**INTERNATIONAL ELECTROTECHNICAL COMMISSION SYSTEM FOR
CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE
IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)**

## Title: Amendment to IECEx 03-5 FAR, Edition 1.0

To: Members of the IECEx Management Committee, ExMC

**Introduction**

This document contains a proposal for IECEx 03-5 FAR, Edition 2.0, as endorsed by the 2021 ExSFC Meeting.

This is now submitted for approval during the 2021 ExMC meeting for publication as Edition 2.0.

**IECEx Secretary**

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| --- | --- |
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**INTERNATIONAL ELECTROTECHNICAL COMMISSION SCHEME FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SCHEME)**

**IECEx Certified Service Facilities Scheme**

**Part 03-5 – Repair, overhaul** **and reclamation of Ex equipment**

Combined IECEx Facility Assessment Report (FAR) Form

and IECEx Non Conformity Report (NCR) Form

Edition 2.0

This Document provides a standardised Report format for the recording of outcomes of assessment and audits of an Ex Service Facility involved in the **Repair, overhaul** **and reclamation of Ex equipment** for compliance with the latest versions of :

* IEC 60079-19
* IECEx Operational Document OD 313 - 5
* IECEx Operational Document OD 314 – 5
* IECEx Operational Document OD 315 – 5
* IECEx Operational Document OD 316 – 5

This document replaces and combines the content of the previously issued

IECEx Facility Assessment Report FAR 60079-19, Ed. 1

as related to the activities of Repair, overhaul and reclamation of Ex equipment.

The NCR section is primarily applicable to initial assessment and special assessment audits of Ex Service Facilities. The purpose of this form is to act as a recording mechanism for an IECEx Certification Body (ExCB) when assessing whether an Ex Service Facility’s management system and procedures comply with IEC 60079-19.

While primarily intended for use by IECEx Certification Bodies (ExCBs) when processing applications from **Repair, overhaul and reclamation of Ex equipment** for certification as an IECEx Certified Service Facility, this NCR section may also be used by **Repair, overhaul and reclamation of Ex equipment** when conducting internal assessments for compliance to IEC 60079-19.

The FAR section is applicable to initial assessment, surveillance, follow-up assessments and special assessment audits of Ex Service Facilities.

While primarily intended for use by ExCBs, the FAR section may also be used by **Repair, overhaul and reclamation of Ex equipment** when conducting internal assessments for compliance with IECEx Scheme requirements.

**Document History**

|  |  |
| --- | --- |
| Date | Summary |
| 2013 082021 05 | Original Issue (Version 1)Amended Issue (Edition 2.0) |

**Applicant:**

…

…

…

…

**Service facility (SF) location covered by this assessment:**

…

…

…

…

**Percentage of business related to Ex equipment (Optional Additional information):**

*<list the % of the total business that relates to repair, overhaul or reclamation of Ex equipment>*

**No. of employees:**

A total of … employees on site, … involved in repair and overhaul of Ex equipment.

**Responsible person(s):**

*<list the Responsible Persons, according to IEC 60079-19,that have been assessed. This list must be reviewed each surveillance audit>*

**Operatives:**

*<list the Operatives, according to IEC 60079-19, that have been assessed. This list must be reviewed each surveillance audit>*

**Scope of repair and overhaul work of the SF, including any limitations:**

*<specify type of equipment and protection, e.g. Ex e motors, and any limitations, e.g. only motors rated <1 kV>*

**Audit criteria:**

* IEC 60079-19, Ed. 4.0
* OD 314-5 Ed. 1.2
* OD 315-5 Ed. 1.0
* IEC 60034-23 Ed. 1.0

**Type of audit:**

[ ] – initial assessment/reassessment of a SF with a verified certified QS

[ ] – initial assessment/reassessment of a SF without a certified QS

[ ] – surveillance of a SF with a certified QS

[ ] – surveillance of a SF without a certified QS

[ ] – special assessment visit, e.g. due to relocation or major changes at the Service Facility

**Lead Assessor:** …

(name)

**Lead Assessor:** …

(signature)

