

EUROPUMP ATEX Guideline

Part I

BASIC requirements of

Directive 2014/34/EU

(Previous 94/9/EC)



And a note according IECEx

3rd Edition April 2019

Disclaimer

This Europump Guideline "Part 1 - Basic requirements of ATEX Directive 2014/34/EU is intended to give basic guidance to pump manufacturers who wish to supply products that will be within the scope of Directive 2014/34/EU. 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. The reading of this guideline shall not substitute the necessity to read understand at least the following Standards EN IEC 60079-0; EN ISO 80079-36 and EN ISO 80079-37. Despite the application of EN ISO 80079-36 and -37 (until end of September 2019 - 13463 ff) EN IEC 60079-0 is evident to enable a proper conformity assessment and/or marking.

Content

1. Foreword	3
2. Introduction	3
3. Scope and field of application	4
3.1) Scope	4
3.2) Excluded products	5
4. Definitions	6
5. General concepts	7
5.1) Placing ATEX products on the market	7
5.2) Putting ATEX products into service	8
5.3) Which kinds of products are covered by Directive 2014/34/EU	8
6. Criteria determining the classification of equipment-groups	9
6.1) Groups and Categories	9
6.2) Temperature classification	10
6.3) Gas Groups	10
6.4) Details of the conformity assessment procedures	10
6.5) Conformity assessment responsibilities for Group II	14
6.6) What is a Technical File / Dossier?	15
7. Steps to achieve ATEX compliance for categories 2, M2 and 3	15
8. Documentation	17
8.1) Technical File (Dossier)	17
8.2) Instructions for use	17
9. Marking  	18
10. EC Declaration of conformity	20
10.1) General	20
10.2) Contents	20
11. Relevant harmonised standards	21
12. Links between EC ATEX - and Europump Guidelines	22

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 using 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.

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.

In February 2014 the new Directive 2014/34/EU was published, and the contents of this guideline are based around the latest version. The European Commission Full Guidance document (236 pages) is available online at any search engine under ATEX 2014/34/EU Guidelines – 1st Edition April 2016.

This Directive is linked to the “user’s ATEX Directive” (Directive 99/92/EC¹), which aims to

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.

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 be prevented;
- Ensure the health and safety of workers by controlling the detrimental effects of an explosion which cannot be avoided.

Remark: At the beginning of some paragraphs of this Guideline you may find “§xy”. Those are references to the respective paragraphs of the [EU Guidelines](#).

3. SCOPE AND FIELD OF APPLICATION

3.1) *Scope*

The objective of Directive 2014/34/EU (94/9/EC) is **to ensure free movement** in the EU territory, **for the products² 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 ignition 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).

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 subsequently 2014/34/EU (and other relevant legislation).

Directive 2014/34/EU provides, 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 2014/34/EU Guidelines 1st Edition April 2016 issued by the European Commission which can be downloaded from **DG Enterprise web site**. Further information is also given in the EU Blue Guide 5/4/2016 on the implementation of EU product rules. 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*

[§37,38](#)

² Wherever the term “product“ is used in the text of this guideline the reader should be reminded, that all recommendations and interpretations made in this guideline are referring to pumps.

Directive 2014/34/EU 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 the pump is subject to Directive 2014/34/EU

Products intended for the following purposes are excluded from Directive 2014/34/EU (Chapter 1, Art. 1.2):

- 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

§39 to 66

Directive 2014/34/EU contains the following definitions (Chapter 1, Art. 2.1):

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 within the Directive.

5. GENERAL CONCEPTS

5.1) *Placing ATEX products on the market*

§69

This means the first making available in the European Union (EU), against payment or free of charge, of products, for 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 2014/34/EU covers only:

- New products manufactured within the EU;
- “As-new” products;
- 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 2014/34/EU 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 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 2014/34/EU by time 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 2014/34/EU, but this fact must be clearly advertised next to the products being exhibited.

