1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 01ATEX3025X** Issue: **16**

4 Equipment: **Traction Batteries Not Greater Than 153.6 KWh**

5 Applicant: **Hawker GmbH**

6 Address: Dieckstraβe 42
Hagen D-58089
Germany

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 IEC 60079-0:2018 EN IEC 60079-7:2015+A1:2018 EN 60079-31:2014

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
II 2 D
Ex eb IIC T6 Gb
Ex tb IIIC T80ºC Db

I M2
Ex eb I Mb

Signed: J A May

Title: Director of Operations

PRODUCTS
RvA C 652

Project Number 80095479

13 **DESCRIPTION OF EQUIPMENT**

The range of Traction Batteries with not greater than 153.6 KWh comprise fabricated mild steel containers in which a range of increased safety, lead-acid cells are arranged. The batteries are manufactured with a nominal voltage up to 400 V.

The containers utilise louvered and baffled ventilation slots in their sides, to prevent the evolution of explosive concentrations of hydrogen and oxygen within the containers internal free volume. A large number of different configurations and shapes may be manufactured, within the limits described on the manufacturer's specification drawings.

The type designation code is made up of the following:

- No of cells and battery type reference
- No of terminals (single or double post)
- Number of positive plates
- Cell type
- Capacity per positive plate

The minimum ventilation to capacity ratio of the battery containers are 2526 mm^2/kWh. One side of the enclosure may be closed off when installed, provided this does not exceed 27.8% of the available louver length.

The battery container is fitted with a suitably certified cable gland to protect the cable that is fitted between the battery and attached apparatus. Alternatively a rubber grommet and a suitably certified intermediate terminal box may be fitted.

There is also the option to fit a suitably certified increased safety enclosure with a flameproof socket to the side of the battery enclosure, located where the connecting cables exit the enclosure. The particular assembly that is fitted is not specifically identified as part of the battery certification.

Variation 1 (dated 15 October 2002) - This variation introduced the following changes:

i. The addition of alternative insulating coatings for the internal surfaces of the battery enclosure.
ii. The option to fit a suitably certified increased safety enclosure with a flameproof socket to the side of the battery enclosure, located where the connecting cables exit the enclosure. The particular assembly that is fitted is not specifically identified as part of the battery certification.
iii. The design of the cells utilised in the construction of the battery was modified.

Variation 2 (dated 3 April 2003) - This variation introduced the following changes:

i. The introduction of Apparatus Group I, Category M2 and EEx e I marking.
ii. The use of Evolution Type B and Evolution Type D cells was allowed.
iii. The use of battery crates with 9 cell and 20 cell layouts was allowed.

Variation 1 (dated 22 July 2005) - This variation introduced the following change:

i. The use of an alternative label.

Variation 2 (dated 14 October 2005) - This variation introduced the following changes:

i. The manufacturer's name was changed from Hawker France S.A. to Hawker S.A.R.L.
ii. The introduction of minor modifications to the certified drawings, none of which affect aspects of the product that are relevant to explosion safety.

Variation 3 (dated11 August 2006) - This variation introduced the following change:

i. The amendment of the notes on drawing number P24808 to correct errors in the content of the text.

Variation 4 (dated 6 August 2007 subsequently re-issued 19 September 2006) - This variation introduced the following changes:

i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments A1 to A2), EN 50019:2000 and EN 50281-1-1:1998, were replaced by EN 60079-0:2006, EN 60079-7:2007, EN 61241-0:2006 and EN 61241-1:2004, the markings in section 12 were updated accordingly.
ii. Minor modifications of the certified drawings were recognised, these are amendments are in-line with the new standards listed above and also correct typographical errors.
iii. Battery arrangements up to 400 V were allowed to be used.
iv. An additional warning label was introduced; this uses an alternative label material and fixing method.

Variation 5 (dated 26 September 2007) - This variation introduced the following change:

i. The addition of two alternative materials for cell enclosures and inside battery enclosure.

Variation 6 - This variation introduced the following change:

i. The removal of Cell Layout from the Type Designation Code.

Variation 7 - This variation introduced the following changes:

i. The recognition of minor drawing modifications; these amendments are administrative or involve changes to the design that do not affect the aspects of the product that are relevant to explosion safety.
ii. To allow a change in the product description to allow the capacity to be specified in kWh.
iii. Drawings SIRAATEX1, SIRAATEX4 P25127, P25128, P24807 and P24808 have been modified to include a wider range of cable cross sections.

