



UNITED KINGDOM CONFORMITY ASSESSMENT

1 TYPE EXAMINATION CERTIFICATE

2 Equipment Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended)

3 Certificate Number: CSAE 21UKEX6198X Issue: 1

4 Product: VB, MR, #MS11 and H Centrifugal Fans

5 Manufacturer: Air Control Industries Limited

6 Address: Weycroft Avenue, Millwey Rise Industrial Estate, Axminster EX13 5HU, UK

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

8 CSA Group Testing UK Limited, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations. 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 has been assured by compliance with:

EN ISO 80079-36:2016 EN ISO 80079-37:2016 EN 14986:2017

Except in respect of those requirements listed at Section 16 of the schedule to this certificate.

The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall include the following:

VB, MR, #MS11 & H fan range MS11 aluminium fan range 3MS11/168 stainless steel fan



II 2 GD

Ex h IIB+H₂ T# Gb

Ex h IIIC T#°C Db

Ta -## °C to +## °C

The rated ambient temperature range will be applied by the Manufacturer and is dependent upon that marked on the selected motor or vibration sensor, as applicable, whichever is the most restrictive.

Process Temperature: Up to ### °C Max.

The rated process temperature will be applied by the Manufacturer as applicable.

Applicable to all above –

Lower categories/EPL can be marked depending upon specification.

The Manufacturer will apply the temperature class/maximum surface temperature based either on the rated process temperature, or that marked on the selected motor or vibration sensor as applicable, whichever is the higher.

The fans shall be marked with the equipment category, EPL and gas/dust subdivisions as detailed above or that marked on the selected motor or vibration sensor, whichever is the most restrictive as applicable.



II 2G 3D

Ex h IIB+H₂ T# Gb

Ex h IIIC T#°C Dc



II 3GD

Ex h IIB+H₂ T# Gc

Ex h IIIC T#°C Dc

LNL Drying System



II 3 G

Ex h IIC T6 Gc

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Title: Director of Operations



Certificate No. CSAE21UKEX6198X
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QD 1601 Issue 4 (2023-09-11)

SCHEDULE

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13 DESCRIPTION OF PRODUCT

The VB, MR, #MS11 and H Centrifugal Fans are designed to provide air ventilation at flow rates up to 11000 m³/h. They comprise a centrifugal fan that is mounted on the shaft of a suitably certified motor and enclosed by a housing that is bolted to the motor. The centrifugal impellers are manufactured from aluminium, stainless steel or galvanised steel and are mounted on a hub that fits to the motor shaft. The fan housings are manufactured from mild steel, stainless steel or cast aluminium and may have flat air inlet plates or spun air inlet guides. There are various arrangements for both inlet and discharge guards and the provision for inlet filters which can either be supplied with the fan or selected and installed by the end user under a related specific condition of safe use. The equipment is designed to have suitable clearances between rotating and stationary parts but brass, copper or PTFE rubbing rings are included as a precaution against incendive sparking in the event of the fan striking the housing. Non-return valves can also be fitted if required; these consist of brass flapper plates that swivel in a stainless-steel housing.

The #MS11 type may have up to three centrifugal impellers; these are mounted on a shaft adaptor, and, with this option, the fan casing includes additional air guides to maximise efficiency.

The interior/exterior of the fans are up to EPL Gb/Db depending upon the specification. Types MS11 aluminium fan range are restricted to EPL Gb/Dc and stainless-steel model 3MS11/168 restricted to EPL Gc/Dc

The EPL is derived from that applied to the fan itself or the supplied motor and if applicable vibration sensor, whilst the marked surface temperature or temperature classification will be based either on the specified process temperature rating, or that marked on the supplied motor and if applicable vibration sensor whichever is the higher.

An LNL drying system can also be provided with or without the centrifugal fans. The LNL drying system consists of a stainless-steel enclosure that houses ancillary drying equipment. The ancillary drying equipment, which incorporates jet plates, air knives, can dryers, cap dryers & neck dryers, emits and directs air in different ways and directions.

