



1 **TYPE EXAMINATION CERTIFICATE**

2 Component intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 08ATEX6311U** Issue: **2**

4 Component: **Class 5000 and Class 10000 Series Axial Flow Fans**

5 Applicant: **Moore Fans LLC**

6 Address: **800 South Missouri Avenue
Marceline
Missouri 64658
USA**

7 This component and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this component has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 2 or 3 components, which are intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 13463-1:2001

EN 13463-5:2003

EN 14986:2007

10 The sign 'U' is placed after the certificate number to indicate that the product assessed is a component and may be subject to further assessment when incorporated into equipment. Any special conditions for safe use are listed in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified component, and not to specific components subsequently manufactured.

12 The marking of the component shall include the following:



II 3G

or



II 2G c (10000 series Variants AT, AE or MAG only)

Project Number 25216

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D R Stubbings BA MIET
Certification Manager



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13 **DESCRIPTION OF COMPONENT**

Class 5000 Series

A range of propeller fans and hub constructions manufactured in aluminium for use with air cooled heat exchangers. The fans are supplied with manual blade adjustment or air pressure automatic adjustment. Diameters range from 3 ft (914 mm) to 24 ft (7315 mm) with the number of blades ranging from 2 to 15, see tables below:

Automatic Fans (To be installed horizontally)		
Series	Fan dia. (ft)	No. of blades
33	5 to 12	3 to 5
40	6 to 14	3 to 8
49	8 to 16	3 to 10
60	9 to 22	4 to 12
73	11 to 24	6 to 12

Manual Fans		
Series	Fan dia. (ft)	No. of blades
19	3 to 7	2 to 4
27	4 to 10	3 to 6
33	5 to 12	3 to 7
40	6 to 14	3 to 8
49	8 to 16	3 to 10
60	9 to 22	4 to 12
73	11 to 24	6 to 15

Engine Drive Fans		
Series	Fan dia. (ft)	No. of blades
27 ED	4 to 8	3 to 6
33 ED	5 to 9	3 to 7
40 ED	7 to 10	3 to 8
49 ED	9 to 12	3 to 10
60 ED	10 to 14	4 to 12

Class 10000 Series

A range of propeller fans and hub constructions manufactured in aluminium for use with air cooled heat exchangers. The fans are supplied with manual blade adjustment or air pressure automatic adjustment. Diameters range from 3 ft (914 mm) to 24 ft (4877 mm) with number of blades ranging from 3 to 16, see tables below.

Automatic Fans (To be installed horizontally)		
Series	Fan dia. (ft)	No. of blades
24	4 to 8	3 to 6
30	5 to 10	3 to 7
36	6 to 12	3 to 8
42	7 to 14	3 to 8
48	8 to 16	3 to 10
60	10 to 16	4 to 12
72	11 to 16	6 to 12

Extended Chord		
Series	Fan dia. (ft)	No. of blades
24	5 to 8	3 to 6
30	5 to 10	3 to 7
36	6 to 12	3 to 8
42	7 to 14	3 to 8
48	8 to 16	3 to 10
60	10 to 20	4 to 12
72	12 to 24	6 to 16

Heavy Duty Fans		
Series	Fan dia. (ft)	No. of blades
18	3 to 6	2 to 6
24	4 to 8	3 to 6
30	5 to 10	3 to 8
36	6 to 12	3 to 8
42	7 to 14	3 to 8
48	8 to 14	3 to 10
60	10 to 14	4 to 12
72	11 to 14	6 to 16

Standard Duty Fans		
Series	Fan dia. (ft)	No. of blades
24	4 to 8 ft	3 to 6
30	5 to 10 ft	3 to 7
36	6 to 12 ft	3 to 8

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Sira Certification Service

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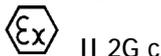
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MAG Series		
Series	Fan Diameter (ft)	No of fans
24	9	3 to 4
36	10	3 to 4
48	11	3 to 4
60	12	3 to 5
72	13	3 to 5
72	14	3 to 5