5.2) *Putting ATEX products into service*

§70

This means the first use of products referred to in Directive 2014/34/EU in the EU territory, by its end user. Products covered by Directive 2014/34/EU are put into service by time 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 essential health and safety requirements of Directive 2014/34/EU, 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 2014/34/EU?

§32

This Directive shall apply to the following

- (a) Equipment and protective systems intended for use in potentially explosive atmospheres;
- (b) Safety devices, controlling devices and regulating devices intended for use outside potentially explosive atmospheres but required for a contributing to the safe functioning of equipment and protective systems with respect to the risks of explosion;
- (c) Components intended to be incorporated into equipment and protective systems referred to in point (a)

6. CRITERIA DETERMINING THE CLASSIFICATION OF EQUIPMENT-GROUPS

§133

In parallel to the publication of the Directive 2014/34/EU new harmonised Standards EN ISO 80079-36, EN ISO 80079-37 has been released introducing additional marking parameters.

- Equipment protection level (EPL)
- Additional Dust Category (III)

In all cases Equipment Protection Levels (EPL) as defined by EN 60079-0 are related to the corresponding Equipment Groups and Equipment Categories according to the following table. The same applies if a standard makes reference to the intended use of equipment in Zones according to the definitions in EN 60079-10.

EN 60079-0		Directive 2014/34/EU		EN 60079-10-1 and EN 60079-10-2
EPL	Group	Equipment Group	Equipment Category	Zones
Ma	I	I	M1	NA
Mb			M2	
Ga	II	II	1G	0
Gb			2G	1
Gc			3G	2
Da	III		1D	20
Db			2D	21
Dc			3D	22

6.1) Groups and Categories

Annex I of Directive 2014/34/EU 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 2014/34/EU)							
Group I (mines, mine gas and dust)		Group II (other explosive atmospheres gas/dust)					
Category M 1	Category M 2	Category 1		Category 2		Category 3	
		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 I, 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 combustible 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, i.e. 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. II A, II B and II C.

II B equipment can be used also with A gases and II C equipment used also with A and B gases.

6.4) Details of the conformity assessment procedures

§89

The ATEX Directive 2014/34/EU specifies several conformity assessments and the circumstances when they must be used. Table 3 outlines the procedures, and details follow.

