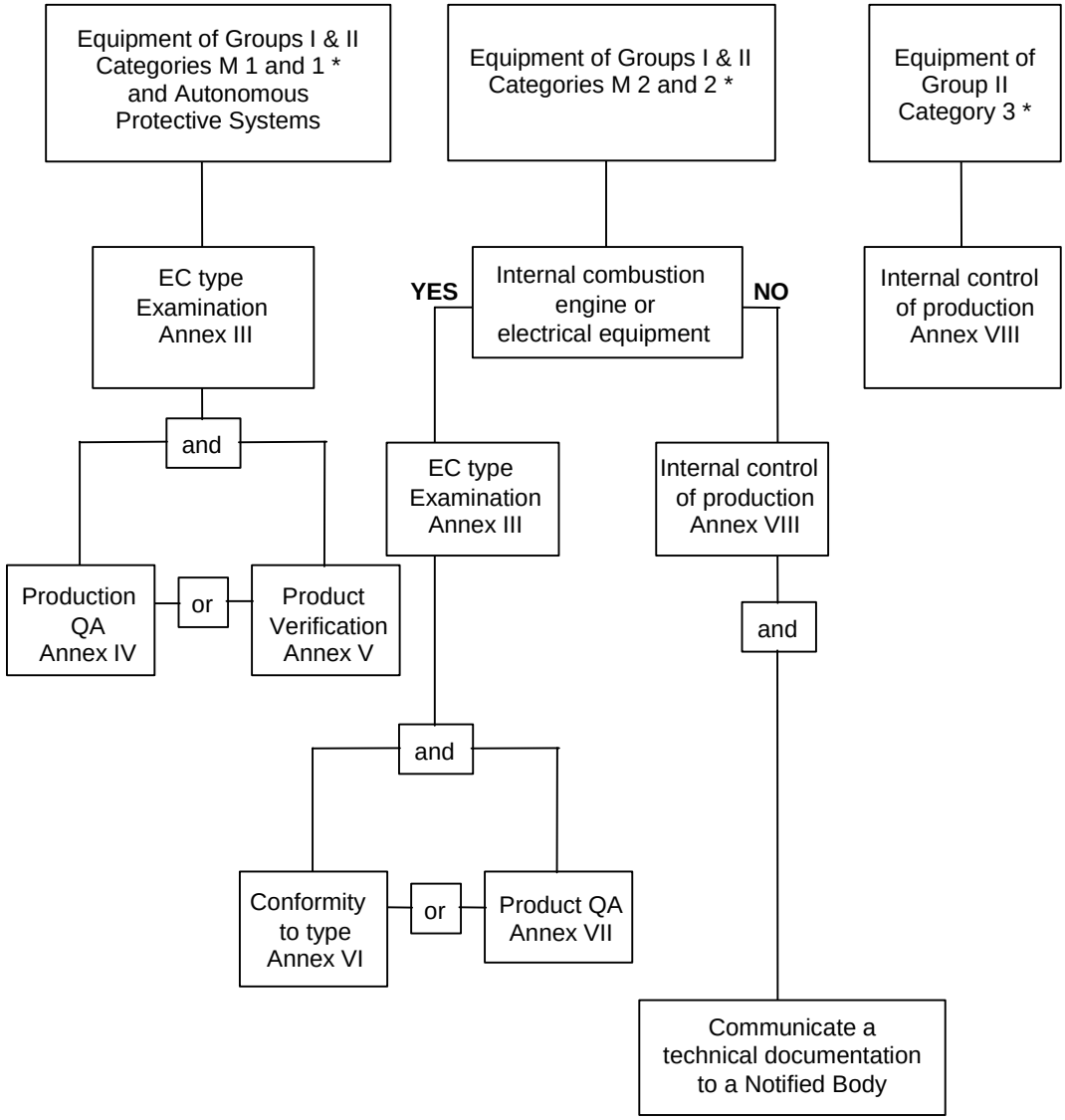


Table 3: Conformity Assessment Procedures

*) and their components and devices according to Art. 1(2) , if separately assessed

Note: According to Article 8.4 for all equipment and protective systems of all groups and categories conformity to 1.2.7 of Annex II of the Directive (protection against other hazards) can be fulfilled by following the procedure of internal control of production (Annex VIII).

