1 # TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 Type Examination Certificate Number: **Baseefa13ATEX0243X – Issue 3**

3.1 In accordance with Article 41 of Directive 2014/34/EU, 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. Supplementary Certificates to such Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016**.**

4 Product: **A Range of Cage Rotor Induction Machines of frame size 280-2000, rated up to 25MW**

5 Manufacturer: **TDC Parsons Peebles Ltd**

6 Address: **Wood Road, Rosyth Royal Dockyard, Dunfermline, Fife, Scotland, KY11 2EA United Kingdom**

7 This re-issued certificate extends Type Examination Certificate No. Baseefa13ATEX0243X to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products of Category 3 intended for use in potentially explosive atmospheres given in Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

8.1 The original certificate was issued by SGS Baseefa Ltd. It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy. The original certificate number is retained.

The examination and test results are recorded in confidential Report No. **See certificate history.**

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**

except in respect of those requirements listed at item 18 of the Schedule.

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

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the product shall include the following:

Ex II 3G Ex ec II* T3 Gc (T_{amb} -20°C to +60°C) (For * see schedule)

SGS Fimko Oy Customer Reference No. **0805** Project File No. **23/0536**

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13 # Schedule

14 ## Certificate Number Baseefa13ATEX0243X – Issue 3

15 Description of Product

A Range of cage rotor induction machines of frame sizes 280-2000, rated up to 25MW in accordance with IEC 60034-1 when connected to a fixed frequency 3 phase 50/60Hz, up to 13.8kV supply. The machines comprise a fabricated steel machine enclosure employing a closed internal cooling air circuit, which is cooled using a top mounted CACA or CACW heat exchanger in a closed circuit. Alternative arrangements may be employed, such as assembling the stator laminations directly into a tubular barrel with air-cooled external ribs (IC4X, TEFV), Slow Speed with alternative cooling airflow and Paricon unit-construction machines with shaft heights 315 to 2000, and Integral Tube Cooled IC5xx with shaft heights 500-2000.

Internal fans may be attached to the shaft at the drive end or both ends of the rotor for the circulation of the internal air around the windings, and through the heat exchanger or ventilation unit. An external fan may be provided at the NDE, or auxiliary motor driven fans may be provided for circulating the external cooling air through or over the heat exchanger or ventilation unit.

The stator winding comprises a core pack built and compressed within stator core plates and into which the stator coils are fitted. The core pack may be built directly into the stator frame and wound; alternatively the wound stator pack is inserted into the frame then located by welding or bolted and dowelled to the machine baseplate.

The rotor is supported by end shield or pedestal mounted insulated sleeve, tilting pad or rolling element bearings, which may be provided with temperature monitoring and vibration probes and switches.

Bearing cooling may be provided by circulation of lubricating oil (provided separately from any sealing oil system if used on adjacent equipment such as a compressor or expander), or cooling water through a heat exchanger in the bearing oil bath.

The machine enclosure joints have self-adhesive silicone gaskets fixed to one surface, and the shaft may be provided with rubbing or non-rubbing seals. When the enclosure joint is formed between close-fitting machined faces, a sealant film may be used.

Coolant flows, temperatures and pressures, and shaft speeds may be monitored by probes or assemblies, suitably certified where appropriate or simple apparatus used in intrinsically safe circuitry.

Gas detection probes may be fitted, arranged to sample the atmosphere within the enclosure through a suitable port tube, provided with an enclosure to maintain IP54 minimum, and to protect the sensing element as necessary from deterioration due to high internal air temperatures or airflows.

Enclosure pre-start purging air connection facilities are provided; comprising tapped & plugged inlets at the base and side of the main machine enclosure, with a single blanked-off purge outlet flange at the top of the enclosure.

MAIN AND NEUTRAL TERMINAL BOXES

The range of machines are provided with the Type 75B air insulated terminal box, which consists of a fabricated steel box with a cover plate secured by bolts. The joint to the machine frame, terminal neck and removable covers, are sealed to provide an ingress protection of at least IP54, by means of 1.5mm minimum thickness EPDM or Silicone gaskets, fixed to one surface. The terminal boxes house the main connections, and are designed to carry up to three main incoming cables per phase and a removable neutral point connection.

A foil bursting diaphragm of aluminium and/or tin is provided on the side of the box and is protected by a metal cover, and the interior of the boxes may be fitted with surge capacitors or surge arrestors.