Variation 1 - This variation introduced the following change:

- i. The introduction of two new variants to the Class 10000 Series Axial Flow Fans only (AT and AE), fitted with non metallic, anti-static blade tips, additional Special Conditions for Safe Use were included as a result of this change and an additional standard was added to the certificate, these fans bear the marking:



Variation 2 - This variation introduced the following changes:

- i. The introduction of a new smaller model to the Heavy Duty Class 10000 range; by virtue of a smaller hub and a new MAG (Minimum Acoustic Geometry) range with sizes 24, 36, 48 and 72. The MAG range is also to be made available for Zone 1 applications when fitted with the appropriate fans tips, as the Class 10000 AT and AE models. The description and Special Conditions for Safe Use are modified accordingly to include this model.
- ii. The Introduction of the size 18 to the Heavy Duty Fan range was endorsed, the relevant table was updated to reflect this new size.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	30 June 2009	R51A18951A	The release of the prime certificate.
1	23 May 2011	R24075A/00	The introduction of Variation 1
2	26 July 2011	R25216A/00	The introduction of Variation 2

15 SPECIAL CONDITIONS FOR SAFE USE

- 15.1 The fan casing must meet the requirements of EN 14986:2007 clause 4.6.
- 15.2 The fan installation must be bonded in accordance with EN 14986:2007 clause 4.11.
- 15.3 Clearance between the fan blades and fan ring/ casing must meet the requirements of EN 14986:2007 clause 4.15.
- 15.4 The construction material of the fan casing must meet the permissible material pairing requirements of EN 14986:2007 clause 4.8 and table 1 or table 2.

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- 15.5 An assessment of the operating temperatures must be completed to meet the requirements of EN 14986:2007 clause 4.4.
- 15.6 The user is required to ensure the material is suitable for the environment.
- 15.7 The user must ensure the fan is protected with a guard to provide IP20 in accordance with EN 60529.
- 15.8 The user must ensure that the fan installation meets the requirements detailed in EN 14986:2007 clause 4.3.
- 15.9 The user shall ensure that the method employed to secure the fan hub to the drive shaft complies with clause 4.21 of EN 14986:2007 for Zone 2 applications (clause 5.2 of EN 14986:2007 for zone 1 applications), this method shall also prevent the occurrence of drift and provide means to prevent loosening in service. Particular care shall be taken when the fans are driven by motors exceeding 15 kW for Zone 2 applications (5.5 kW for zone 1 applications).
- 15.10 Fans of automatically controllable pitch variety must only be operated with the rotational axis vertical and fan discharge in an upward direction.
- 15.11 In operation the fans should be maintained within certain temperature limits. For fans with automatic pitch control mechanisms that range is -45°F to +180°F (-43°C to +82°C). Fans without automatic pitch control mechanisms can be operated at a somewhat larger temperature range from -45°F to +275°F (-43°C to +135°C).

Class 10000 AT, AE and MAG Series Axial Flow Fans only

- 15.12 When anti static blade tips are used with the 10000 AT, AE and MAG series, the distance between metallic rotating and metallic stationary parts shall not exceed 20 mm according to clause 4.9 of EN 14986:2007.
- 15.13 The user shall ensure that hazards arising from stray or unsymmetrical currents, lightning, radio frequency, electromagnetic waves, ionising radiation, ultrasonics, exothermic reactions, adiabatic compression and shock waves are avoided as a result of the installation, refer to EN 14986:2007 Annex D.
- 15.14 Ignition protection between rotating parts and fixed stationary parts are to be addressed by the requirements for constructional safety "c" by the end user in accordance with EN 13463-5.
- 15.15 Vibration monitoring is required to prevent contact between housing and the impeller in the case of expected malfunction.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in reports listed in Section 14.2.

17 CONDITIONS OF CERTIFICATION

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.2 Fans shall be tested to ensure a balance quality grade according to ISO 14694.