Variation 8 - This variation introduced the following change:

i. The introduction of a new label drawing showing the brand name Oerlikon was recognised.

Variation 9 - This variation introduced the following change:

i. The introduction of the US Traction Batteries to the range, Type reference 'E***', these are rated up to 1240 Ah (6 hour rate) 120 V with a maximum charge of 158 A and a maximum discharge of 405 A. The Type E*** US Traction Batteries have the following coding:

I M2
Ex e I

Variation 10 - This variation introduced the following change:

i. Recognition of the company name and address change:

From:	To:
Enersys S.A.R.L. ZI Est rue A Fleming 62033 Arras France	Enersys s.r.o. Nádražní 555 26724 Hostomice pod Brdy Czech Republic

ii. Removal of the compliance standards and inclusion of the company website address (as applicable), to the labels detailed on the drawings.

Variation 11 - This variation introduced the following change:

i. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, EN 60079-0:2006, EN 60079-7:2007, EN 61241-0: 2006 and EN 61241-1:2004 were replaced by EN IEC 60079-0:2018, EN IEC 60079-7:2015+A1:2018 and EN 60079-31:2014.; the markings were updated accordingly to recognise the new standards and a Specific Condition was introduced.

ii. The Certificate holders name and address was changed:

From:	To:
Enersys s.r.o. Nádražní 555 26724 Hostomiće pod Brdy Czech Republic	Hawker GmbH Dieckstraβe 42 Hagen D-58089 Germany

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated CSA Group Reports and Certificate History

Issue	Date	Report number	Comment
0	1 November 2001	R53A7212B	The release of the prime certificate in the name of Hawker GmbH, Dieckstrasse 42, D-58089 Hagen, Germany.
1	15 October 2002	R53A9083A	The introduction of Variation 1.
2	3 April 2003	R53A9706B	The introduction of Variation 2.
3	6 July 2004	R53A11442A	The re-issue of the prime certificate in the name of Hawker France SA, ZI Est, Rue Alexander Fleming, 62033 Arras, France to introduce the changes described in report number R53A11442A and to orporate variation 1 dated 15 October 2002 and variation 2 dated 3 April 2003.

SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE **Sira 01ATEX3025X**
Issue 16

Issue	Date	Report number	Comment
4	22 July 2005	R51A13744A	The introduction of Variation 1.
5	14 October 2005	R51A13711A	The introduction of Variation 2.
6	11 August 2006	R51A15249B	The introduction of Variation 3 subsequently re-issued 19 September 2006 to permit report number R51A15249B to replace report number R51A15249A.
7	6 August 2007	R51A16168A	This Issue covers the following changes: All previously issued certification was rationalised into a single certificate, Issue 7, Issues 0 to 6 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format. The introduction of Variation 4.
8	26 September 2007	R51A17275A	The introduction of Variation 5.
9	20 December 2007	R52A17587A	To recognise the change of Applicant's name from Hawker S.A.R.L. To Enersys S.A.R.L. The introduction of Variation 6.
10	11 February 2010	R19846A/00	The introduction of Variation 7.
11	18 November 2010	R23702A/00	The introduction of Variation 8.
12	20 June 2013	R29132A/00	The introduction of Variation 9.
13	12 March 2014	R29132A/01	Issued to allow report R29132A/00 to be replaced with R29132A/01
14	10 April 2017	R70073976A	This Issue covers the following changes: • EC Type-Examination Certificate in accordance with 94/9/EC updated to EU Type-Examination Certificate in accordance with Directive 2014/34/EU. (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.) • The introduction of Variation 10
15	15 October 2019	0954	Transfer of certificate Sira 01ATEX3025 from Sira Certification Service to CSA Group Netherlands B.V.
16	31 March 2022	R80095478A	The introduction of Variation 11, as a result of the assessment, Specific Conditions of Use were introduced and therefore an 'X' suffix was added to the certificate number.

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

15.1 Batteries shall not be charged in a hazardous area.

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.

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 Each battery shall be subjected to a routine insulation test in accordance with EN 60079-7:2007 clause 6.6.2. The insulation resistance shall be at least 1 MΩ between the live parts and the battery container.