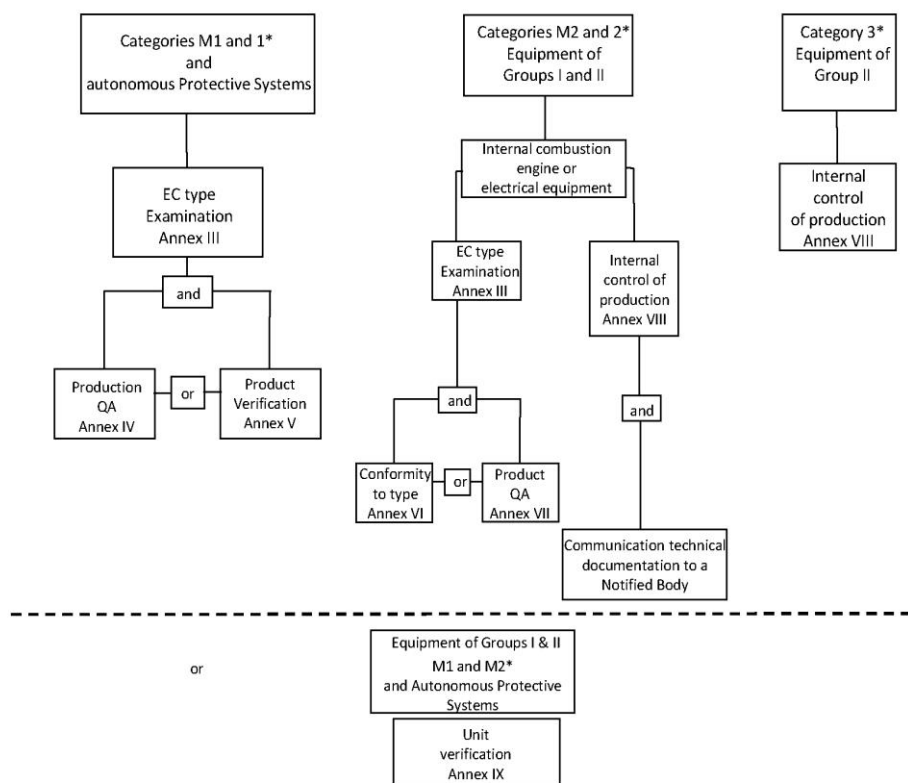


Table 3: Conformity Assessment Procedures

*And their components and devices according to Art. 2(3), if separately assessed

Note: According to Article 13.4 for all equipment and protective systems of all groups and categories conformity to 1.2.7 of Annex II of the Directive 2014/34/EU (protection against other hazards) can be fulfilled by following the procedure of internal control of production (Annex VIII).

EU Type Examination

§178

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

§189

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

§208

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 regards 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

§197

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 EU 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 EU 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 EU Type Examination certificate.

Conformity to Type

§203

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 EU 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 EU 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

§221

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

§216

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	EU Type Examination		Quality Assessment		EU Declaration of Conformity responsibility
		elec.	mech.	elec.	mech.	
0/20	1 G/D	NB III / IX	NB III / IX	NB IV / V	NB IV / V	M
1/21	2 G/D	NB III / IX		NB VI / VII	M VIII ¹	M
2/22	3 G/D			M VIII	M VIII	M

NB:= Notified Body # M:=Manufacturer # rom. figure/rom. figure: = Module / alternative Module

Annex	Module	Annex	Module
III	B: EU Type Examination	VII	E: Product Quality Assurance
IV	D: Quality Assurance Production Process	VIII	A: Internal Production Control
V	F: Product Verification	IX	G: Unit Verification
VI	C1: Internal Production Control +supervised Product testing		Documentation, incl. riskanalysis shall be sent to a NB. The M shall maintain the content according to the product development

For **Category 1** products (equipment, component, or protective system) an EU Type Examination in accordance to Annex III of the Directive (Module: EU 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 management 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 to 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 shall 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 2014/34/EU. 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 EU Type Examination the Technical File will consist of records gathered during the assessment and be represented by the Notified Body issuing an EU Type Examination Certificate.

Refer also to Part I 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. It is the confidential property of the manufacturer and it shall not be transmitted 'see section 8.1'.

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 must 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 nonconductive 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. or EN ISO 80079-36 paragraph 8.3.1. 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 EU 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)*

§217

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 VIII, 2 of Directive 2014/34/EU), 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*

§151

Contents

According to Annex II, 1.0.6 of Directive 2014/34/EU, 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 e.g. 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 regards 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, about 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


[§145,146,147](#)

From October 2019 onwards Pump Manufacturers across Europe will need to mark their products in accordance with EN ISO 80079-36. Manufacturers wishing to refer to this new EN /ISO standard(s) already before October 2019 in their EU Declaration of Conformity will also need to change the equipment marking, adapt the technical documentation accordingly and, if necessary, change the EC type –examination certificate (now EU) or its stored technical documentation.

9.1) EN13463 Marking (up to October 2019)

According to Annex II, 1.0.5 of Directive 2014/34/EU, all pumps³ (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.  followed by the symbol of the equipment group and category:

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);