EC Type Examination

The examination, including testing and inspection where appropriate, of a product design and samples by a Notified Body for conformity with either harmonised European Standards or the essential requirements or a combination of the two.

This process is specified in Annex III of the Directive.

The application to the Notified Body shall include:

The name and address of the manufacturer and, if the application is lodged by an authorised representative, his name and address as well;

A written declaration that the same application has not been lodged with any other Notified Body;

The Technical File defining the product.

Production Quality Assurance

Production Quality Assurance indicates the assessment and periodic auditing (including inspection or testing of production samples where appropriate) by a Notified Body of the manufacturer's quality systems.

This process is specified in Annex IV of the Directive.

The Directive requires the quality assurance system to address the following points:

Quality objective, organisational structure, responsibilities and powers of management with regard to equipment quality;

Manufactured, quality control and quality assurance techniques, processes and systematic actions, which will be used;

Examinations and tests, which will be carried out before, during and after manufacture and frequency with which they are carried out;

Quality records (inspection reports, test data, calibration data, qualifications of personnel, etc.);

Means to monitor achievement of required equipment quality and effective operation of the system.

Product Quality Assurance

Product Quality Assurance indicates the assessment and periodic auditing (including inspection of testing of production samples where appropriate) by a Notified Body of the manufacturer's quality system.

The process is specified in Annex VII of the Directive.

The Directive requires the quality assurance system to address the following points:

Quality objectives, organisation structure, responsibilities and powers of management with regard to product quality;

Examinations and tests which will be carried out after manufacture;

Means to monitor effective operation of the system;

Quality records (inspection reports, test data, calibration data, qualifications of personnel, etc.).

Product Verification

Product Verification indicates the Inspection and/or testing of each production item by a Notified Body for conformity with the type that was subjected to EC Type Examination. This process is specified in Annex V of the Directive.

The Directive requires:

The manufacturer to ensure that the manufacturing process guarantees conformity of the equipment with type described in the EC Type Examination certificate;

The manufacturer or his authorised representative in the EU to affix the CE Marking to each piece of equipment;

The Notified Body to examine and test each item of equipment to verify conformity with the type as described in EC Type Examination certificate.

Conformity to Type

The examination and/or testing of each production item by the manufacturer under the responsibility of a Notified Body for conformity with type that was subjected to EC Type examination.

This process is specified in Annex VI of the Directive.

The Directive requires the manufacturer to:

Ensure that the manufacturing process assures compliance of the manufactured products with type described in EC Type Examination Certificate;

Carry out test under the responsibility of a Notified Body to confirm the conformity of each item manufactured with the certified type;

Affix the CE Marking to each item that has been found to be in conformity;

Affix the Notified Body's identification number to each item that has been found to be in conformity, under the responsibility of the Notified Body.

Unit Verification

The examination, including inspection and testing as appropriate, of each production item by a Notified Body for conformity with either harmonised European Standards or the essential requirements or a combination of the two.

This process is specified in Annex IX of the Directive.

The Directive requires:

The manufacturer to draw up technical documentation;

The Notified Body to carry out the necessary work to confirm that the equipment meets the requirements of the Directive;

The Notified Body to affix its identification number to the approved equipment, and provide a certificate of conformity;

The manufacturer or his authorised representative in the EU to affix the CE Marking to the equipment.

Internal Control of Production

Verification by the manufacturer that the product design and each production item conform to either European Standards or the essential health and safety requirements of ATEX Directive or a combination of the two.

This process is specified in Annex VIII of the Directive.