17.4 The US Traction Batteries container may utilise a paint coating, although the maximum thickness of the layer of paint shall be 2 mm.

Certificate Annexe

Certificate Number: **Sira 01ATEX3025X**

Equipment: **Traction Batteries Not Greater Than 153.6 KWh**

Applicant: **Hawker GmbH**

Issues 0 to 2

The drawings associated with these Issues were replaced by those listed in Issue 3.

Issue 3

Drawing	Sheets	Rev.	Date (Stamp)	Title
SIRAATEX1	1 of 1	4	28 May 04	158 mm Type B Lead Acid Motive Power Cells
SIRAATEX4	1 of 1	4	28 May 04	198 mm Type D Lead Acid Motive Power Cells
P25127	1 of 1	5	28 May 04	158 mm Gelled Type B Lead Acid Motive Power Cells
P25128	1 of 1	5	28 May 04	198 mm Gelled Type D Lead Acid Motive Power Cells
P24808	1 of 1	4	28 May 04	Zone 1 Battery with 89 mm Louver Crate
P25326	1 of 4	2	28 May 04	'France' Manufactured Parts Labels
P25326	2 of 4	2	28 May 04	'Germany' Manufactured Parts Labels
P25326	3 of 4	2	28 May 04	'Poland' Manufactured Parts Labels
P25326	4 of 4	2	28 May 04	'Czech Republic' Manufactured Parts Labels

Issue 4

Drawing	Sheets	Rev.	Date (Stamp)	Title
P25473	1 of 1	1	13 Jul 05	Cells Labels

Issue 5

Drawing	Sheets	Rev.	Date (Stamp)	Title
SIRAATEX1	1 of 1	5	27 Jun 05	158 mm Type B Lead Acid Motive Power Cells
P25127	1 of 1	6	27 Jun 05	158 mm Gelled Type B Lead Acid Motive Power Cells
SIRAATEX4	1 of 1	5	27 Jun 05	198 mm Type D Lead Acid Motive Power Cells
P25128	1 of 1	6	27 Jun 05	198 mm Gelled Type D Lead Acid Motive Power Cells
P24808	1 of 1	5	27 Jun 05	Zone 1 Battery with 89 mm Louver Crate
P25326	1 of 4	3	27 Jun 05	'France' Manufactured Parts Labels
P25326	2 of 4	3	27 Jun 05	'Germany' Manufactured Parts Labels
P25326	3 of 4	3	27 Jun 05	'Poland' Manufactured Parts Labels
P25326	4 of 4	3	27 Jun 05	'Czech Republic' Manufactured Parts Labels

Issue 6

Drawing	Sheets	Rev.	Date (Stamp)	Title
P24808	1 of 1	6	08 Aug 06	Zone 1 Battery with 89 mm Louver Crate

Issue 7

Drawing	Sheets	Rev.	Date (Stamp)	Title
SIRAATEX1	1 of 1	9	25 Jul 07	Acid Motive Power Cells Type B
SIRAATEX4	1 of 1	8	25 Jul 07	Acid Motive Power Cells Type D
P25127	1 of 1	9	25 Jul 07	Lead Acid Motive Power Cells Type B
P25128	1 of 1	9	25 Jul 07	Lead Acid Motive Power Cells Type D
P24808	1 of 1	9	25 Jul 07	Batteries Not Greater Than 153.6 Kw/h
P25326	1 of 4	5	25 Jul 07	Cell/Battery Labels
P25326	2 of 4	5	25 Jul 07	Cell/Battery Labels
P25326	3 of 4	6	25 Jul 07	Cell/Battery Labels
P25326	4 of 4	5	25 Jul 07	Cell/Battery Labels

Certificate Annexe

Certificate Number: **Sira 01ATEX3025X**

Equipment: **Traction Batteries Not Greater Than 153.6 KWh**

Applicant: **Hawker GmbH**

Drawing	Sheets	Rev.	Date (Stamp)	Title
P25473	1 of 1	3	25 Jul 07	Cell/Battery Labels

Issue 8

Drawing	Sheets	Rev.	Date (Stamp)	Title
SIRAATEX1	1 of 1	10	26 Sept 07	Acid Motive Power Cells Type B
SIRAATEX4	1 of 1	9	26 Sept 07	Acid Motive Power Cells Type D
P25127	1 of 1	9	26 Sept 07	Lead Acid Motive Power Cells Type B
P25128	1 of 1	10	26 Sept 07	Lead Acid Motive Power Cells Type D

