



Examination Standard for Electric Heaters for Use in Class I, II and III, Division 1, and Catalytic Heaters for Use in Class I, Division 1 and 2, Group D, Hazardous (Classified) Locations

Class Number 7320

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Foreword

This standard is intended to verify that the products and services described will meet stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of this standard is to present the criteria for examination of various types of products and services.

Examination in accordance with this standard shall demonstrate compliance and verify that quality control in manufacturing shall ensure a consistent and reliable product.

TABLE OF CONTENTS

1 INTRODUCTION	1
1.1 Purpose.....	1
1.2 Scope	1
1.3 Basis for Requirements	1
1.4 Basis for Certification	1
1.5 Basis for Continued Certification.....	1
1.6 Effective Date.....	1
1.7 System of Units	1
1.8 Normative References	2
1.9 Terms and Definitions.....	2
2 GENERAL INFORMATION	3
2.1 Certification Application Requirements.....	3
2.2 Requirements for Samples for Examination.....	3
3 GENERAL REQUIREMENTS.....	4
3.1 Review of Documentation.....	4
3.2 Construction	4
3.3 Markings.....	5
3.4 Manufacturer's Installation and Operation Instructions	6
3.5 Calibration.....	6
4 PERFORMANCE REQUIREMENTS	8
4.1 Temperature-Limiting Devices	8
4.2 Temperature Tests	8
4.3 Dielectric Voltage-Withstand Test	11
4.4 Additional Requirements for Heating Elements.....	12
4.5 Thermal-Cutoff Test.....	13
4.6 Low- Level Cutoff Test.....	13
4.7 Routine Tests.....	14
5 OPERATIONS REQUIREMENTS.....	15
6 BIBLIOGRAPHY	15

1 INTRODUCTION

1.1 Purpose

- 1.1.1 This standard states testing and certification requirements for electric and catalytic heaters for hazardous (classified) locations; herein referred to as heaters.
- 1.1.2 Testing and certification criteria may include, but are not limited to, performance requirements, marking requirements, examination of manufacturing facility(ies), audit of quality assurance procedures, and a surveillance program.

1.2 Scope

- 1.2.1 This standard sets performance requirements for permanently installed electric heaters, electric air heaters, immersion (paint, fluids, etc.) heaters, heating elements and catalytic heaters rated 600 volts or less. This standard does not apply to electric trace heating.
- 1.2.2 The requirements of this standard reflect tests and practices used to examine characteristics of electric and catalytic heaters for hazardous (classified) locations for the purpose of obtaining certification. Electric and catalytic heaters for hazardous (classified) locations having characteristics not anticipated by this standard may be certified if performance equal, or superior, to that required by this standard is demonstrated.
- 1.2.3 The standard is intended to be used in conjunction with FM Approvals Examination Standard 3600 - Electrical Equipment for use in Hazardous (Classified) Locations, General Requirements, which includes the general requirements that apply to all types of hazardous (classified) location protection methods.

1.3 Basis for Requirements

For general basis of requirements, see FM Approvals Examination Standard 3600.

1.4 Basis for Certification

See FM Approvals Examination Standard 3600.

1.5 Basis for Continued Certification

See FM Approvals Examination Standard 3600.

1.6 Effective Date

The effective date of this certification standard mandates that all products tested for certification after the effective date shall satisfy the requirements of this standard.

The effective date of this standard is eighteen (18) months after the publication date of the standard for compliance with all requirements.

1.7 System of Units

Units of measurement used in this standard are United States (U.S.) customary units. These are followed by their arithmetic equivalents in International System (SI) units, enclosed in parentheses. The first value stated shall be regarded as the requirement. The converted equivalent value may be approximate. Conversion of U.S. customary units is in accordance with ANSI/IEEE/ASTM SI 10.

1.8 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the cited edition applies.

ANSI/IEEE/ASTM SI 10, American National Standard for Metric Practice

FM Approvals Examination Standard 3600 – Electrical Equipment for use in Hazardous (Classified) Locations, General Requirements

FM Approvals Examination Standard 3615 - Explosionproof Electrical Equipment, General Requirements

FM Approvals Examination Standard 3616 - Dust-Ignitionproof Electrical Equipment, General Requirements

1.9 Terms and Definitions

For purposes of this standard, the following terms apply, as well as joint construction definitions given in FM Approvals Examination Standard 3615:

Dielectric Voltage Withstand – The ability of the heating element to withstand certain voltages applied between current-carrying parts and dead-metal parts for a specified period of time without flashover or puncture.

Leakage Current – A current, including a capacitively coupled current, which may be conveyed between exposed conductive surfaces or a heating element and ground.

Sheathed Heating Element – Typically, a resistance element that is encased in magnesium oxide or a similar insulating material that is, in turn, surrounded by a metal sheath.

Catalytic Heater – A type of heater which produces self-sustaining heat through a chemical reaction without the use of an open flame. Typically, the heat produced can be maintained at a lower controlled rate, through fuel pressure and flow, versus that of uncontrolled combustion.

2 GENERAL INFORMATION

2.1 Certification Application Requirements

The manufacturer shall provide the following preliminary information with any request for certification consideration:

- A complete list of all models, types, and options for the products or services being submitted for certification consideration;
- General assembly drawings, complete set of manufacturing drawings, materials list, anticipated marking format, electrical schematics, nameplate format, brochures, sales literature, spec. sheets, installation, operation and maintenance procedures, and
- The number and location of manufacturing facilities.
- All documents shall identify the manufacturer's name, document number or other form of reference, title, date of last revision, and revision level. All documents shall be provided with English translation.

2.2 Requirements for Samples for Examination

2.2.1 Following authorization of a certification examination, the manufacturer shall submit samples for examination and testing based on the following:

- The test samples shall be a complete assembly with all components mounted in a manner consistent with the manufacturer's instructions and intended application.
- Sample requirements to be determined by the certification agency

2.2.2 Requirements for samples may vary depending on design features, results of prior or similar testing, and results of any foregoing tests.

2.2.3 The manufacturer shall submit samples representative of production. Any decision to use data generated using prototypes is at the discretion of the certification agency.