Incorporated Amendments:

- i. It was recorded that the VB, MR and #MS11 Centrifugal fans comply with the requirements of prEN 14986:2005 and that for the assessment of the plastic air guides reference has also been made to CLC/TR 50404:2003.
- ii. The use of plastic air guides was permitted as a feature of the #MS11 fan units when marked II 3 D; when the plastic air guides are fitted, fan units are also fitted with a suitable filter.
- iii. The #MS11 fan units were allowed to be manufactured with up to 10 impellers.
- iv. The rubbing rings were allowed to be made from P.T.F.E. as an alternative to brass.
- v. The option to fit a brass heat spinner arrangement was endorsed.
- vi. The option to fit an LNL drying system was endorsed, the marking was amended to recognise this change.
- vii. The markings, and standards list, have been amended to include the type of protection of constructional safety.
- viii. The introduction of the H range of fans. The design of the H range fans utilises forward curved impellers as opposed to flat impellers used on the models already certified.

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- ix. Brass CZ121 was allowed to be used as an alternative to brass CZ108, consequently, a Condition of Manufacture is applied.
- x. The introduction fan types VBL4 and VBL5, these are a smaller version of the Type VBL6.
- xi. Copper was allowed to be used as an alternative material for rubbing rings.
- xii. Ventilation flow rates were raised from 6000 m³/h to 11000 m³/h.
- xiii. The inclusion of mild steel as an alternative fan case material for the VB and MR range of fans.
- xiv. The assessment and recognition of minor changes on the thickness of linings.
- xv. The addition of the motor power ratings to the drawings with reference to the fan ranges covered under this certificate.
- xvi. The MS/11/080 Fan impellor clearances were raised to ease assembly.
- xvii. The LNL drying system can now be installed without the fan or with the fan but remotely located. The marking was updated accordingly.
- xviii. The option of marking the fan as category 3 G D was permitted.
- xix. The description was modified to match that defined in new certification associated with these products.

Variation 1 - This variation introduced the following changes:

- i. Introduction of a vibration monitoring option.
- ii. Introduction of inspection hatches.
- iii. Introduction of inlet plate seals.
- iv. Change to liner materials and thickness.
- v. Addition of heat spinner material.
- vi. Addition of process temperature.
- vii. Changes to marking label drawings.
- viii. Addition of new model configurations.
- ix. Removal of dimension table.
- x. Removal of model configurations.
- xi. Introduction of accessories.
- xii. Controlled drawing update.
- xiii. Merging of controlled drawings.
- xiv. Addition of alternative fixings.
- xv. Variation to impellor widths.
- xvi. Update to the ignition hazard assessments, where applicable.
- xvii. General updates to drawings.
- xviii. Introduction of draining points.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	25 August 2021	R80084546A	The release of the prime certificate.
1	15 November 2023	R80141791A	The introduction of Variation 1.

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15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 The equipment has non-conductive surfaces which are a potential electrostatic charging hazard - see the instructions for guidance.

15.2 For Category 2D (Zone 21) rated fans a vibration monitoring system is required.

When the equipment **IS fitted with a vibration sensor by the manufacturer** it must be connected to a control circuit that falls within the scope of a safety, controlling and regulating device as defined in and compliant with European Directive 2014/34/EU, and is covered by an appropriate EU Type Examination Certificate or Declaration of Conformity as appropriate. The control circuit must trip the supply to the fan motor when vibration levels according to BS ISO 14694:2003 are detected (see tabulated data below).

When the vibration sensor **IS NOT supplied by the manufacturer**, it must be fitted with a suitably certified vibration sensor which must be connected to a control circuit that falls within the scope of a safety, controlling and regulating device as defined in and compliant with European Directive 2014/34/EU, any vibration sensor and control circuit must be covered by an appropriate EU Type Examination Certificate or Declaration of Conformity as applicable. The control circuit must trip the supply to the fan motor when vibration levels according to BS ISO 14694:2003 are detected (see tabulated data below). The vibration sensor shall be located so as to detect vibration in the bearing/impeller. The mounting position and method shall not compromise any aspect of the motor or fan that contributes to compliance. If in doubt, please contact the manufacturer.