1 SUMMARY REPORT

|  |
| --- |
| **Reference Documents:***(include quality manual and other documents or procedures referenced during the audit)***Summary of observations:***(State the most important results of the compliance/surveillance audit)***Nonconformities:***(as detailed in the attached Nonconformity (NCR) Report(s), when applicable* |

**Lead Assessor’s recommendations:**

[ ] – FAR issued, indicating full compliance with IECEx Scheme Requirements, recommending that IECEx Facility Certification be issued/maintained

[ ] – FAR issued, indicating general compliance with IECEx Scheme Requirements, even if minor non conformances are raised, recommending that IECEx Facility Certification be issued/maintained following receipt of satisfactory documentary evidence supporting effective corrective action. Corrective action to be verified at next surveillance visit

[ ] – FAR issued, indicating non-compliance with IECEx Scheme Requirements, due to major non-conformances being raised, recommending that IECEx Facility Certification be issued only after a satisfactory follow-up visit. Services cannot be claimed as being covered by IECEx Certification until a follow up visit is conducted (must be within 2 calendar months of assessment).

**Accepted by IECEx 03 ExCB:**

ExCB:

Date:

EX Certification Manager

2 AUDIT DATA

|  |  |  |  |
| --- | --- | --- | --- |
| **QS Registration:** | [ ] [ ]  ISO 9001 | Registrar (Certification Body): |  |
| Certificate No.: |  |
| Expiration Date: |  |
| [ ] [ ]  SF does not hold a current ISO 9001 certificate |
|  |

Surveillance audits are carried out xx time(s) a year. The last audit was carried out on … of ….. 20.... The audit report, including any nonconformities raised during the audit and corresponding corrective actions, has been evaluated during the audit.

Where applicable, the following documents are retained on the Applicant’s file by the ExCB:

* A copy of the ISO 9001 certificate
* A copy of the last ISO 9001 audit report
* A copy of the organization diagram

**Composition of audit team:**

* …………………………….., Lead Assessor
* ……………………………..

**Date(s) of the audit** (mm, dd, yyyy):

**Number of man-days on-site:** … man-days

**Interviewed representatives of the Service Facility (auditees):**

|  |  |
| --- | --- |
| Name | Position |
|  |  |
|  |  |

Where necessary other staff assisted during the assessment.

1. ASSESSOR’S REPORT

**3.1 Assessment to OD 314-5**

(The requirements of each of the following Clauses are detailed in OD 314-5)

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **3.1** | **Documentation requirements** | No requirements | N/A |  |
| 3.1.1 | General |  |  |  |
| 3.1.2. | Records*Number of Ex repairs?**Percentage of Ex repairs related to non-Ex repairs?* |  |  |  |
| **3.2** | Management responsibility*Management representative deputy?*  |  |  |  |
| **3.3** | Resource management*Staff competence?* |  |  |  |
| **3.4** | Product realization |  |  |  |
| **3.5** | Measurement, analysis and improvement | No requirements | N/A |  |
| 3.5.1 | Planning |  |  |  |
| 3.5.2 | Customer satisfaction |  |  |  |
| 3.5.3 | Internal audit |  |  |  |
| 3.5.4 | Monitoring and measurement of processes (4.3.2.1.i) |  |  |  |
| 3.5.5 | Monitoring and measurement of product (4.3.2.1.j) |  |  |  |
| 3.5.6 | Control of nonconforming product (4.3.2.1.k)Preventive action |  |  |  |
| 3.5.7 | Analysis of data |  |  |  |
| 3.5.8 | Improvement |  |  |  |
| 3.5.9 | Corrective action |  |  |  |
|  | **Process assessment by ExCBs** | No requirements | N/A |  |
| **8.1** | Compliance with OD 315-5 Ed 1.2*See section 3.19 below* |  |  |  |
| **8.2** | Use of subcontractors*Agreement?**Subcontractor assessment/audit* |  |  |  |
| **8.3** | Assessment of competencies*Verification of competence**Responsible person change control*  |  |  |  |
| **8.4** | Records*Legibility, measurement traceability and retrievability* |  |  |  |
| **8.5** | Marking*R-Label* |  |  |  |
| **8.6** | Dimensional checks |  |  |  |
| **8.7** | Conditions for equipment release*Responsible person authorizes release* *Marking?**Job Report for User?**Job records?* |  |  |  |
|  |  |  |  |  |

