1 **TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 07ATEX6341X** Issue: **7**

4 Equipment: **AXC-EX Axial Fans and AXCBF-EX Bifurcated Fans**

5 Applicant: **Systemair GmbH**

6 Address: Seehofer Str 45
D-97944 Windischbuch
Germany

7 This equipment 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 equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 2 equipment, which is 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 14986:2007 EN 13463-1:2001

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

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

12 The marking of the equipment shall include the following:

II 2 G c T* (Ta = -20°C to +60°C)

These fans are fitted with a suitably certified, electric motor, whilst this motor is outside the scope of this certificate, the type used affects the final application of the fan, as clarified below:

AXC-EX (nA) Category 3 for apparatus group IIB (Zone 2)
AXCBF-EX (nA) Category 3 for apparatus group IIB (Zone 2)
AXC-EX (e) Category 2 for apparatus group IIB (Zone 1 and 2)
AXCBF-EX (e) Category 2 for apparatus group IIB (Zone 1 and 2)
AXC-EX (d) Category 2 for apparatus group IIB and IIC (Zone 1 and 2)
AXCBF-EX (d) Category 2 for apparatus group IIB and IIC (Zone 1 and 2)

In addition, T* is equal to temperature classification of the motor.

Project Number 70005926

C Ellaby
Deputy Certification Manager

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13 **DESCRIPTION OF EQUIPMENT**

The equipment is a range of Axial Fan Assemblies, see table below, consisting of a galvanised mild steel fabricated casing (stainless steel can be used as an alternative material), an aluminium grade fabricated impeller and fitted with an ATEX suitably certified electrical motor to Ex d, Ex e or Ex nA dependant on the hazardous zone and customer requirements. The suitably certified motors, which are fitted into the fan assembly, are outside the scope of this assessment.

Fan Diameter Metric	Motor size	Minimum tip gap dimension (mm)	Casing thickness (mm)	Maximum R.P.M.
315	71 - 90	2.5	2	3000
355	71 - 90	3	2	3000
400	71 - 90	3	2	3000
450	71 - 90	3.5	2.5	3000
500	71 - 112	3.5	2.5	3000
560	71 – 112 132	3.5	3	3000
630	80 – 112 132 160	4.5	3	3000
710	90 – 112 132 160	5	3	3000
800	90 – 112 132 160	5	3	1500
900	90 – 112 132 160	7	4	1500
1000	100 – 112 132 160 180	7	4	1500
1120	112 132 160 180 200 225 250	8	4	1500
1250	132 160 180 200 225 250 280	8	4	1500

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SCHEDULE

TYPE EXAMINATION CERTIFICATE **Sira 07ATEX6341X**
Issue 7

Fan Diameter Metric	Motor size	Minimum tip gap dimension (mm)	Casing thickness (mm)	Maximum R.P.M.
1400	132 160 180 200 225 250 280	10	5	1200
1600	132 160 180 200 225 250 280	10	5	1200

Design Options

i. There are two methods of installing the axial fan to the air ducts:
- A flexible neoprene bellows may be fitted between the fan casing and the ducting with two matching galvanised mild steel flanges.
- A bolted on galvanised mild steel flange from casing to ducting.

ii. Alternative twin fan arrangements in series may be fitted. The following marking shall apply to the AXC-EX axial fans. AXC-EX 500-7/32°-4 (D) The AXC-EX denotes the axial fan, the 500 denotes the frame size, the -7/32°-4 the number of blades and their angle, the (D) for version with Ex d – Motor, (E) for increased safety motor and (NA) for non sparking motor noting that NA motors are only allowed to be fitted when going into a Group 2 Category 3 (Zone 2) area.

Variation 1 - This variation introduced the following changes:

i. The Design Options in the description were clarified.
ii. The introduction of the AXCBF-EX 250 frame size and the AXC-EX1400 frame size (315 Motor).

Fan Diameter Metric	Motor size	Minimum tip gap dimension (mm)	Casing thickness (mm)	Maximum R.P.M.
250	71	2.5	2	3000
1400	315	10	5	1800

Variation 2 - This variation introduced the following change:

i. A note to clarify the application of the fans was added to clause 12, the Condition of Certification clause 17.4 was modified in line with this change.

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Variation 3 - This variation introduced the following change:

i. The Description of Equipment was amended to recognise that the casing can be alternatively made from stainless steel.
ii. The NEC dimensions were added to drawing AX 0011 to show the fan diameter in imperial sizes.

Fan Diameter Inch	Motor size	Minimum tip gap dimension (mm)	Casing thickness (mm)	Maximum R.P.M.
21	100 112 132 160	3.5	3	3600
24	100 112 132 160	4	3	3600
30	100 112 132 160 180 200	5	3	3600
38	100 112 132 160	7	4	1800
48	100 112 132 160 180 200 225	8	4	1800

Variation 4 - This variation introduced the following change:

i. The increase of the maximum rotational speed of the fans from 3000 RPM to 3600 RPM (size 250-800), 1500 RPM to 1800 RPM (size 900-1250) and the introduction of a 1800 RPM (size 1400) motor was approved.
ii. The introduction of a new fan size 250 was endorsed.
iii. The addition of an earth stud fixing to be non-corrosive material including locknut was allowed, the drawing is amended accordingly.
iv. Minor drawing changes to include the alteration of the material to read 'all aluminium parts contain less than 7.5% magnesium' instead of 1.5% were recognised.
v. The manufacturer has declared that electric motors fitted are a T4 temperature classification.
vi. The modification to the manufacturer's nameplate to remove the Notified Body Number was allowed.