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Certificate Annexe

Certificate Number: Sira 08ATEX6311U
 Component: Class 5000 and Class 10000 Series Axial Flow Fans
 Applicant: Moore Fans LLC



Issue 0

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
Label				
XME10940	1 of 1	A	17 Nov 08	ATEX certification tag design
Class 5000				
TMC-591	1 of 1	A	10 Nov 08	Series 33 Pressure Blower Arrangements CS And CSP Automatic
TMC-592	1 of 1	A	10 Nov 08	Series 40 Pressure Blower Arrangements CS And CSP Automatic
TMC-593	1 of 1	B	10 Nov 08	Series 49 Pressure Blower Arrangements CS And CSP Automatic
TMC-594	1 of 1	A	10 Nov 08	Series 60 Pressure Blower Arrangements CS And CSP Automatic
TMC-595	1 of 1	A	10 Nov 08	Series 73 Pressure Blower Arrangements CS And CSP Automatic
TMC-640	1 of 1	A	10 Nov 08	Series 19 Pressure Blower Manual Adjustment
TMC-584	1 of 1	B	10 Nov 08	Series 27 Pressure Blower Manual Adjustment Arrangement M
TMC-585	1 of 1	B	10 Nov 08	Series 33 Pressure Blower Manual Adjustment Arrangement M
TMC-586	1 of 1	B	10 Nov 08	Series 40 Pressure Blower Manual Adjustment Arrangement M
TMC-587/A	1 of 1	A	10 Nov 08	Series 49 Pressure Blower Manual Adjustment Arrangement M
TMC-587/B	1 of 1	A	10 Nov 08	Series 49 Pressure Blower Manual Adjustment Arrangement M
TMC-588/A	1 of 1	A	10 Nov 08	Series 60 Pressure Blower Manual Adjustment Arrangement M
TMC-588/B	1 of 1	A	10 Nov 08	Series 60 Pressure Blower Manual Adjustment Arrangement M
TMC-589	1 of 1	D	10 Nov 08	Series 73 Pressure Blower Manual Adjustment Arrangement M
TMC-684	1 of 1	B	10 Nov 08	Series 27 Engine Drive Fan Left Hand Rotation
TMC-685	1 of 1	B	10 Nov 08	Series 27 Engine Drive Fan Right Hand Rotation
TMC-663	1 of 1	A	10 Nov 08	Series 33 Engine Drive Fan Left Hand Rotation
TMC-664	1 of 1	A	10 Nov 08	Series 33 Engine Drive Fan Right Hand Rotation
TMC-665	1 of 1	A	10 Nov 08	Series 40 Engine Drive Fan Left Hand Rotation
TMC-666	1 of 1	A	10 Nov 08	Series 40 Engine Drive Fan Right Hand Rotation
TMC-667	1 of 1	A	10 Nov 08	Series 49 Engine Drive Fan Left Hand Rotation
TMC-668	1 of 1	A	10 Nov 08	Series 49 Engine Drive Fan Right Hand Rotation
TMC-669	1 of 1	-	10 Nov 08	Series 60 Engine Drive Fan Left Hand Rotation
TMC-670	1 of 1	A	10 Nov 08	Series 60 Engine Drive Fan Right Hand Rotation
Class 10000				
TMC-788	1 of 1	A	10 Nov 08	Series 24 CSP Automatic Fan
TMC-789	1 of 1	A	10 Nov 08	Series 30 CSP Automatic Fan
TMC-790	1 of 1	A	10 Nov 08	Series 36 CSP Automatic Fan
TMC-791	1 of 1	A	10 Nov 08	Series 42 CSP Automatic Fan
TMC-792	1 of 1	A	10 Nov 08	Series 48 CSP Automatic Fan
TMC-793	1 of 1	A	10 Nov 08	Series 60 CSP Automatic Fan
TMC-794	1 of 1	A	10 Nov 08	Series 72 CSP Automatic Fan
TMC-779	1 of 1	C	10 Nov 08	Series 24 HD Fan Extended Chord Right Hand Rotation
TMC-780	1 of 1	B	10 Nov 08	Series 30 HD Fan Extended Chord Right Hand Rotation
TMC-781	1 of 1	B	10 Nov 08	Series 36 HD Fan Extended Chord Right Hand Rotation
TMC-782	1 of 1	B	10 Nov 08	Series 42 HD Fan Extended Chord Right Hand Rotation
TMC-783	1 of 1	B	10 Nov 08	Series 48 HD Fan Extended Chord Right Hand Rotation

