



Approval Standard for Vane-Type Waterflow Alarm Indicators

Class Number 1042

May 2016

Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet FM Approvals' stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for FM Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction.

Products submitted for certification by FM Approvals shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing shall ensure a consistently uniform and reliable product. Approval Standards strive to be performance-oriented. They are intended to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

- a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and
- b) must be readily identifiable.

Continuance of Approval and listing depends on compliance with the Approval Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials, and services as appropriate, and on periodic surveillance audits of the manufacturing facility.

FM Approvals LLC reserves the right in its sole judgment to change or revise its standards, criteria, methods, or procedures.

Table of Contents

1 INTRODUCTION	1
1.1 Purpose.....	1
1.2 Scope.....	1
1.3 Basis for Requirements	1
1.4 Basis for Approval	2
1.5 Basis for Continued Approval	2
1.6 Effective Date	2
1.7 System of Units.....	2
1.8 Applicable Documents.....	3
1.9 Definitions	3
2 GENERAL INFORMATION.....	4
2.1 Product Information.....	4
2.2 Approval Application Requirements	4
2.3 Requirements for Samples for Examination	5
3 GENERAL REQUIREMENTS.....	5
3.1 Review of Documentation	5
3.2 Physical or Structural Features	5
3.3 Markings	6
3.4 Manufacturer's Installation and Operation Instructions	7
3.5 Calibration	7
3.6 Tolerances.....	7
4 PERFORMANCE REQUIREMENTS.....	7
4.1 Examination	7
4.2 Gasket Leakage.....	7
4.3 Hydrostatic Strength	8
4.4 Operational.....	8
4.5 Sensitivity	8
4.6 Fatigue	9
4.7 Friction Loss	9
4.8 Durability.....	10
4.9 Supervisory Switches - Dielectric.....	10
4.10 Supervisory Switches - Bonding Resistance.....	10
4.11 Additional Tests.....	10
5 OPERATIONS REQUIREMENTS	11
5.1 Demonstrated Quality Control Program	11
5.2 Serveillance Audit Program	13
5.3 Installation Inspections	13

5.4	Manufacturer's Responsibilities	13
5.5	Manufacturing and Production Tests	13
APPENDIX A: UNITS OF MEASUREMENT		14
APPENDIX B: TOLERANCES		15
APPENDIX C: SAMPLE LISTING		16

1 INTRODUCTION

1.1 Purpose

- 1.1.1 This standard states Approval requirements for vane-type waterflow alarm indicators for installations in automatic sprinkler systems. Other applications shall be evaluated on a case-by-case basis.
- 1.1.2 Approval criteria may include, but are not limited to, performance requirements, marking requirements, examination of manufacturing facility(ies), audit of quality assurance procedures, and a follow-up program.

1.2 Scope

- 1.2.1 This standard encompasses the design and performance requirements of vane-type waterflow alarm indicators for use in aboveground automatic sprinkler systems designed and installed in accordance with FM Global Property Loss Prevention Data Sheets.
- 1.2.2 This Approval Standard encompasses Nominal Pipe Size (NPS) 1, 1-1/4, 1-1/2, and 2 inch vane-type waterflow alarm indicator that are installed in piping via threaded connection.
- 1.2.3 This Approval Standard encompasses NPS 2, 2-1/2, 3, 4, 5, 6, and 8 inch vane-type waterflow alarm indicators that are installed in piping via a pre-cut hole in system piping with a U-bolt connection.
- 1.2.4 The minimum rated working pressure for vane-type waterflow alarm indicators evaluated using this standard is 175 psi (1205 kPa).
- 1.2.5 This standard is intended to verify that the product described will meet stated conditions of performance, safety, and quality useful to the ends of property conservation.

1.3 Basis for Requirements

- 1.3.1 The requirements of this standard are based on experience, research and testing, and the standards of other organizations. The advice of manufacturers, users, trade associations, jurisdictions and loss control specialists was also considered.
- 1.3.2 The requirements of this standard reflect tests and practices used to examine characteristics of vane-type waterflow alarm indicators for the purpose of obtaining Approval. Vane-type waterflow alarm indicators having characteristics not anticipated by this standard may be FM Approved if performance equal, or superior, to that required by this Standard is demonstrated, or if the intent of the standard is met. Alternatively, vane-type waterflow alarm indicators which meet all of the requirements identified in this Standard may not be FM Approved if other conditions which adversely affect performance exist or if the intent of this standard is not met.