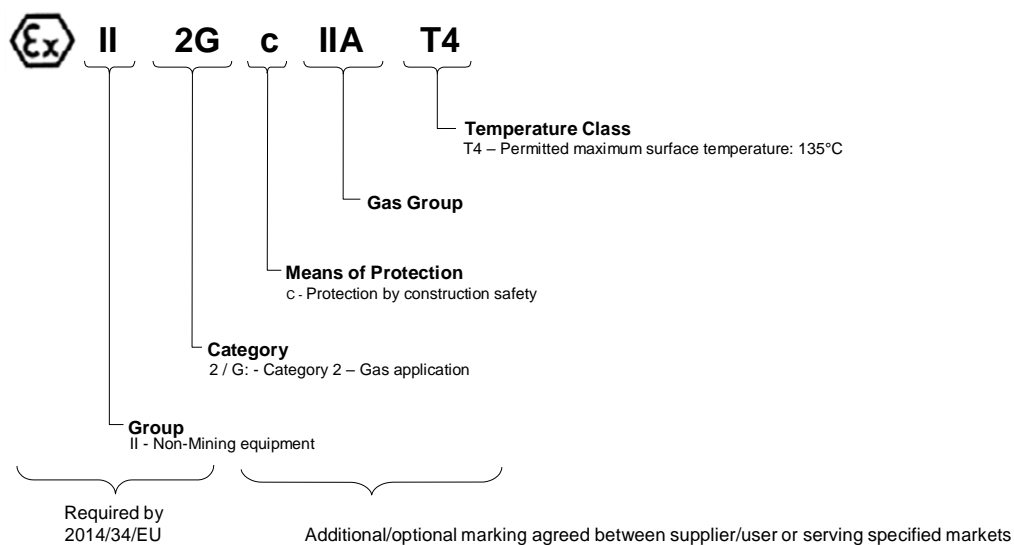
Ignition protection method used if applicable (refer to EN13463 part 1);

Gas group;

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 below):



³ Distinctions between pumps, pump units and assemblies are explained in Europump Guideline Part II, paragraph 4 “Combined Equipment (Assemblies) and installations”

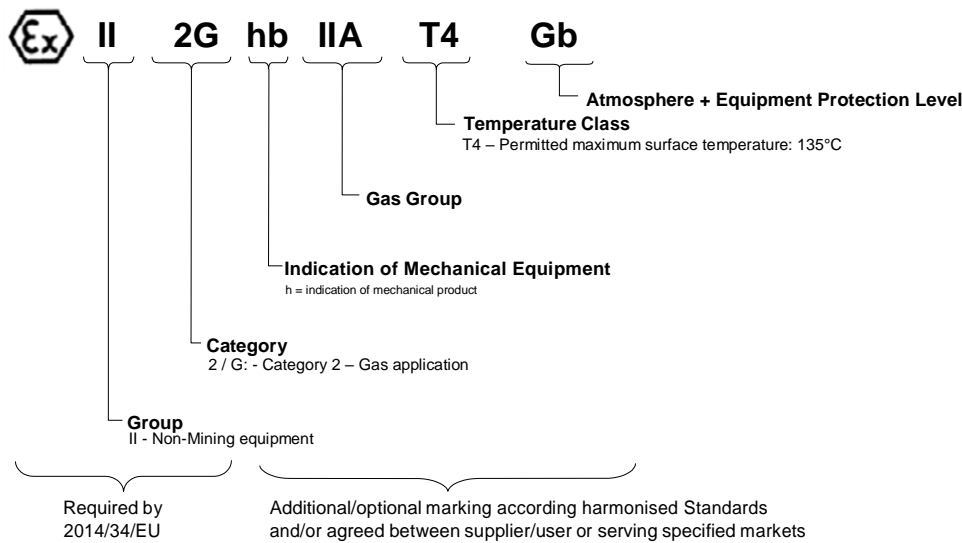
Note on Temperature Marking: The maximum temperature of a pump depends primarily on the pumped liquid and operating condition of the pump. If this is not fully defined by the user, it may not be possible for the manufacturer to give the temperature class of a pump. Then it is recommended to give a range 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

9.2) EN ISO 80079 Marking (from October 2019)

According EN ISO 80079, a comparable marking to the example shown above would be as follows:



Or taking into account the specifics described in the Note above:

 II 2G hb IIC Tx Gb

10. EU DECLARATION OF CONFORMITY

§93,227

10.1) *General*

Once the **manufacturer** has undertaken the appropriate procedures to assure conformity with essential requirements of Directive 2014/34/EU 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 EU Declaration of Conformity.

The manufacturer or his authorised representative established within the EU keeps a copy of this EU 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 EU 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 EU Declaration of Conformity shall contain the following elements (Annex X, of Directive 2014/34/EU)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 2014/34/EU;

All relevant provisions fulfilled by the product referred to in Article 1 (2) of the 2014/34/EU Directive;

For Category 2 electrical, and Category 1 equipment, the name, identification number and address of the Notified Body and the number of the EU 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.