The Directive requires the manufacturer to:

Assess the conformity of the equipment with essential requirements;

Draw up the technical documentation;

Check that each piece of equipment conforms to the design specified in the Technical File;

Affix the CE Marking to each conforming product;

Draw up a Declaration of Conformity;

Retain the Declaration of Conformity and the Technical File for at least 10 years after the last piece of equipment was manufactured;

Update the Technical File to cover changes to the equipment;

In some cases send a copy of the Technical File to a Notified Body.

6.5) Conformity assessment responsibilities for Group II

Zone	Category	EC-type examiation certificate		Quality assurance		EC - declaration of conformity
		electr.	mech.	electr.	mech.	
0	1	NB III / IX	NB III / IX	NB IV / V	NB IV / V	M
1	2	NB III / IX		NB VI / VII	M VIII[1]	M
2	3			M VIII	M VIII	M

NB:= Notified Body -- M:=Manufacturer -- Module / alternative module

Annex	Module	Annex	Module
III IV V VI	EC-Type exmination by NB Production quality assuance product verification comformity to type	VII VIII IX [1]	product quality assurance Internal control of production unit verification by NB Documentation („dossier"), including the Risk-assessment has to be deposited by the manufacturer at a NB

Table 4: Conformity assessment responsibilities

For **Category 1** products (equipment, component, or protective system) an EC Type Examination in accordance to Annex III of the Directive (Module: EC Type Examination) shall

be done (a Notified Body ascertains and attests whether a specimen representative of the production or every single product (Module: Unit Verification) fulfils the requirements of the Directive). In addition the Notified Body assesses - described in Annex IV Module: Production Quality Assurance - the manufacturer's quality management system for manufacturing, quality controlling and testing or alternatively - described in Annex V Module: product verification - the conformity of every single piece of equipment (component, protective system) with the "type" (specimen representative of the production envisaged). This has to be done for both the electrical and mechanical part of the product.

For the electrical part of **Category 2** equipment the procedure for EC Type examination certificate is identical as for Category 1.
However the quality assurance - given in Annex VI Module: Conformity to type - is done in form of a product testing at the manufacturer's plant under the responsibility of a NB or alternatively - described in Annex VII Module: Product quality assurance - by an assessment of the quality management system by a NB.
For the mechanical part of the product the quality mangagement is guaranteed by the manufacturer in form of an internal control (see Annex VIII Module: Internal control of production).The manufacturer is responsible for the documentation of the product which shall enable the conformity of the product with the requirements of the Directive.
This documentation (called "Technical file" or "dossier"), in a "closed envelope", has do be given to a Notified Body who confirms the receipt to the manufacturer and guarantees the safe preservation.

For **Category 3** the procedure is the same as for the mechanical part of Category 2 products except that the preservation of the dossier by a Notified Body is not required. In contrast to that the manufacturer has to enable the free access for the authorities.

6.6) What is a Technical File / Dossier?

A Technical File is a dossier of information specifying the product in sufficient detail to allow assessment of the product to show its conformity with requirements of Directive 94/9/EC. The evidence may include reference to applicable standards and results of test carried out. A Technical File must be prepared by the manufacturer regardless of which conformity assessment procedures are used. For EC Type Examination the Technical File will consist of records gathered during the assessment and be represented by the Notified Body issuing an EC Type Examination Certificate.
Refer also to Part l section 8 of these Guidelines (Documentation).

7. STEPS TO ACHIEVE ATEX COMPLIANCE FOR CATEGORIES 2, M2 AND 3

Compliance with the essential health and safety requirements for operation of mechanical products in the presence of potentially explosive atmospheres can be achieved through the following steps:

Assess the ignition hazards (sparks, high temperature surfaces, electrostatic charges etc.) and prepare a risk assessment document for the individual pump or the pump family, depending upon the type of equipment (tailor made or mass produced pump).
A copy of the manufacturer's risk assessment is to be kept in the Technical Dossier. Further details of the risk assessment procedure can be found in the EN13463 series of standards in particular parts 1 and 5. The risk assessment is the property of the manufacturer. It shall be given to the Notified Body in case of Category 2. If required, the user can have a look at this risk assessment at the manufacturer's facility. It is the confidential property of the manufacturer and it shall not be transmitted.
Review pump design and materials of construction and make the modifications required to eliminate ignition hazards, having in mind that ATEX compliance for Group II pumps is normally achieved through constructional safety. Measures need to be taken to eliminate ignition sources:

- **For Category 3 pumps -** during normal operation;
- **For Category 2 pumps –** in addition to being safe in normal operation, pumps must be safe when there are operating faults or dangerous conditions which normally have to be taken into account. This is also explained as any **foreseeable single malfunction,** ie a single fault only, rather than multiple faults occurring simultaneously;
- **For Category M2 pumps –** requirements are the same as for category 2 and in addition, it must be possible to de-energise the product totally in the event of an explosive atmosphere occurring.

Note:
The restrictions to the use of non conductive materials which are susceptible to electrostatic charges. See EN 13463-1 paragraph 7.4.
The requirement for a special test to assess the resistance to impact. See EN 13463-1 paragraph 13.3.2. This test might be critical for small pumps and components.
Prepare the Technical Dossier

- for **Category 2 and M2** pumps, the Technical Dossier must be passed to a Notified Body who will hold the sealed document in case of future claims, but does not approve it;
- for **Category 3** pumps, the Technical Dossier must be prepared and kept in the manufacturers' files.

Issue if necessary, revised Operating Manuals or addenda. It is recommended to identify the critical areas with respect to ATEX.
Issue the EC Declaration of Conformity, having in mind that the assessment procedure for non-electrical equipment and components (Categories 2, M2 and 3) is a self auditing process.
Mark the equipment.

8. DOCUMENTATION

8.1) Technical File (Dossier)

The Technical file shall enable a third party to assess the conformity of the product with the relevant requirements of the Directive, in the case of an accident.
The following list gives guidance as to the contents of this Technical Dossier (see Annex VII, 3 of Directive 94/9/EC), e.g.:
Description of the equipment;
Sectional drawing and a list of relevant parts;
General arrangement drawing if not covered by the sectional drawing;
Instructions for use;
Ignition risk assessment;
List of relevant standards used;
Test reports, where applicable.

8.2) Instructions for use

Contents

According to Annex II, 1.0.6 of Directive 94/9/EC, all products shall be accompanied by instructions for use, including at least the following particulars:
A recapitulation of the information with which the product is marked, except for the serial number, together with any appropriate additional information to facilitate maintenance (eg: address of the importer, repairer, etc.);
Instructions for safe:

- putting into service,
- intended use,
- assembling and dismantling,
- maintenance (servicing and emergency repair),
- installation,
- adjustment.

Electrical and mechanical parameters, maximum surface temperatures and other limit values;
Where necessary, training instructions;
Details which allow a decision to be taken beyond any doubt as to whether an item of equipment in a specific category or a protective system can be used safely in the intended area under the expected operating conditions;
Where necessary, special conditions of use, including particulars of possible misuse which experience has shown might occur;
Where necessary, the essential characteristics of tools which may be fitted to the equipment or protective system;

Residual hazards where the user must take precautions.

Note: Other literature (e.g. leaflets, booklets, etc.) describing the equipment or protective system shall not contradict the instructions with regard to safety aspects.

Drawings, diagrams

The instructions for use shall contain the drawings and diagrams necessary for the putting into service, maintenance, inspection, checking of correct operation and, where appropriate, repair of the product, together with all useful instructions, with regard to safety.

Language of instructions for use

On being put onto the market, all products shall be accompanied by instructions for use in the language or languages of the country in which product is to be used and by the instructions in the original language.
This translation shall be made by either the manufacturer or his authorized representative established in the Community or the person introducing the product into the language area in question.
By way of deviation from this requirement, the maintenance instructions for use by the specialist personnel employed by the manufacturer or his authorized representative established in the Community may be drawn up in a single Community language understood by the specialist personnel.

