UNITED KINGDOM CONFORMITY ASSESSMENT

1 # UK TYPE EXAMINATION CERTIFICATE

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres

UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Certificate Number: **CSAE 23UKEX1000X** Issue: **0**

4 Product: **Traction Batteries up to 68.8 kWh**

5 Manufacturer: **Hawker GmbH**

6 Address: Dieckstraβe 42
Hagen D-58089
Germany

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, Approved Body number 0518, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 IEC 60079-0:2018 EN IEC 60079-7:2015/A1:2018 EN 60079-31:2014

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 UK 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 be in accordance with Regulation 41 and include the following:

II 2G Ex eb IIC T6 Gb
II 2D Ex tb IIIC T80°C Db

I M2 Ex eb I Mb

Name: M Halliwell
Title: Director of Operations

SCHEDULE

UK TYPE EXAMINATION CERTIFICATE **CSAE 23UKEX1000X**
Issue 0

13 **DESCRIPTION OF PRODUCT**

The range of Traction Batteries comprise fabricated mild steel containers in which a range of increased safety, lead-acid cells are arranged. The batteries are manufactured with a power up to 68.8 kWh and a nominal voltage up to 400 V.

The containers utilise louvered and baffled ventilation slots to prevent the evolution of explosive concentrations of hydrogen and oxygen within the container's 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 ratios of the battery containers are:

- Battery container top vents = 850 mm^2/kWh
- Battery container side vents = 1320 mm^2/kWh

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.

Incorporated amendments

The product description includes the following applicable amendments from the previous supporting assessments. Only amendments directly applicable to UKCA certification have been included in this list. The amendments are numbered to include a reference to the variation at which these were introduced.

Amendment 1

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.

Amendment 2

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.

Amendment 3

i. Battery arrangements up to 400 V were allowed to be used.
ii. An additional warning label was introduced; this uses an alternative label material and fixing method.

Amendment 4

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

Amendment 5

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

Amendment 6

i. Drawings SIRAATEX1, SIRAATEX4 P25127, P25128, P24807 and P24808 have been modified to include a wider range of cable cross sections.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	19 July 2023	R80151781A	The release of the prime certificate.

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

15.1 The battery shall not be charged in a hazardous area.

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.

17.2 The manufacturer shall include the cell marking details in the instruction leaflet.

17.3 Each battery shall be subjected to a routine insulation test in accordance with EN IEC 60079-7: 2015/A1:2018 clause 6.6.2. The insulation resistance shall be at least 1 MΩ between the liver parts and the battery container.

Certificate Annexe

Certificate Number: **CSAE 23UKEX1000X**

Product: **Traction Batteries up to 68.8 kWh**

Manufacturer: **Hawker GmbH**

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
P24807	1 of 1	12	03 Mar 22	Zone 1 battery with 42mm louver crate batteries up to 68,8kWh
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
P25326	1 of 4	11	08 Mar 23	Label / Arras plant
P25326	2 of 4	11	08 Mar 23	Label / Hagan plant
P25326	3 of 4	11	08 Mar 23	Label / Bielsko plant
P25326	4 of 4	11	08 Mar 23	Label / Hostomice plant
P25127	1 of 1	15	28 Apr 23	IEC 254-2 Serie E Range of 158mm Gelled Lead Acid Motive Power Cells Type B
P25128	1 of 1	15	08 Mar 23	IEC 254-2 Serie L Range of 190mm Gelled Lead Acid Motive Power Cells Type D
480-0899-402	1 of 1	E	08 Mar 23	ATEX Label, Ex Nexsys IIB/IIIB
480-0899-403	1 of 1	E	08 Mar 23	ATEX Label, Ex Nexsys IIC/IIIC