Condition	Fan-application Category (ISO 14694)	Rigidly Mounted (mm/s)	Flexibly Mounted (mm/s)
Start-up	BV-3	4.5	6.3
Alarm	BV-3	7.1	11.8
Shutdown	BV-3	9.9	12.5

15.3 Where a fan is supplied without an inlet filter and intended to be fitted with inlet ducting as part of a larger system the end user shall select and install a suitable filter to prevent the ingress of particles or objects which can cause ignition. In selecting a filter due consideration of any potential electrostatic charging cause by process flow must be taken into consideration.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.

17 PRODUCTION CONTROL

17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders

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- 17.2 The marked surface temperature or temperature classification will be based either on the values listed below based upon the rated process temperature, or that marked on the selected motor or vibration sensor, whichever is the higher.

Process temperature	Fan surface temp or temperature classification	
Up to 50°C	T85°C	T6
Up to 90°C	T135°C	T4
Up to 145°C	T200°C	T3

When selecting a suitably certified motor to form a motor/fan combination the manufacturer must ensure that the motor ambient temperature rating in service is not exceeded. The effect of any process temperature associated with the fan or local ambient temperature must be taken into account, any cooling effect of thermal insulation or heat spinning device may be considered as part of this evaluation. The manufacturer must ensure that any instructions for motor are supplied to the end user as part of the documentation package.

The ambient temperature range marking applied to the fans shall be based upon the stated ambient temperature rating of the installed motor or vibration sensor whichever is the most restrictive.

- 17.3 The fans shall be marked with the equipment category, EPL and gas/dust subdivisions as detailed in the certificate marking section or that marked on the selected motor or vibration sensor, whichever is the most restrictive as applicable.
- 17.4 The products covered by this certificate incorporate previously certified devices, it is the responsibility of the manufacturer to ensure that there has been no modifications or changes to the status of the certification of these devices which affects the validity of this certificate.

Item	Manufacturer	Certificate No	Key attributes
ABB Ability™ Smart Sensor	ABB AS	IECEX PRE 19.0044X Issue 1 Presafe 19ATEX14930X Issue 0	 II 1 G D Ex ia IIC T4 Ga Ex ia IIIC T157°C Da T amb -40°C to +85°C

Also, the manufacturer must ensure that any instructions for the said equipment is supplied to the end user as part of the documentation package.

When installing the vibration sensor to form a motor/vibration sensor/fan combination the manufacturer must ensure that the vibration sensor ambient temperature rating of -40°C to +85°C in service is not exceeded. The effect of any process temperature associated with the fan or local ambient temperature must be taken into account, any cooling effect of thermal insulation or heat spinning device may be considered as part of this evaluation.

- 17.5 All impellers are subject to balancing to G6.3 to ISO 14694:2003 clauses 6 and 7.2. After assembly complete fans are subjected to balancing to verify a maximum seismic vibration limit for start up to clause 8.4 ISO 14694:2003.
- 17.6 As part of the manufacturing process all fan assemblies must be subjected to continuity testing to ensure that all conductive parts are electrically bonded to any protective bonding facility.



Certificate Annexe

Certificate Number: CSAE 21UKEX6198X
Product: VB, MR, #MS11 and H Centrifugal Fans
Manufacturer: Air Control Industries Limited

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
SK18/4584	1 of 1	1	20 Mar 18	Warning Label
SK21-5397	1 to 7	1	18 Aug 21	UKCA Ex Certification Fan Layout
SK21-5398	1 to 2	1	18 Aug 21	UKCA Ex Certification Layout MS11F/080 Series
SK21-5399	1 to 7	1	18 Aug 21	Outline UKCA Ex Enclosure
SK21-5400	1 of 1	1	18 Aug 21	Outline UKCA Ex Enclosure
SK21-5401-1	1 of 2	1	18 Aug 21	Outline UKCA Ex LNL
SK21-5401-2	1 of 1	1	18 Aug 21	Outline UKCA Ex Jetplates
SK21-5401-3	1 of 1	1	18 Aug 21	Outline UKCA Ex Airknife All Type
SK21-5401-4	1 of 1	1	18 Aug 21	Outline UKCA Ex Cap Dryer
SK21-5401-5	1 of 1	1	18 Aug 21	Outline UKCA Ex Neck Dryer Assembly
SK21-5401-6	1 of 1	1	18 Aug 21	Outline UKCA Ex Outline Can Dryers
SK21-5401-7	1 of 1	1	18 Aug 21	Outline UKCA Ex Blower Enclosure
SK21-5402	1 to 4	1	18 Aug 21	UKCA Ex Certification – H Range Fan Layouts

