



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 02ATEX5301X** Issue: **4**

4 Equipment: **Type SA9* Ignition Coil**

5 Applicant: **Igniters Combustion Engineering Limited**

6 Address: Unit 6 Prospect Drive
Enterprise Industrial Estate
Lichfield
Staffs
WS14 9UX
England

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:

EN 1127-1:1997

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

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2 G
IIC T6

(see Specific Conditions of Use for ambient temperature ranges applicable to particular cable types)

Signed: M Halliwell

Title: Director of Operations



Project Number 80106201

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 02ATEX5301X
Issue 4

13 DESCRIPTION OF EQUIPMENT

The Type SA9* Ignition Coil consists of an encapsulated coil assembly fitted within a cylindrical steel body. The steel body has two threaded steel end caps, one of which is centrally threaded to accept a cable gland with a supply cable, the other end cap is either similarly threaded or has a raised threaded centre section. End caps are secured in place with either thread sealant or encapsulant during assembly.

The cable gland may be a Hawke Type 501/453 that is certified by CML, certificate no. CML 18 ATEX1268X, to the latest standards and coded Ex db IIC/Ex eb IIC. Alternatively, any Ex db IIC or Ex eb IIC ATEX approved cable gland (to the latest standards) may be used provided it is suitable for the cable i.e. it clamps the cable screen securely.

The supply cable may be either SY (PVC/PVC/GSAB/PVC), SWA or Silicone (Steel over braid). It has 3 cores with a conductor size between 0.75 mm² and 1.5 mm². The integral earth conductor is connected directly to an earthing terminal on the inside face of the end cap and the armour or braid is earthed to the cable gland.

It is intended that the primary winding of the coil shall be supplied from a pulsed DC low voltage supply that has a nominal peak voltage of 175 V. The secondary winding, which is connected directly to the primary winding, produces a similar pulsed output at a nominal peak voltage of 8750V.

The secondary winding output terminal is made by use of an insulated threaded stud fitted into the end of the coil assembly. This connection either extends out of the whole assembly onto a spark ignition device fitted in the combustion chamber of the associated fuel-burning apparatus or is fitted into a quick release screwed connector. Either the quick release connector or the screw thread of the end cap is used to safely mount the ignition coil directly onto the fuel-burning apparatus.

The coil must be supplied through a pulsing circuit, which provides the specified input signal. This is limited by a 500-mA output fuse.

Variation 1 - This variation introduced the following changes:
To permit:

- i. The introduction of two alternative types of supply cable; these are either **HOFR** (Heat and Oil resistant, Flame-Retardant), or **RFOU** (R [Ethylene Propylene rubber] F [Flame retardant, halogen free - bedding] O [tinned copper wire braid - armour] U [Flame retardant, halogen free – outer sheath]).
- ii. A reduction in the minimum bending radius of the existing Steel Wire Armoured (SWA) supply cable from 20 x diameter to 6 x diameter.
- iii. The amendment of clauses 15.6 and 15.7 of the special conditions for safe use.
- iv. The replacement of the ceramic insulation with one of three alternatives on the screw-in Type SA91 Ignition Coils. These are either, Filamic mica tube FT 19, PTFE, or Nylon 66.

Variation 2 - This variation introduced the following change:

- i. Change of NB ID number on label drawing [the original label drawing A4/1G/9442D being replaced with A4/1G/9567C].

Variation 3 - This variation introduced the following change:

- i. To assess the modifications for the Types SA90 and SA91 Igniter Coils; as detailed below:
 - The removal of the Type SA91 Igniter from this certificate.

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EU-TYPE EXAMINATION CERTIFICATE

**Sira 02ATEX5301X
Issue 4**

- Use of Equipment in an ambient temperature of +70°C permitted.
- Change the power supply fuse from 250 mA to 500 mA.
- Allow a different internal coil winding design.
- Reference option for stainless steel housing materials.
- Allow an Ex d/e elbow to be fitted to the cable connection for the coil to allow the cable to enter the coil housing at 90° in areas where space is problematic.
- Allow a different epoxy resin to be used as the insulating material.
- Allow a change to the coil inner sleeve material.
- Correction to issue 3 of the certificate, the report no. in section 14.2 was incorrectly shown as R80039803A, but should be R80039807A.
- Correction to issue 3 of the certificate, the drawings were incorrectly listed.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	11 April 2003	R53A8699A	The release of the prime certificate.
1	18 December 2003	R53V10990A	The introduction of Variation 1.
2	15 October 2019	3851	This Issue covers the following changes: <ul style="list-style-type: none"> • Transfer of certificate Sira 02ATEX5301X from Sira Certification Service to CSA Group Netherlands B.V. • All previously issued certification was rationalised into a single certificate, Issue 2, Issues 0 to 1 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format. • EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, EC Type-Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such EC Type-Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</i>
3	29 April 2020	R80039807A	The introduction of Variation 2.
4	06 March 2024	R80106201A	The introduction of Variation 3.

