

CERTIFICATE OF CONFORMITY

1. FIRE PROTECTION EQUIPMENT

2. Certificate No: **FM23FPUS0075**

3. Equipment:
(Type Reference and Name) **Clean Agent Self Contained Automatic Fire Extinguisher Units Designed for use with FK-5-1-12 Fire Protection Agent**

4. Name of Listing Company: **Firetrace International LLC**

5. Address of Listing Company: **8435 N. 90th St,
Suite 2,
Scottsdale, Arizona 85258, USA**

6. The examination and test results are recorded in confidential report number:

3053686 dated 26th November 2017

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

FM 5600:2023

8. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

9. Approval Guide Listing Category:

Clean Agent Extinguishers, Automatic or Manual-Automatic

Certificate issued by:



20 June 2023

J.E. Marquedant
VP, Manager - Electrical Systems

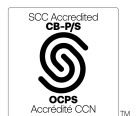
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

F 320 (Jan 23)



CERTIFICATE OF CONFORMITY

US Certificate of Conformity No: FM23FPUS0075



10. Description of Equipment:

System Designation:	Clean Agent Self Contained Automatic Fire Extinguisher Units Designed for use with FK-5-1-12 Fire Protection Agent
System Type:	Pre-Engineered for the Protection of Class B Hazards
Agent Identification:	FK-5-1-12
Ambient Temperature Installation Range:	0°F to 130°F (-17.8°C to 54.4°C)
Amount of Agent by Model:	940205: 2.5 lb (1.13 kg) FK-5-1-12 940555: 5.0 lb (2.27 kg) FK-5-1-12 941055: 10.0 lb (4.54 kg) FK-5-1-12 942055: 20.0 lb (9.07 kg) FK-5-1-12
Maximum Area of Coverage by Model:	940205 (1, 2, or 4 Small Nozzles): 25.0 ft ² (2.32 m ²) 940555 (1, 2, or 4 Medium Nozzles): 36.0 ft ² (3.35 m ²) 941055 (1, 2, or 4 Medium Nozzles): 36.0 ft ² (3.35 m ²) 942055 (2 or 4 Medium Nozzles): 36.0 ft ² (3.35 m ²)
Minimum and Maximum Enclosure Heights:	1.5 ft (0.46 m) to 10 ft (3.05 m)
Maximum Enclosure Volume Protection at 70°F by Model:	940205: 45.0 ft ³ (1.27 m ³) 940555: 90.0 ft ³ (2.55m ³) 941055: 179.9 ft ³ (5.09 m ³) 942055: 359.8 ft ³ (10.19 m ³)
Minimum Design Concentration by Hazard Class:	Class B: 5.89%
Maximum Height Between Layers for Detection Tubing:	3.3 ft (1.0 m)
Maximum Length of Detection Tubing:	120 ft (36.6 m)
Design, Installation, Operation, and Maintenance Manual:	Design, Installation, Operation, and Maintenance Manual for Clean Agent Self Contained Automatic Fire Extinguisher Units Designed for use with FK-5-1-12 Fire Protection Agent, Document 800027, Rev. A, 06/05/2023
Limitations or Exceptions to the Approval:	Applications and components not part of the Approval as identified in the manual listed above

To verify the availability of the Approved product, please refer to www.approvalguide.com

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US Certificate of Conformity No: FM23FPUS0075



Member of the FM Global Group

Approved Filling Stations:	Firetrace International LLC 8435 N. 90th Street, Suite 2 Scottsdale, AZ 85258 USA
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11. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

12. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

13. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
26 November 2017	Original Issue.
20 June 2023	<u>Supplement 1:</u> Report Reference: PR465057 dated 20 June 2023. Description of the Change(s): Converted certificate format. Listing overhaul to incorporate various modifications, including new 20 lb model, new discharge nozzle, updated design concentration, updated manual, and alternate agent manufacturers.