Issue 1

Drawing	Sheets	Rev.	Date (Stamp)	Title
SK03/1242	1 to 12	23	08 Nov 2023	EX CERTIFICATION FAN LAYOUTS
SK06/1767	1 to 3	10	08 Nov 2023	EX-CERTIFICATION LAYOUT MS11 SERIES
SK12/2906	1 to 7	7	06 Jun 2023	OUTLINE EX ENCLOSURE SIRA
SK12/2915	1 of 1	2	28 Mar 2023	OUTLINE EX ENCLOSURE SIRA
SK12/2928/1	1 to 2	2	28 Mar 2023	OUTLINE EX LNL
SK12/2928/2	1 of 1	2	28 Mar 2023	OUTLINE EX JETPLATES
SK12/2928/3	1 of 1	2	28 Mar 2023	OUTLINE EX AIRKNIFE ALL TYPES
SK12/2928/4	1 of 1	2	28 Mar 2023	OUTLINE EX CAP DRYER
SK12/2928/5	1 of 1	2	28 Mar 2023	OUTLINE EX NECK DRYER ASSEMBLY
SK12/2928/6	1 of 1	2	28 Mar 2023	OUTLINE EX CAN DRYERS
SK12/2928/7	1 of 1	2	28 Mar 2023	OUTLINE EX BLOWER ENCLOSURE
SK13/3139	1 to 5	8	08 Nov 2023	EX CERTIFICATION - H RANGE FAN LAYOUTS
SK23-5805	1 to 3	1	08 Nov 2023	EX-CERTIFICATION LAYOUT MS11/168 SERIES
SK23-5816	1 to 4	1	08 Nov 2023	EX CERTIFICATION FAN LAYOUTS

The following drawings are to be removed from the certificate.

Drawing	Sheets	Rev.	Date (Stamp)	Title
SK21/5397	7	1	07/06/21	UKCA EX CERTIFICATION FAN LAYOUTS (SIRA) APPROVAL DRAWING
SK21/5398	2	1	07/06/21	UKCA EX CERTIFICATION MS11/080 SERIES (SIRA) APPROVAL DRAWING
SK21/5399	7	1	07/06/21	UKCA EX DRYERS & ENCLOSURE (LNL) SIRA APPROVAL DRAWING





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Certificate Number: CSAE 21UKEX6198X
Product: VB, MR, #MS11 and H Centrifugal Fans
Manufacturer: Air Control Industries Limited

Drawing	Sheets	Rev.	Date (Stamp)	Title
SK21/5400	1	1	07/06/21	UKCA EX BLOWER ENCLOSURE SIRA APPROVAL DRAWING
SK21/5401/1	1	1	07/06/21	UKCA EX LNL DIMENSIONS APPROVAL DRAWING
SK21/5401/2	1	1	08/06/21	UKCA EX JETPLATE DIMENSIONS APPROVAL DRAWING
SK21/5401/3	1	1	08/06/21	UKCA EX AIRKNIFE DIMENSIONS APPROVAL DRAWING
SK21/5401/4	1	1	08/06/21	UKCA EX CAP DRYER DIMENSIONS APPROVAL DRAWING
SK21/5401/5	1	1	08/06/21	UKCA EX NECK DRYER DIMENSIONS APPROVAL DRAWING
SK21/5401/6	1	1	08/06/21	UKCA EX CAN DRYERS DIMENSIONS APPROVAL DRAWING
SK21/5401/7	1	1	08/06/21	UKCA EX BLOWER ENCLOSURE DIMENSIONS APPROVAL DRAWING
SK21/5402	4	1	08/06/21	UKCA EX CERTIFICATION - H RANGE FAN LAYOUTS

