



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: Sira 04ATEX1055X

4 Equipment: Gas Chromatograph Analyzer Model 700

5 Applicant: Daniel Europe Limited

6 Address: Logie Court  
Stirling University Innovation Park  
Stirling FK9 4NF  
Scotland

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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 confidential report number R53A11014A.

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 60079-0:2004

EN 60079-1:2004

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 EC 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

EEx d IIC T4 Tamb = 60°C

D R Stubbings BA MIEE  
Certification Manager

Project Number 53A11014  
Date 1 September 2004  
C. Index 14

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## SCHEDULE

### EC TYPE-EXAMINATION CERTIFICATE

Sira 04ATEX1055X

#### 13 DESCRIPTION OF EQUIPMENT

The Analyzer Model 700 is a gas chromatograph (GC) type analyser that comprises of the following main parts, an Analyser Assembly, a Controller Assembly and an Enclosure Connection.

##### **Analyser Assembly**

The Analyser Assembly (upper enclosure) consists of a GUB 5 flameproof enclosure with a domed cover, manufactured by EGS-Curlee of Houston Texas. This enclosure contains the columns, detectors, pre-amplifier, pneumatically operated stream switching valves and solenoids that make up the analyser assembly.

Process pipes enter the analyser assembly through a purpose designed tube entry that is screwed into an M32 X 1.5 ISO threaded entry tapped in the enclosure wall. This device incorporated a tapered, cylindrical flamepath. The interface between the process pipes and the tube entries form a cylindrical flamepath.

##### **Controller Assembly**

The controller assembly (lower enclosure) consists of a GUB 5 flameproof enclosure manufactured by EGS-Curlee, modified to give additional depth. This enclosure contains electronics and ports for signal processing, data storage, personal computer (PC) interface and telecommunications. This allows the user to control the GC functions via a PC and appropriate software. Cable entry to the lower enclosure is via two M32 X 1.5 tapped entries machined into the bottom side of the enclosure.

##### **Enclosure Connection**

The upper and lower enclosures are physically connected by a purpose machined aluminium conduit fitting, the conduit fitting consists of two parts, a straight conduit pipe with an M32 X 1.5 male thread machined at each end and a connector nut with a M40 X 1.5 male thread and a through tapped M32 X 1.5 female thread. To connect the enclosures, the straight conduit is screwed into an M32 X 1.5 entry machined into the upper wall of the lower enclosure. The upper enclosure has an M40 X 1.5 entry machined into the base, this entry is placed over the upper thread of the straight conduit and the connector nut is simultaneously screwed into the upper enclosure base and onto the straight conduit upper thread. Flamepaths are formed by the machined threads. The cables connecting the upper and lower chambers pass through the conduit and are sealed by epoxy putty tightly packed through the entire length of the conduit. The putty is keyed to a 3/4" - 14 NPS female thread machined in the conduit.

##### **General**

The Analyser Model 700 comprises all of the above equipment, electrically connected and mounted on a metal framework along with non-electrical components. The analyser can be protected from the weather by an optional purpose built shade.

Date 1 September 2004

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### **Sira Certification Service**

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**SCHEDULE**

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**14 DESCRIPTIVE DOCUMENTS**

14.1 Drawing	Sheet	Rev.	Date	Description
DUK 7204/002/1	1 of 1	A	21 Jul 04	Outline & Dimensional Pole, Wall & Floor Mounting Units Model 700 GC
7204/003/1	1 of 1	A	15 Jul 04	Enclosure Entry Details Model 700GC
DUK 7204/004/1	1 of 2	A	21 Jul 04	Enclosure Lower Drilling Detail Model 700 GC
DUK 7204/004/1	2 of 2	A	21 Jul 04	SW-11119A Cover Glass Window 6-1/2" Viewing Details
DUK 7204/005/1	1 of 2	A	21 Jul 04	Drilling Details Upper Enclosure Model 700GC
DUK 7204/005/1	2 of 2	A	19 Jul 04	Dome Cover Model 700GC
DUK 7204/006/1	1 of 1	A	21 Jul 04	Connecting Conduit Enclosures Model 700 GC
DUK 7204/006/1	2 of 2	A	21 Jul 04	Coupling Adapter Enclosure Model 700 GC
DUK 7204/007/1	1 of 2	A	21 Jul 04	Fitting Tube Adapter Enclosures Model 700 GC
DUK 7204/007/1	2 of 2	A	21 Jul 04	Fitting Tube Taper Enclosures Model 700 GC
DUK 7204/009/1	1 of 1	A	21 Jul 04	Unit Assembly Bottom Enclosure Model 700 GC
DUK 7204/010/1	1 of 1	A	21 Jul 04	Assembly Upper Box Model 700 GC
DUK 7204/011/1	1 of 2	A	21 Jul 04	Vent Tube Assembly Construction Details, 2 Carrier Model 700 GC
DUK 7204/011/1	2 of 2	A	21 Jul 04	Vent Tube Assembly Construction Details, 2 Carrier Model 700 GC
DUK7204/012/1	1 of 1	A	28 Jul 04	Connecting Conduit Enclosure Model 700 GC

14.2 Report number R53A11014A

**15 SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)

15.1 The maximum constructional gap ( $i_c$ ) is less than that required by Table 1 of IEC 60079-1:2004; therefore, as a result of any maintenance and/or repair, the following gaps shall be maintained:

Flamepath	Maximum Gap (mm)	Comment
Fitting tube adaptor/fitting tube taper	0.000	Taper fit
Fitting tube taper/tubes	0.132	Parallel fit

**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 report number R53A11014A.

**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 EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

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## EC TYPE-EXAMINATION CERTIFICATE VARIATION

**CERTIFICATE NUMBER** Sira 04ATEX1055X **Dated** 01 September 2004

**VARIATION NUMBER** 1 (ONE) **Dated** 03 December 2004

### VARIATION TO EQUIPMENT

To permit:

- 1 An alternative enclosure lid for the Controller Assembly (lower enclosure), which incorporates a glass window.

### DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
DUK 7204/004/1	1 of 3	0	-	Enclosure Lower Drilling Detail Model 700 GC
DUK 7204/004/1	2 of 3	0	20 Oct 04	Lower Enclosure Cover Model 700 GC
DUK 7204/004/1	3 of 3	0	20 Oct 04	SW-11119A Cover Glass Window 6-1/2" Viewing Details

### ADDITIONAL CONDITIONS OF CERTIFICATION

None

**D R Stubbings**  
Certification Manager

**File No** 51A12385

**Report No.** R51A12385A

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