10.3) *IECEX*

Certificates based on the IECEX Scheme will not replace the Conformity Assessment according 2014/34/EU. IECEX Certificates are not the basis to CE-Mark your pump. IECEX is a voluntary scheme which may facilitate the acceptance of your product outside the European Market. Within the IECEX Scheme "Third Party Certification" is mandatory. The manufacturer stays responsible for his product.

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

11. RELEVANT HARMONISED STANDARDS

The following standards without exemption are harmonised for Directive 2014/34/EU 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 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"
EN ISO 80079-36	Non – electrical equipment for Explosive atmospheres – Basic method and requirement
EN ISO 80079-37	Non – electrical equipment for Explosive atmospheres – non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

A list of the standards harmonised under Directive 2014/34/EU is available on *DG Enterprise* web site, via the following link:

http://europa.eu/growth/single-market/european-standards/harmonised-standards/equipment-explosive-atmosphere_2

Important:

By end of September 2019 EN 13463 will be withdrawn from the list of harmonised Standards and EN ISO 80079 will remain solely.


Companies shall apply EN ISO 80079 from that point of time the latest.

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.

2014/34/EU ATEX Guidelines (First Edition April 2016)	Europump ATEX Guideline Part I	Europump ATEX Guideline Part II
§37 Products excluded from the scope of the ATEX Directive	3.2 Excluded Products	
§38 Examples of excluded products	3.2 Excluded Products	3 Thermocouples
§39-66 Definitions	4 Definitions	
§69 Placing ATEX products on the market	5.1 Placing ATEX products on the market	
§70 Putting ATEX products into service	5.2 Putting ATEX products into service	
§32 Products covered by ATEX Directive	5.3 Which kinds of products are covered by Directive 2014/34/EU	
§133 Classification of equipment-groups into categories	6.1 Groups and Categories	
§89 Conformity assessment procedures	6.4 Details of the conformity assessment procedures	
§178	6.4 EU Type examination	
§189 Conformity to type based quality assurance of the production process	6.4 Production Quality Assurance	
§208 Conformity to type based on product quality assurance	6.4 Product Quality Assurance	
§197 Conformity to type based on product verification	6.4 Product Verification	
§203 Conformity to type based on internal production control plus supervised testing	6.4 Conformity to type	
§221 Conformity based on unit verification	6.4 Unit Verification	
§216 Internal production control	6.4 Internal Control of Production	
§217 Technical Documentation	8.1 Technical File (Dossier)	
§151 Instructions	8.2 Instructions for use	

ATEX Guideline - Part I

2014/34/EU ATEX Guidelines (First Edition April 2016)	Europump ATEX Guideline Part I	Europump ATEX Guideline Part II
§ 145 CE Marking §146 Supplementary/specific marking §147 Additional Marking for standards	9 Marking CE and 	
§ 93 The EU Declaration Of Conformity § 227 The EU Declaration Of Conformity	10 EU Declaration of Conformity	9 EU Declaration of Conformity
§35 Interface to different potentially explosive atmospheres §49 Explosive atmosphere and potentially explosive atmosphere §50 Potentially explosive atmosphere in the sense of Directive 2014/34/EU		2 Internal explosive atmosphere
§42 Non-electrical equipment §252 [example] Automatically Lubricating systems		3 Thermocouples
§44 Combined equipment (assemblies)		4.1 Combined equipment (assemblies)
§44 2.a) Combined equipment (assemblies)		4.2 Devices forming one unit without safety-related interactions in accordance with Directive 2014/34/EU
§38 Examples of excluded products- Installation		4.3 Installations
§ 33 Used, repaired or modified products and spare parts		5 Spare parts and repair
§ 33 Used, repaired or modified products and spare parts		6 Upgrading of installed equipment
§ 248 Rotating Mechanical Seals		7 Mechanical Seals