Issue 9

Drawing	Sheets	Rev.	Date (Stamp)	Title
SIRAATEX1	1 of 1	13	14 Feb 08	Acid Motive Power Cells Type B
SIRAATEX4	1 of 1	12	14 Feb 08	Acid Motive Power Cells Type D
P25127	1 of 1	13	14 Feb 08	Lead Acid Motive Power Cells Type B
P25128	1 of 1	13	14 Feb 08	Lead Acid Motive Power Cells Type D
P24808	1 of 1	10	14 Feb 08	Zone 1 Battery with 89 mm Louver Crate

Issue 10

Drawing	Sheets	Rev.	Date (Stamp)	Title
SIRAATEX1	1 of 1	15	18 Jan 10	Acid Motive Power Cells Type B
SIRAATEX4	1 of 1	14	18 Jan 10	Acid Motive Power Cells Type D
P24808	1 of 1	11	18 Jan 10	Batteries Not Greater Than 153.6 Kw/h
P25127	1 of 1	14	18 Jan 10	Lead Acid Motive Power Cells Type B
P25128	1 of 1	14	18 Jan 10	Lead Acid Motive Power Cells Type D
P25326	1 of 4	7	18 Jan 10	'France' Manufactured Parts Labels
P25326	2 of 4	7	18 Jan 10	'Germany' Manufactured Parts Labels
P25326	3 of 4	8	18 Jan 10	'Poland' Manufactured Parts Labels
P25326	4 of 4	7	18 Jan 10	'Czech Republic' Manufactured Parts Labels
P25473	1 of 1	5	18 Jan 10	Battery Labels

Issue 11

Drawing	Sheets	Rev.	Date (Stamp)	Title
P26414	1 of 1	1	17 Nov 2010	Cell Labels

Issue 12

Drawing	Sheets	Rev.	Date (Stamp)	Title
103000	1 of 1	D	12 Jun 13	Cell outline drawing for ATEX Certification
P24808	1 of 1	12	12 Jun 13	Zone 1 battery with 89mm louver crate. Batteries not greater than 153.6 kWh
480-0899-313	1 of 1	A	12 Jun 13	EX Enersys M2

Certificate Annexe

Certificate Number: **Sira 01ATEX3025X**

Equipment: **Traction Batteries Not Greater Than 153.6 KWh**

Applicant: **Hawker GmbH**

Issue 13

Drawing	Sheets	Rev.	Date (Stamp)	Title
103000	1 of 1	D	12 Jun 13	Cell outline drawing for ATEX Certification
P24808	1 of 1	12	28 Jan 14	Zone 1 battery with 89mm louver crate. Batteries not greater than 153.6 kWh
480-0899-313	1 of 1	A	12 Jun 13	EX Enersys M2
440407	1 to 2	C	21 Nov 13	Batteries, 120 –Cell, 17 Plate IN Two Steel trays with Covers, ATEX Approved

Issue 14

Drawing	Sheets	Rev.	Date (Stamp)	Title
P25326	1 of 4	8	18 Jan 17	'France' Manufactured Parts Labels
P25326	2 of 4	8	18 Jan 17	'Germany' Manufactured Parts Labels
P25326	3 of 4	9	18 Jan 17	'Poland' Manufactured Parts Labels
P25326	4 of 4	8	18 Jan 17	'Czech Republic' Manufactured Parts Labels
P25473	1 of 1	6	18 Jan 17	Battery Labels
P26414	1 of 1	2	18 Jan 17	Cell Labels

Issue 15. No new drawings were introduced

Issue 16

Drawing	Sheets	Rev.	Date (Stamp)	Title
P24808	1 of 1	13	25 Feb 22	Zone 1 battery with 89mm louver crate. Batteries not greater than 153.6 kWh
P25326	1 of 4	10	25 Feb 22	Label / Arras plant
P25326	2 of 4	10	25 Feb 22	Label / Hagen plant
P25326	3 of 4	10	25 Feb 22	Label / Bielsko plant
P25326	4 of 4	10	25 Feb 22	Label / Hostomice plant