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F 320 (Jan 23)



Page 3 of 3



Certificate of Compliance

FIRE PROTECTION EQUIPMENT

This certificate is issued for the following equipment:

System Designation:	Models 940301, 940601 and 941201 Pre-Engineered Automatic Indirect HFC-227ea Clean Agent Extinguisher Units
Design, Installation, Operation, Maintenance, Software, and Owner's Manual:	Design, Installation, Operation, and Maintenance Manual for Pre-Engineered HFC-227ea Automatic Extinguisher Unit, 800021, Rev. 000, October 27 th , 2017

Approval Guide Listing Category: Fixed Extinguishing Systems, Clean Agent Extinguishers, Automatic or Manual-Automatic

Firetrace International LLC
8435 N. 90th Street, Suite 2
Scottsdale, AZ 85258
USA

This certifies that the equipment described has been found to comply with the applicable requirements, as stated in the Approval Report(s), of the following FM Approval Standard(s):

<i>Approval Standards</i>	<i>Date</i>
<i>Class Number</i> 5600	April 2013

FM Approvals Listing Class: 5612

Re-Examination: 3053686
Subsequent Revisions: N/A

Re-Examination Completed: 26 November 2017

To verify the availability of the Approved product, please refer to www.approvalguide.com

A handwritten signature in dark ink, appearing to read 'J.E. Marquedant'.

James E. Marquedant
VP, Manager - Electrical Systems
FM Approvals
1151 Boston-Providence Turnpike,
Norwood MA, 02062 USA

26 November 2017

Date



Member of the FM Global Group



Certificate of Compliance

FIRE PROTECTION EQUIPMENT

This certificate is issued for the following equipment:

System Designation:	Model IHP Pre-Engineered Automatic Indirect Carbon Dioxide Extinguisher Units
System Type:	Pre-Engineered Total Flooding System for the Protection of Class B Hazards
Design, Installation, Operation, and Maintenance Manual:	Design, Installation, Operation, and Maintenance Manual for Pre-Engineered Automatic Indirect Carbon Dioxide Extinguisher Units, 800024, Rev. 004, July 2016

Approval Guide Listing Category: Fixed Extinguishing Systems, Carbon Dioxide Systems, Carbon Dioxide Systems

Firetrace International LLC
8435 N. 90th Street, Suite 2,
Scottsdale AZ 85258
USA

This certifies that the equipment described has been found to comply with the applicable requirements, as stated in the Approval Report(s), of the following FM Approval Standard(s):

<i>Approval Standards</i>	<i>Date</i>
<i>Class Number</i> 5420	April 2007

FM Approvals Listing Class: 5420

Re-Examination Project: 3039427
Subsequent Revisions: 3058016

Approval Granted: July 24, 2013

To verify the availability of the Approved product, please refer to www.approvalguide.com

A handwritten signature in dark ink, appearing to read 'J.E. Marquedant', written over a horizontal line.

James E. Marquedant
Manager - Electrical Systems
FM Approvals
1151 Boston-Providence Turnpike,
Norwood MA, 02062 USA

28 September 2016

Date



Member of the FM Global Group



Certificate of Compliance

FIRE PROTECTION EQUIPMENT

This certificate is issued for the following equipment:

System Designation:	Models 940202, 940502, 941002, and 942002
Design, Installation, Operation, Maintenance, Software, and Owner's Manual:	Design, Installation, Operation, and Maintenance Manual for Pre-Engineered ILP Automatic Suppression Unit for use with ABC Dry Chemical Powder, 800011 Revision 000, dated October 27th, 2017

Approval Guide Listing Category: Fixed Extinguishing Systems, Dry Chemical Systems, Dry Chemical Systems

Firetrace International LLC
8435 N. 90th Street, Suite 2
Scottsdale, AZ 85258
USA

This certifies that the equipment described has been found to comply with the applicable requirements, as stated in the Approval Report(s), of the following FM Approval Standard(s):

<i>Approval Standards</i>	<i>Date</i>
<i>Class Number</i> 5320	December 2013

FM Approvals Listing Class: 5320

Re-Examination: 3053678
Subsequent Revisions: N/A

Re-Examination Completed: 20 November 2017

To verify the availability of the Approved product, please refer to www.approvalguide.com

A handwritten signature in dark ink, appearing to read 'J.E. Marquedant'.