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Fan Diameter Metric	Motor size	Minimum tip gap dimension (mm)	Casing thickness (mm)	Maximum R.P.M.
250	71	2.5	2	3600
315	71 - 90	2.5	2.5	3600
355	71 - 90	3	2.5	3600
400	71 - 90	3	2.5	3600
450	71 - 90	3.5	2.5	3600
500	71 - 112	3.5	3	3600
560	71 – 112	3.5	3	3600
	132			
630	80 – 112	4.5	3	3600
	132 - 160			
710	90 – 112	5	3	3600
	132			
	160 - 200		4	
800	90 – 112	5	3	3600
	132			
	160 - 200			
900	90 – 132	7	4	1800
	160			
1000	100 – 132	7	4	1800
	160 - 180			
1120	112 - 160	8	4	1800
	180 - 250		5	
1250	132 - 200	8	5	1800
	225 - 280		6	
1400	132 – 280	10	5	1200
	315			1800
1600	132 - 280	10	5	1200

Variation 5 - This variation introduced the following changes:

i. The motor mounting brackets and fixings were modified.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	1 February 2008	R51A17220A	The release of the prime certificate.
1	16 December 2008	Not applicable	The documents listed in section 9 were revised to include EN 13463-1:2001 that was used in the original assessment.
2	6 July 2009	R51A20282A	The introduction of Variation 1.

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Issue	Date	Report no.	Comment
3	4 January 2010	R51A21350A	This Issue covers the following changes: • The certificate template was corrected. • The introduction of Variation 2.
4	15 February 2010	R51A21350A/01	Re-issued to allow Report R51A21350A/01 to replace R51A21350A.
5	1 April 2010	R22099A/00	The introduction of Variation 3.
6	04 May 2011	R24487A/00	The introduction of Variation 4.
7	01 July 2014	R70005926A	The introduction of Variation 5.

15 **SPECIAL CONDITIONS FOR SAFE USE**

15.1 As part of the installation of the Axial Fan the air intake and outlet shall be protected against foreign bodies entering into the fan casing causing a potential ignition source, therefore, the fan intake and outlet shall be fitted with an IP20 mesh or better.

15.2 Under rated conditions, the branching point at the cable entry point may reach 72.4°C, therefore, when choosing cables and cable glands this shall be taken into account.

15.3 When flexible connectors are fitted, earth straps shall be fitted across the bellows from the fan casing to the fan ducting.

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 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.

17.3 The suitably ATEX certified, electric motor that is fitted to these fans shall not compromise the intended applications that are detailed in section 12 of this certificate, in addition, the motor shall also be capable of operating in an ambient temperature range of -20°C to +60°C. The temperature classification of the electric motor shall become the temperature class of the combined equipment.

17.4 Each fan in the range shall be capable of withstanding a test run of a minimum 1.15 times the maximum operating speed for at least 60 seconds without causing an ignition risk.

17.5 Paints containing iron oxides shall not be used in the construction of the fan or electric motor supplied with the fan.

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Certificate Annexe

Certificate Number: **Sira 07ATEX6341X**

Equipment: **AXC-EX Axial fans and AXCBF-EX Bifurcated fans**

Applicant: **Systemair GmbH**

Issue 0 and 1

Drawing	Sheets	Rev.	Date (Sira Stamp)	Description
AX0001	1 of 1	-	21 Dec 07	General arrangement
AX0002	1 of 1	-	21 Dec 07	General arrangement
AX0003	1 of 1	-	21 Dec 07	General arrangement
AX0004	1 of 1	-	21 Dec 07	Bifurcated fan assembly
AX0005	1 of 1	-	21 Dec 07	Metric SL case
AX0006	1 of 1	-	21 Dec 07	Keeper plate
AX0007	1 of 1	-	21 Dec 07	Shaft impeller mounting
AX0008	1 of 1	-	21 Dec 07	Standard impeller mounting
AX0009	1 of 1	-	21 Dec 07	Flexible connector assembly
AX0010	1 of 1	-	21 Dec 07	Earth strap connector
466-846	1 of 1	-	21 Dec 07	Nameplate

Issue 2

Drawing	Sheets	Rev.	Date (Sira Stamp)	Description
AX250590	1 to 2	-	02 Jul 09	AXCBF-EX 250-6/28°-2 (D)
AX250591	1 to 2	-	02 Jul 09	AXCBF-EX 250-6/28°-4 (D)
AXC-EX1400	1 of 1	-	02 Jul 09	EX1400

Issues 3 and 4 (No new drawings were introduced.)

Issue 5

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
AX 0011	1 of 1	B	26 Mar 2010	21” – 48” SL case dimensions for ATEX fans

Issue 6

Drawing	Sheets	Rev.	Date (Sira Stamp)	Description
AX0001	1 of 1	1	13 Apr 11	General arrangement
AX0003	1 of 1	1	13 Apr 11	General arrangement
AX0004	1 of 1	1	13 Apr 11	Bifurcated fan assembly
AX0005	1 of 1	3	04 May 11	Metric SL case
466-846	1 of 1	1	13 Apr 11	Nameplate

Issue 7

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
AX0001	1 of 1	2	23 Jun 14	Example size 500
AX0005	1 of 1	4	23 Jun 14	315-1600 Metric SL Case Dimensions for ATEX Fans

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