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Certificate Annexe

Certificate Number: Sira 08ATEX6311U
 Component: Class 5000 and Class 10000 Series Axial Flow Fans
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Drawing	Sheets	Rev.	Date (Sira stamp)	Title
TMC-784	1 of 1	A	10 Nov 08	Series 60 HD Fan Extended Chord Right Hand Rotation
TMC-755	1 of 1	C	10 Nov 08	Series 72 HD Fan Extended Chord Right Hand Rotation
TMC-770	1 of 1	C	10 Nov 08	Series 24 HD Fan Left Hand Rotation
TMC-771	1 of 1	D	10 Nov 08	Series 24 HD Fan Right Hand Rotation
TMC-773	1 of 1	D	10 Nov 08	Series 30 HD Fan Left Hand Rotation
TMC-774	1 of 1	D	10 Nov 08	Series 30 HD Fan Right Hand Rotation
TMC-748	1 of 1	B	10 Nov 08	Series 36 HD Fan Left Hand Rotation
TMC-747	1 of 1	D	10 Nov 08	Series 36 HD Fan Right Hand Rotation
TMC-746	1 of 1	C	10 Nov 08	Series 42 HD Fan Left Hand Rotation
TMC-745	1 of 1	D	10 Nov 08	Series 42 HD Fan Right Hand Rotation
TMC-744	1 of 1	D	10 Nov 08	Series 48 HD Fan Left Hand Rotation
TMC-743	1 of 1	D	10 Nov 08	Series 48 HD Fan Right Hand Rotation
TMC-742	1 of 1	D	10 Nov 08	Series 60 HD Fan Left Hand Rotation
TMC-741	1 of 1	C	10 Nov 08	Series 60 HD Fan Right Hand Rotation
TMC-740	1 of 1	D	10 Nov 08	Series 72 HD Fan Left Hand Rotation
TMC-739	1 of 1	D	10 Nov 08	Series 72 HD Fan Right Hand Rotation
TMC-769	1 of 1	B	10 Nov 08	Series 24 SD Fan Right Hand Rotation
TMC-772	1 of 1	B	10 Nov 08	Series 30 SD Fan Right Hand Rotation
TMC-731	1 of 1	B	10 Nov 08	Series 36 SD Fan Right Hand Rotation
TMC 796	1 to 5	B	18 May 09	Materials for Class 5000 and Class 10000 automatic fans
TMC 797	1 of 1	A	14 Jan 09	Materials for Class 5000 and Class 10000 manual fans

Issue 1

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
TMC_865_A	1 of 1	A	04 May 11	ATEX non-sparking anti-static tip - typical installation
XME11213_A	1 of 1	A	17 May 11	ATEX Certification Tag Design Anti-Static Rating

Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
TMC 813	1 of 1	A	07 Jul 11	Series 18 Standard Hub HD Fan Right Hand Rotation
TMC 855	1 of 1	A	07 Jul 11	Series 24 – 9Ft diameter fan Right Hand Rotation
TMC 856	1 of 1	A	07 Jul 11	Series 36 – 10Ft diameter fan Right Hand Rotation
TMC 857	1 of 1	A	07 Jul 11	Series 48 – 11Ft diameter fan Right Hand Rotation
TMC 858	1 of 1	A	07 Jul 11	Series 60 – 12Ft diameter fan Right Hand Rotation
TMC 859	1 of 1	A	07 Jul 11	Series 72 – 13Ft diameter fan Right Hand Rotation
TMC 860	1 of 1	A	07 Jul 11	Series 72 – 14Ft diameter fan Right Hand Rotation

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