James E. Marquedant
VP, Manager - Electrical Systems
FM Approvals
1151 Boston-Providence Turnpike,
Norwood MA, 02062 USA

20 November 2017

Date



Member of the FM Global Group



Certificate of Compliance

FIRE PROTECTION EQUIPMENT

This certificate is issued for the following equipment:

System Designation:	Models 940205, 940505, and 941005 Clean Agent Self-Contained Automatic Extinguisher Units
Design, Installation, Operation, Maintenance, Software, and Owner's Manual:	Design, Installation, Operation, and Maintenance Manual for Pre-Engineered 3M™ Novec™ 1230 Automatic Extinguisher Unit, 800020, Rev. 000, October 27 th , 2017

Approval Guide Listing Category: Fixed Extinguishing Systems, Clean Agent Extinguishers, Automatic or Manual-Automatic

Firetrace International LLC
8435 N. 90th Street, Suite 2
Scottsdale, AZ 85258
USA

This certifies that the equipment described has been found to comply with the applicable requirements, as stated in the Approval Report(s), of the following FM Approval Standard(s):

<i>Approval Standards</i>	<i>Date</i>
<i>Class Number</i> 5600	April 2013

FM Approvals Listing Class: 5612

Re-Examination: 3053686
Subsequent Revisions: N/A

Re-Examination Completed: 26 November 2017

To verify the availability of the Approved product, please refer to www.approvalguide.com

A handwritten signature in dark ink, appearing to read 'J.E. Marquedant'.

James E. Marquedant
VP, Manager - Electrical Systems
FM Approvals
1151 Boston-Providence Turnpike,
Norwood MA, 02062 USA

26 November 2017

Date



Member of the FM Global Group



Certificate of Compliance

FIRE PROTECTION EQUIPMENT

This certificate is issued for the following equipment:

System Designation:	35 Bar Engineered Clean Agent Fire Suppression System Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid
Flow Calculation Software:	VdS SCHADENVERHUTUNG FK-5-1-12 -Calculationprogram Version 7.5, Licensed to Firetrace USA, LCC, utilizing: <ul style="list-style-type: none">• Pipe Catalogue: FT Pipe - Schedule 40 - 1.0.0.rkl• Component Catalogue: FT Components 1.0.0.arm• Nozzle Catalogue: FT Nozzles - 1.0.2.noz
Design, Installation, Operation, Maintenance, Software, and Owner's Manuals:	Firetrace 35 bar Engineered Clean Agent Fire Suppression System Designed for use with 3M™ Novec™ 1230 Fire Protection Fluid Design, Installation, Operation, and Maintenance Manual, 000007-000, dated 06/30/2016

Approval Guide Listing Category: Fixed Extinguishing Systems, Clean Agent Fire Extinguishing Systems

Firetrace USA, LLC
8435 N 90th Street, Suite 2
Scottsdale AZ 85258
USA

This certifies that the equipment described has been found to comply with the applicable requirements, as stated in the Approval Report(s), of the following FM Approval Standard(s):

<i>Approval Standards</i>	<i>Date</i>
<i>Class Number</i>	
5600	April 2013


FM Approvals Listing Class: 5612

Original Approval Project Identification: 3044465
Subsequent Revisions: N/A

Approval Granted: 11 July 2016

To verify the availability of the Approved product, please refer to www.ApprovalGuide.com




James E. Marquedant
Manager - Electrical Systems
FM Approvals
1151 Boston-Providence Turnpike,
Norwood MA 02062 USA

11 July 2016

Date