9. MARKING CE Ex

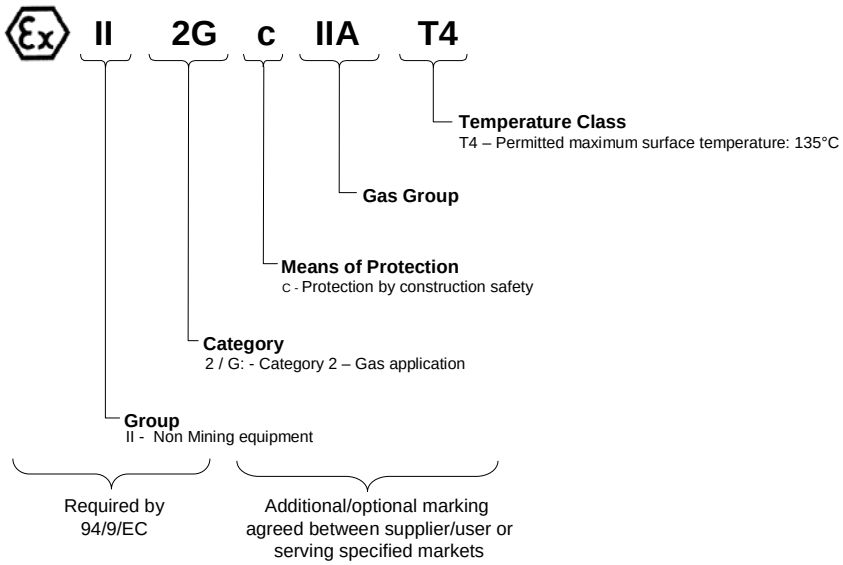
According to Annex II, 1.0.5 of Directive 94/9/EC, all pumps[4] (as mechanical equipment) and their protective systems shall be marked legibly and indelibly with the following minimum particulars:
Name and address of the manufacturer;
CE marking;
Designation of series or type;
Serial number, if any;
Year of construction;

The specific marking of explosion protection, i.e. Ex followed by the symbol of the equipment group and category:

[4] Distinction between pumps, pump units and assemblies is explained in Europump Guideline Part II, paragraph 4 “Assemblies and installations”

For equipment-group II, the letter “G” (concerning explosive atmospheres caused by gases, vapours or mists), and/or the letter “D” (concerning explosive atmospheres caused by dust);
Ignition protection method used if applicable (refer to EN13463 part 1);
The temperature class (or temperature as applicable, refer to EN13463 part 1);
Furthermore, where required, they shall also be marked with all information essential for their safe use (such as e.g. particular temperature limits).

Example of marking (see next page):



Note on Temperature Marking: The maximum temperature of a pump depends primarily on the pumped liquid and operating condition of the pump. If this is not fully defined by the user, it may not be possible for the manufacturer to give the temperature class of a pump. Then it is recommended to give a range of allowable temperature classes in the technical documentation. Based on this it is clearly the responsibility of the user to make sure that the maximum surface temperature will be lower than the temperature class of the concerned area and take appropriate measures to control related risks. The marking on the pump is then “x” rather than the actual temperature class (or temperature).

Example of marking in such a case: **II 2G c IIC Tx**

10. EC DECLARATION OF CONFORMITY

10.1) General

Once the **manufacturer** has undertaken the appropriate procedures to assure conformity with essential requirements of Directive 94/9/EC it is the responsibility of the manufacturer or his authorised representative established in the EU to affix the CE Marking and to draw up a written EC Declaration of Conformity.
The manufacturer or his authorised representative established within the EU keeps a copy of this EC Declaration of Conformity for a period of ten years after the last equipment has been manufactured.
Where neither the manufacturer nor his authorised representative is established within the EU, the obligation to keep the copy of the EC Declaration of Conformity available is the responsibility of the person who places the product on the EU market. This could be the user if he buys directly from a supplier outside of the Member States.
See Part II of Europump Guidelines for more detailed information.

