



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 10ATEX5087X** Issue: **5**

4 Equipment: **Solenoid Valve Type 12310GEX G**

5 Applicant: **Excell Manufacturing Solutions, LLC**

6 Address: **9286 Mercantile Drive
Mentor
Ohio 44060
USA**

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 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 60079-0:2012

EN 60079-18:2015

EN 13463-1:2009

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 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

Ex mb IIC T3 Gb or Ex mb IIC T4 Gb

Ta = -50°C to +40°C

Project Number **NA**

C Ellaby
Deputy Certification Manager

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Sira Certification Service
Unit 6, Hawarden Industrial Park,
Hawarden, CH5 3US, United Kingdom



SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 10ATEX5087X
Issue 5

13 DESCRIPTION OF EQUIPMENT

The Type 12310GEX G Solenoid Assembly is intended to operate an associated actuator. It comprises a steel, cylindrical housing with two, 'press fit' end caps, this housing contains an encapsulated coil rated at either a nominal voltage of 12 V d.c. or 24 V d.c., the shaft of the associated actuator passes through the centre of the housing and coil. The coil is constructed from enamelled copper wire wound onto a plastic bobbin, a permanently connected power cable enters through the housing and external connections to the coil are made via this integral cable. A thermal switch and over-current fuse ensure that the limiting surface temperature of 150°C is not exceeded. The coil cavity is completely filled with a setting compound.

Variation 1 - This variation introduced the following changes:

- i. The replacement of the 12 Vdc coil with an alternative 24 Vdc coil and the inclusion of the valve assembly as part of the overall assembly was endorsed.
- ii. As a result of the above change an additional standard is listed at Section 9.

Variation 2 - This variation introduced the following changes:

- i. The introduction of a new alternative encapsulation material.
- ii. The inclusion of an alternative bobbin material made from Ryton R-4 02.

Variation 3 - This variation introduced the following changes:

- i. The introduction of a new, 24 Vdc rated coil, Coil Type 3. When this coil is fitted, the products are marked with a T4 temperature classification.
- ii. The addition of two plating options:
 - On the steel nut; Bright Zinc Plating with Clear Trivalent Chromate Treatment or Zinc-Nickel Plating per SAE AMS 2417G with Clear Trivalent Chromate Treatment.
 - On the coil body; Loctite Seal Zinc Plate Yellow or Zinc-Nickel plating per SAE AMS 2417G with Clear Trivalent Chromate Treatment.
- iii. The Applicant's name and address was changed:

From:	To:
PMFG LL	Excell Manufacturing Solutions, LLC
26981 Lakeland Blvd.	9286 Mercantile Drive
Cleveland	Mentor
Ohio 44132USA	Ohio 44060 USA

Variation 4 - This variation introduced the following changes:

- i. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2009 and EN 60079-18:2004 were replaced by EN 60079-0:2012 and EN 60079-18:2015.
- ii. The lower ambient temperature was reduced from -20°C to -50°C, the marking was amended accordingly.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

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Sira Certification Service

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14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	07 May 2010	R21783A/00	The release of the prime certificate.
1	12 May 2011	R24607A/00	The introduction of Variation 1.
2	07 September 2012	R26058A/00	The introduction of Variation 2.
3	04 February 2015	R70006654A	The introduction of Variation 3.
4	27 July 2015	R70030391A	The introduction of Variation 4.
5	30 September 2015	NA	The marking and change i in Variation 3 were amended to reflect the assessments detailed in report R70006654A. Since these amendments are based on an existing report, they are administrative and require no technical consideration.

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

15.1 The permanently connected power cable shall be terminated in a manner that is suitable for the environment where it is being used, if it is terminated in a hazardous area, appropriate explosion protection shall be provided. (Note: for Category 2 applications, the protective devices that are used shall be certified by a notified body.)

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 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.

17.3 The following routine tests are to be performed on each product manufactured:

- 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 Clause 9.1.
- An electric strength test of 500 Vrms, shall be applied between circuit and casing for at least 1 second as required by EN 60079-18 Clause 9.2. Alternatively 1.2 times this test voltage may be applied for at least 100 ms. No breakdown shall occur.

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Sira Certification Service

Unit 6, Hawarden Industrial Park,
Hawarden, CH5 3US, United Kingdom

Certificate Annexe



Certificate Number: Sira 10ATEX5075X
Equipment: Solenoid Valve Type 12310GEX
Applicant: Excell Manufacturing Solutions, LLC

Issue 0

Drawing No.	Sheets	Rev.	Date (Sira Stamp)	Title
12310GEX	1 of 1	4	06 May 10	Solenoids for Hydraulic Cartridges

Issue 1

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
12310GEX	1 of 1	11	20 Apr 11	Solenoids for Hydraulic Cartridges
12310GEX G LABEL	1 of 1	10	20 Apr 11	Label for Solenoids for Hydraulic Cartridges

Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
12310GEX	1 to 2	14	07 Sep 12	Solenoids for Hydraulic Cartridges

Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
12310GEX	1 to 3	16	30 Jan 2015	Solenoids Assemblies

Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
12310GEX	1 to 3	20	27 Jul 2015	Solenoid Assemblies

Issue 5 (No new drawings were introduced)

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