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

- 15.1 The electrical input to the coil shall only be supplied by a pulsing unit, as specified by the manufacturer, that produces a pulsed DC low voltage supply that has a nominal peak voltage of 175V at a limiting current of 250-mA (protected by a 500-mA fuse). The 500-mA fuse shall have at least a 1500A breaking capacity.

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

Sira 02ATEX5301X
Issue 4

- 15.2 The pulsing unit shall either be situated in a non-hazardous area or, if it is in a hazardous area, it shall be protected by a suitably approved ATEX enclosure.
- 15.3 The supply lead shall either be terminated in a non-hazardous area or, if it is connected in a hazardous area, it shall be suitably terminated and protected in accordance with EN IEC 60079-0:2018 incl. AC:2020-02 and EN 60079-18:2015 incl. AC:2018.
- 15.4 The quick release connector shall not be connected or disconnected whilst it is energised in a hazardous area.
- 15.5 The coil shall not be energised if the quick release connector is separated.
- 15.6 The minimum cable bending radii are listed below:

Cable Type	Minimum Bend Radius
SY (PVC/PVC/GSWB/PVC)	20 x Diameter
SWA	6 x Diameter
Silicone (Steel Overbraid)	20 x Diameter
HOFR	8 x diameter
RFOU	8 x diameter

The cable shall not be subjected to bends that are more onerous than those values listed.

- 15.7 The ambient temperature ranges applicable to the SA9* Ignition Coil are listed below:

Cable Type	Installation Type	
	Flexible (°C)	Fixed (°C)
SY (PVC/PVC/GSWB/PVC)	-5 to +70	-40 to +70
SWA	N/A to +70	-40 to +70
Silicone (Steel Overbraid)	-25 to +70	-60 to +70
HOFR	-20 to +70	-20 to +70
RFOU	-20 to +70	-50 to +70

The SA9* Ignition Coil shall only be used within these temperature ranges.

- 15.8 The quick release connector must only be connected to the mating parts fitted to the fuel-burning apparatus.
- 15.9 When the SA9* Ignition Coil with a Steel Wire is being installed with Armoured supply cable, it shall not be subjected to temperatures below 0°C.
- 15.10 The equipment shall be located where it is not subject to water contamination.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

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

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.

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EU-TYPE EXAMINATION CERTIFICATE

Sira 02ATEX5301X
Issue 4

- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 The encapsulated parts of the apparatus shall be subjected to a visual inspection. No visible damage of the compound shall be evident, such as cracks, exposure of the encapsulated parts, flaking, impermissible shrinkage, discoloration, swelling, decomposition or softening, as required by EN 60079-18:2015 incl. AC:2018, clause 9.1.
- 17.4 An electric strength test of $2U + 1000$ V (where U is the supply voltage) with a minimum of 1500 Vac, shall be applied between circuit and casing for at least 1 minute as required by clause 9.2 of EN 60079-18:2015 incl. AC:2018. No breakdown shall occur.
- 17.5 The electrical data shall be checked by measurement of voltage, current and active power, as required by clause 4.4 of EN 60079-18:2015 incl. AC:2018. Alternatively, the following functional test may be carried out in lieu.

The functional test requires connection to a suitable control unit and spark gap. Operate control unit and check for a continuous spark across the spark gap. When spark stops (after 5 seconds approx.), fit a diode-probe across the spark-gap to simulate flame and check flame signal on control unit.

- 17.6 This certificate relies on the following previously certified product, to the latest standards. When used as part of the Type SA9* Ignition Coil, the key attributes listed in the table below shall still be maintained by their original certificate.

Description	Certificate No.	Key attributes
Hawke, Type 501/453	CML 18ATEX1268X	Ex db IIC Gb or Ex eb IIC Gb
Any suitable ATEX approved gland	As appropriate	Ex db IIC Gb or Ex eb IIC Gb

- 17.7 The manufacturer shall clearly identify the type of supply cable that is used in the SA9* Ignition Coil so that the user/installer can comply with the specific conditions of use that are applicable to that cable.