10.2) Contents

The EC Declaration of Conformity shall contain the following elements (Annex X, Part B of Directive 94/9/EC) [5]:
The name or identification mark and the address of the manufacturer or his authorized representative established within the EU;
A description of the product referred to in Article 1 (2) of the Directive 94/9/EC;
All relevant provisions fulfilled by the product referred to in Article 1 (2) of the 94/9/EC Directive;
For Category 2 electrical, and Category 1 equipment, the name, identification number and address of the Notified Body and the number of the EC Type Examination certificate;
In the case of Category 2 non-electrical equipment, it should refer to the Notified Body holding the copy of the technical documentation file;
Where appropriate, reference to the harmonized standards;
Where appropriate, the standards and technical specifications which have been used;
Where appropriate, references to other European Directives which have been applied;
Identification of the signatory who has been empowered to enter into commitments on behalf of the manufacturer or his authorized representative established within the EU.

[5] see part II, section 9 of Europump Guideline for further details.

11. RELEVANT HARMONISED STANDARDS

All of the following standards are harmonised for Directive 94/9/EC and applicable to pumps, that is to say they are not mandatory but compliance with them allows presumption of conformity with the ATEX essential health and safety requirements.
In addition to the common requirements of EN 809 specific requirements of hazardous locations are given in:

EN 1127-1 Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology

EN 1050 Safety of machinery - Principles for risk assessment

EN 60079 Electrical apparatus for explosive gas atmospheres

EN 13463-1 Non-electrical equipment for potentially explosive atmospheres - Part 1: Basic methodology and requirements

EN 13463-2 Non-electrical equipment for potentially explosive atmospheres - Part 2: Protection by flow restricting enclosure “fr”

EN 13463-3 Non-electrical equipment for potentially explosive atmospheres - Part 3: Protection by flameproof enclosure “d”

EN 13463-5 Non-electrical equipment for potentially explosive atmospheres - Part 5: Protection by constructional safety “c”

EN 13463-6 Non-electrical equipment for potentially explosive atmospheres - Part 6: Protection by control of ignition sources “b”

prEN 13463-7 Non-electrical equipment for potentially explosive atmospheres - Part 7: Protection by pressurization “p”

EN 13463-8 Non-electrical equipment for potentially explosive atmospheres - Part 8: Protection by liquid immersion “k”

A list of the standards harmonised under Directive 94/9/EC is available on *DG Enterprise* web site, via the following link:

http://europa.eu.int/comm/enterprise/newapproach/standardization/harmstds/reflist/atex.html

12. LINKS BETWEEN EC ATEX GUIDELINES AND EUROPUMP GUIDELINES

Certain items in the ATEX Guidelines issued by the European Commission are particularly relevant to pumps and are further explained in Part II of this Europump Guide. The following table gives the links between general concepts exposed in both EC ATEX Guidelines and these Europump Guidelines, and their application to pumps.

EC ATEX Guidelines (Second Edition)	Europump ATEX Guideline Part I	Europump ATEX Guideline Part II
3.7.1. Potentially explosive atmosphere		2. Internal explosive atmosphere
3.7.3. Non-Electrical Equipment		3. Thermocouple
3.7.5. Assemblies		4.1 Assemblies
3.7.5 2.a)		4.2 Devices forming one unit without safety-related interactions in accordance with Directive 94/9/EC
3.8. Protective Systems	5.3 Which kinds of products are covered by directive 94/9/EC?	
3.9. Components		
4.1.2.4. Interface to different potentially explosive atmospheres		2. Internal explosive atmosphere
5.2.2. Installations		4.3 Installations
7.7. Spare parts		5. Spare parts
10.1.1. EC Declaration of Conformity	10. EC Declaration of Conformity	9. EC Declaration of Conformity
11 CE Marking	9 Marking CE and