Alternative main and neutral terminal box designs are available to match existing termination arrangements for replacement machines.

AUXILIARY TERMINAL BOXES

The range of machines may be provided with auxiliary terminal boxes which provide connection facilities for the heaters, level regulator, stator winding RTDs, and bearing & internal air probes etc.

All boxes are fabricated from steel or stainless steel, and are sealed by self-adhesive Silicone gaskets fixed to one joint face, to provide an ingress protection of at least IP54.

The following certified auxiliary terminal boxes may also be provided:

Item	Manufacturer	Certificate Number	Code
WDU & WPE terminal	Weidmuller	DEMKO 14 ATEX 1338U	Ex eb IIC Gb

AUXILIARIES

The following auxiliary devices may be provided:

Item	Manufacturer	Certificate Number	Code
Seismoprobe Velocity Transducer 9200 & 74712, 3300 Series Vibration Probe	Bently-Nevada	Sira18ATEX4075X CSANe21ATEX1013X	Ex ia IIC T6 Ga Ex nA IIC T6 Gc Ex ec IIC T6 Gc Ex ia IIC T6 Gc
3300 Series Proximitor	Bently-Nevada	Sira 16ATEX2299X Sira 16ATEX4300X	Ex ia IIC T4 Ga Ex ec IIC T4 Gc or Ex nA IIC T4 Gc
Type 55 Connection Head/Junction Box	H&B Sensors Ltd	CML 20ATEX1109X	Ex db IIC T6 Gb Ex tb IIIC T85°C Db
Type 389 Heaters	Eltron Chromalox	ITS02ATEX3049U	Ex eb IIC Gb

STATOR INSULATION

The machines may be supplied with various stator insulation systems, each with its own distinct reference number as listed below:

- 600263-1
- 600273-2
- 600273-1
- 600238-6
- 600238-7
- 600341-1

Each stator insulation system has been tested to determine its maximum permitted voltage rating in a Group IIC environment. Several of the insulation systems were also tested specifically for other Group II subdivisions, and may be marked as suitable for use in Group IIB or IIA environments in accordance with the table below.

	Maximum Voltage and Gas Group					
*	Stator Insulation System Reference					
	600263-1	600273-2	600273-1	600238-6	600238-7	600341-1
IIC	4.2kV	7kV	9.5kV	11kV	11kV	9kV
IIB	4.2kV	7kV	9.5kV	11kV	12kV	9kV
IIA	4.2kV	7kV	9.5kV	11kV	13.8kV	13.8kV

16 Report Number

See certificate history.

17 Specific Conditions of Use

1. The anti-condensation heaters must be interlocked to prevent operation whilst the machine is energised.
2. This equipment must only be cleaned using a damp cloth to prevent electro-static charging. See instructions for further information.
3. Where auxiliary equipment is fitted that is not covered by this certificate the installer and/or user, as appropriate, must ensure that it is suitable for the conditions of use and that it does not invalidate this certification.
4. The cable entry devices used on the terminal arrangements shall be suitably certified and maintain the IP rating of the enclosure. Unused cable entries must be filled with suitably certified stopping plugs.
5. The current transformers must not be allowed to become open-circuited whilst the machine is in operation.
6. Any conditions or limitations stated on the Certificate documents of a component fitted to the machine, which affects the safe use of the machine, shall apply. This information shall be supplied by the machine manufacturer.
7. Where the machines are supplied with insulated bearings, the user is responsible for checking the effectiveness of such insulation at appropriate intervals; e.g. by the use of a 100V insulation tester and by visual inspection to ensure that no unpainted/unearthed metal can be shorted to earth.
8. Machines rated greater than 100kW and being other than a duty type S1 or S2 must be assessed for possible air gap sparking by performing a risk assessment in accordance with Table 5 of IEC 60079-7. If the total sum of the factors is greater than 6 then the machine design must allow measures such as pre-start purging to be employed to ensure the machine enclosure is free of gas prior to starting.