Certificate Annexe



Certificate Number: Sira 02ATEX5301X

Equipment: Type SA9* Ignition Coil

Applicant: Igniters Combustion Engineering Limited

Issue 0

Drawing No.	Sheets	Rev.	Date	Title
A2/1G/9441E	1 of 1	E	28 Mar 03	General Arrangement with long quick release connector
A4/1G/9442D	1 of 1	D	28 Mar 03	Label
A2/1G/9443D	1 of 1	D	28 Mar 03	General Arrangement - screw in
A4/1G/9568	1 of 1	-	15 Jan 03	General Arrangement with short quick release connector

Issue 1

Drawing No.	Sheets	Rev.	Date	Title
A2/1G/9441F	1 of 1	F	11 Nov 03	General Arrangement with long quick release connector
A2/1G/9443F	1 of 1	F	8 Dec 03	General Arrangement - screw in

Issue 2 - No new drawings were introduced.

Issue 3

Drawing No.	Sheets	Rev.	Date	Title
A4/1G/9567C	1 of 1	C	28 Apr 20	Label

Issue 4

Drawing	Sheets	Rev.	Date (Stamp)	Title
A2/1G/9441K	1 of 1	K	16 Feb 24	SA90 Encapsulated Coil Quick Release, assembly
A4/IG/9567H	1 of 1	H	16 Feb 24	SA90 IIC T6 Label
A2/1G/13121	1 of 1	-	28 Apr 22	SA90-Series E-Coil with 90 Deg. Power Supply, assembly

Project Number 80106201

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EU Declaration of Conformity

Page 1 of 1
Revision 1.7
25.10.2023

This Declaration of Conformity is issued under the sole responsibility of Igniters Combustion Engineering Ltd., the manufacturer.

Ignition systems manufactured by Igniters Combustion Engineering Ltd. comply with the applicable requirements of:

- Machinery Directive 2006/42/EU,
- Low Voltage Directive 2014/35/EU, and
- EMC Directive 2014/30/EU.

The following standards have been referenced:

- BS EN 746-1:1997+A1:2009, and
- BS EN 746-2:2022

The CU7/3B and CU7/4B Control Units have been tested by:

BSI
Holywell Park
Ashby Road
Loughborough
LE11 3AQ
Notified Body No. 0086

for compliance with the applicable clauses of EN 298:2022, as described in report 3914089.dated 07.08.2023.

Pressure Equipment Directive 2014/68/EU

Ignition systems manufactured by Igniters Combustion Engineering Ltd. have been designed to Sound Engineering Practice and are therefore not CE marked for compliance with the Pressure Equipment Directive 2014/68/EU.

ATEX Directive 2014/34/EU

Igniters Combustion Engineering Ltd. declare that the products listed below conform with the relevant provisions of Directive 2014/34/EU of 26th February 2014.

Products

- Encapsulated coils type SA9* and pilot torch connections
- HT Ignition Lead type SA87 and pilot torch connections

Notified Body

CSA Group Netherlands B.V.
Utrechtseweg 310,
6812 AR, Arnhem,
Netherlands

Identification Number: 2813

Conformity has been demonstrated with reference to the following documentation:

- EC type examination certificate Sira 02ATEX5301X.
- EC type examination certificate Sira 02ATEX3390X.
- Quality Assurance Notification Sira 02ATEXM197.

Compliance with the Essential Health and Safety Requirements has been assessed by reference to the following standards:

- EN 1127-1:2019.

Richard English,
Managing Director
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Figure 1 Coil internal circuit.

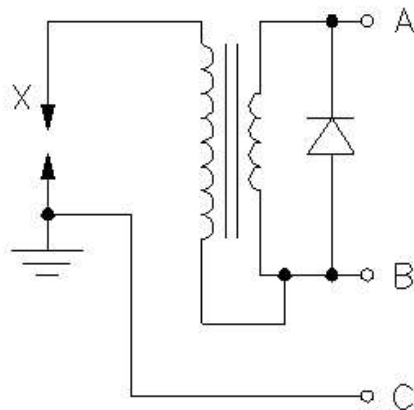


Table 1 Core Identification Cross Reference

Core Identification	Encapsulated Coil Terminations (see Figure 1)		
	A	B	C
	Brown	Blue	Green /Yellow
	Brown	White	Green
	Red	Blue	Yellow
	1	2	3
	Brown	Grey	Black