FM Approvals

APPROVAL REPORT

APPROVAL EXAMINATION OF GEBRUEDER TROX GLASS FIBER MEDIA FILTER FOR CLEAN ROOM APPLICATIONS

Prepared for:

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Project ID: 3019445
Class: 4920
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Authorized by:

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I INTRODUCTION

1.1 Gebrueder Trox GmbH submitted their Panel Type HEPA Mini Pleat Filter to determine if it met FM Approvals draft Standard 4920 requirements.

1.2 This Report may be reproduced only in its entirety and without modification.

1.3 Examination included fire testing of a simulated field installed panel type clean room ceiling filter assemblies.

1.4 Tests show that the Panel Type HEPA mini-pleat Filter, as tested, met the Approval requirements of the FM Approvals draft Standard 4920 requirements for Cleanroom Filter applications.

1.5 **Listings:** The tested filters met the FM Approvals draft Standard 4920 criteria when installed as specified in the **CONCLUSIONS** of this report and when Approval is effective will be listed in the Approval Guide CD.

II DESCRIPTION

2.1 The ceiling filter assemblies consisted of the grid support system and filter units as described below.

2.2 The Panel Type HEPA mini-pleat filter units are 540 to 1140 mm (21.3 to 44.9 in.) long by 540 to 1140 mm (21.3 to 44.9 in.) wide by 94 to 134 mm (3.7 to 5.3 in.) deep. The filter pack is between 70 to 90 mm (2.75 to 3.54 in.) deep. The filter pack consists of a glass fiber media with aluminum frame and hot melt separator. The aluminum framed filter units are sealed with polyurethane glue and have a dry sealing gasket between the filter units and the aluminum grid support system. The filter units can be fitted with aluminum face grills on both sides.

2.3 The M + W grid system consists of 55 mm (2.2 in.) or 100 mm (3.9 in.) inverted T-section, extruded aluminum framing members. Individual members are joined by extruded aluminum angular, tee or cross joints.

2.4 Panel Type HEPA mini-pleat filter Application/Naming Details:

Model F782-X-00-R-0-090

Approved Filter Designations:

Filter Type:	F782, F783, F784, F785
Frame:	D, B, C, G, J, L, R, S, X
Dimensions:	00, 01 up to 99
Gasket:	O, E, F, G, R
Protective Grid:	O
Pleat Height:	up to 90 mm

2.5 The proprietary formulation and material composition details are on file at FM Approvals.

III EXAMINATIONS AND TESTS

3.1 Samples were submitted for examination and testing as follows:

3.1.1 Test samples were prepared by, or under the supervision of, FM Approvals personnel.

3.1.2 All data is on file at FM Approvals under project ID# 3019445 along with other documents and correspondence applicable to this program.

3.2 Ceiling Filter Fire Test

3.2.1 Samples of 540 x 1140 mm (21.25 x 44.88 in.) simulated field installed ceiling filter assemblies were placed horizontally 32 in. (813 mm) above and centered over an exposure source of a 1 in. (25.4 mm) depth of isopropyl alcohol in a 1 sq. ft. (0.09 sq. m) holding pan. The fire test exposure is applied to the filter system for ten minutes and the Approval criteria require that no spreading fire is observed during the test exposure time.

3.2.2 One simulated field installed sample ceiling assembly was constructed. The components of installation were as follows:

Sample No. 1:

- M + W 55 mm (2.2 in.) wide T-bar grid support system with bearing rail, part numbers UFR 55/70 T/E and UFR 55/100 T/E
- 6-Minipleat filters, part #F782X00R009000, 540 mm x 1140 mm (21.25 in. x 44.88 in.) with a pleat height of 90 mm (3.54 in.), fiberglass media with hot meld glue and neoprene top gasket
- Dry seal gasket design

Test Results: During the ten minute fire exposure there was no visible ignition of the ceiling filter system and no spreading fire.

IV MARKING

4.1 The manufacturer shall mark each unit or packing container with the manufacturer's name and product trade name. In addition, the unit or container must be marked with the Approval Mark of FM Approvals.

4.2 Markings denoting Approval by FM Approvals shall by applied by the manufacturer only within and on the premises of manufacturing locations that are under the FM Approvals Facilities and Procedures Audit program.

4.3 The manufacturer agrees that use of the FM Approvals name or Approval Mark is subject to the conditions and limitations of the Approval by FM Approvals. Such conditions and limitations must be included in all references to Approval by FM Approvals.

V FACILITIES AND PROCEDURES AUDITS

Gebruder Trox GmbH manufacturing location in Goch, Germany is subject to periodic audit inspections to determine that the quality and uniformity of the materials have been maintained and will provide the same level of performance as originally Approved. The facilities and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this report.

VI MANUFACTURER'S RESPONSIBILITIES

6.1 To assure compliance with the procedures in the field, the manufacturer shall supply to the installer such necessary instruction or assistance required to produce the desired performance achieved in the tests.

6.2 The manufacturer shall notify FM Approvals of any planned change in the Approved products, prior to general sale or distribution, using Form 797, Approved Product Revision Report.

VII DOCUMENTATION

The following documents describe the Filters and are filed at FM Approvals.

Document	Issue or Revision	Description
Quality Control Information	April 2005	Material & Assembly procedures
Filter part number nomenclature	April 2005	Part Numbers

VIII CONCLUSIONS

8.1 Test results show that the Gebrueder Trox Panel Type HEPA mini-pleat ceiling filter, listed in Section II of this report, meet the FM Approvals requirements as a construction of limited combustibility when installed in the 55 mm (2.2 in.), 100 mm (3.9 in.) T-Bar Grid system or AAF AstroGel ND grid system.

8.2 Test results show that the Gebrueder Trox Panel Type HEPA mini-pleat Filter systems in and of themselves, when installed in the appropriate ceiling grid system would not create a need for automatic sprinkler protection.

8.3 Since a duly signed Master Agreement is on file for this customer, Approval is effective as of the date of this report.

8.4 Continued Approval will depend upon satisfactory field experience and periodic Facilities and Procedures Audits.

TESTING SUPERVISED BY: **Joseph Nunes**

PROJECT DATA RECORD: **3019445**

ORIGINAL TEST DATA: **None**

REPORT BY:

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REPORT REVIEWED BY:

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