   All machines manufactured to this certificate will be duty type S1 or S2 only, unless specifically confirmed as otherwise by the manufacturer and the certificate. In the case of machines being other than a duty type S1 or S2, these must be fully tested by the manufacturer to ensure the maximum surface temperature does not exceed the rated T class.
9. When the Type PDC-85 coil to BAS00ATEX2051X is fitted it is to be protected against impact, earthed and the integral cable is to be suitably terminated.
10. All supply and control equipment associated with temperature measurement devices is to be installed and used only in the safe area.
11. If required to operate in an adequately clean indoor area, the “weather protected” ventilation unit can be replaced by simple inlet and outlet louvred openings for airflow (not facing upward), IP22 minimum. Opening may be fitted with flanges for air ducting in or out to control recirculation. As motor design does not incorporate any heat exchanger, with the external atmosphere being used for direct cooling of the motor parts, it is necessary to maintain airflows by removing any build-up of dust or the clogging of filters producing increased temperatures, and should visible corrosion be apparent during inspection, surface finishes should be promptly renewed to avoid further deterioration.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	Protection against other hazards e.g. LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
RA28324	1 of 1	D	15/09/14	Auxiliaries & Heater Arrangement
RA28326	1 of 1	E	26-02-24	Main Terminal Box – Elastimold Connectors
RA28327	1 of 1	A	27-03-25	Main Terminal Box
RA28638	1 of 1	A	26-9-23	Air-Air Circumferential Heat Exchanger Integral Tube Machines (IC5xx)
RA28693	1 of 1	--	26-10-23	Baseplate Mounted & ICO1 Ventilated Machines
RA28694	1 of 1	A	26-9-23	Vertical Shaft Mounted Cage Induction Machines
RA28695	1 of 1	B	27-3-25	Main Terminal Box Alternative
RA28696	1 of 1	A	26-9-23	Typical Sectional Arrangements Slow Speed And Paricon Machines
RA28795	1 of 1	A	28-11-24	Typical Nameplate Details
RD29252	1 of 1	A	17-12-24	Range updating “Ex nA” to “Ex ec” summery
RE29005	1 of 1	A	27-02-24	Self-Adhesive Gasket Material For Ex ec Certification Purposes
RC29490	1 of 1	E	30-04-2025	Range updating “Ex nA” to “Ex ec” Equipment & Components

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
RA28321	1 of 1	B	04/06/14	Sigma - General Assembly
RA28322	1 of 1	A	14/04/14	Sigma - Frame Assembly
RA28323	1 of 1	A	11/04/14	Sigma – Alternate Cooling Arrangements
RA28329	1 of 1	B	04/06/14	Barrel Cooled Machine – General Assembly
RA28330	1 of 1	B	04/06/14	Barrel Cooled Machine – Vertical Arrangement
RA28462	1 of 1	A	04/06/14	Air Insulated Main Terminal Box
RA28473	1 of 1	-	19/06/14	Main & Neutral Terminal Box
RC28787	1 of 1	-	23.10.14	Alternative Neutral Terminal Box
RC28788	1 of 1	C	13.03.18	Alternative Terminal Box
RD28512	1 of 1	A	14/04/14	Material Specifications
RD28615	1 of 1	-	23.10.14	Alternative heater arrangement – Barrel Machines

The above drawings are common to IECEx BAS 13.0125X

20 Certificate History

Certificate No.	Date	Comments
Baseefa13ATEX0243X	19 June 2014	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0:2012 and EN 60079-15:2010 is documented in Test Report No. GB/BAS/ExTR13.0277/00.
Baseefa13ATEX0243X-1	12 November 2015	To permit an increase in ambient temperature from +40°C to +60°C. SGS Baseefa certification report GB/BAS/ExTR15.0323/00.
Baseefa13ATEX0243X-2	29 March 2018	To permit an alternative anti-condensation heater securing arrangement, an alternative neutral terminal box, and an alternative auxiliary terminal box. SGS Baseefa certification report GB/BAS/15.0101/00.
Baseefa13ATEX0243X Issue 3	28 May 2025	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN IEC 60079-0:2018 & EN IEC 60079-7:2015+A1:2018 including the revision of the equipment marking Ex nA to Ex ec in accordance with these standards and other variation listed below: -To update the company name and address -To add new terminal box - To include new machine configurations (PARICON included). - To add Weidmuller WDU and WPE terminal blocks. - To update the list of incorporated certified devices (remove, replace, or add as necessary) SGS certification report GB/SGS/ExTR24.0009/00.
For drawings applicable to each issue, see original of that issue.		