**3.2 Assessment to IEC 60079-19 Explosive atmospheres – Overhaul, repair and reclamation (Edition 4.0)**

(The requirements of each of the following Clauses are detailed in IEC 60079-19)

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **4** | **General** |  |  |  |
| **4.1** | General principles |  |  |  |
| **4.3** | Instructions for the service facility  |  |  |  |
| **4.3.1** | Statutory Requirements Instructions for the repair facility |  |  |  |
| **4.3.2** | Repair and overhaul |  |  |  |
| **4.3.2.1** | General*QMS effectiveness**Responsible person**Ex process plan or WI for all types of Types of Protection and equipment inc.* *Measurement/test/ inspection facilities* *Sub-contracted activities**Internal audit**Initial Assessment & status agreement with user**‘As found’ ‘As left’ records**Adequate facilities, equipment and competent personnel**Type of Protection requirements verified for all Ex overhauls and repairs**Tests omitted justified**Product recall**Specific Conditions of Use* *Services external to service facility procedure**10 year retention* |  |  |  |
| **4.3.2.2** | Competency*Competence of personnel working on Ex Equipment**Annex B records* |  |  |  |
| **4.3.2.3** | Repair of components*Documented details* |  |  |  |
| **4.3.2.4** | Documentation |  |  |  |
| **4.3.2.4.1** | General  |  |  |  |
| **4.3.2.4.2** | Job report to the user*Attestations include Specific Conditions of Use* |  |  |  |
| **4.3.2.4.3** | Repair facility records*Technical & Type of Protection standards**QMS evaluation,**measurement traceability**Job records**Reclamation records* |  |  |  |
| **4.3.2.5** | Spare parts |  |  |  |
| **4.3.2.5.1** | General*Purchase procedures**CoC’s**Storage condition* |  |  |  |
| **4.3.2.5.2** | Fasteners |  |  |  |
| **4.3.2.5.3** | Sealed parts |  |  |  |
| **4.3.2.6** | Identification of repaired equipment |  |  |  |
| **4.3.3** | Reclamations |  |  |  |
| **4.3.3.1** | General*Reclamation procedures* |  |  |  |
| **4.3.3.2** | Exclusions |  |  |  |
| **4.3.3.3** | Requirements  |  |  |  |
| **4.3.3.3.1** | General*Operator competence**Reclamation records* |  |  |  |
| **4.3.3.3.2** | Responsibilities |  |  |  |
| **4.3.3.4** | Reclamation procedures*Reclamation verification* |  |  |  |
| **4.3.3.4.1** | General |  |  |  |
| **4.3.3.4.2** | Metal spraying |  |  |  |
| **4.3.3.4.3** | Electroplating |  |  |  |
| **4.3.3.4.4** | Sleeving |  |  |  |
| **4.3.3.4.5** | Brazing and welding |  |  |  |
| **4.3.3.4.6** | Metal stitching |  |  |  |
| **4.3.3.4.7** | Threaded holes for fasteners*GO, NO-GO gauges**Reclamation tested* |  |  |  |
| **4.3.3.4.8** | Re-machining |  |  |  |
| **4.3.4** | Alterations and modifications |  |  |  |
| **4.3.4.1** | Alterations*Schedule drawings**OEM authorization* |  |  |  |
| **4.3.4.2** | Modifications*Marking traceability* |  |  |  |
| **4.3.5** | Temporary repairs |  |  |  |
| **4.3.6** | Rotating machinery |  |  |  |
| **4.3.6.1** | General*IEC 60034-23**Does the Service Facility’s QMS consider the requirements of IEC 60034-23 ?**Auxiliaries verified* |  |  |  |
| **4.3.6.2** | Removal of damaged windings*Burn out oven* *records**Reclamation verification* |  |  |  |
| **4.3.6.3** | Test after repair |  |  |  |
| **4.3.6.3.1** | Testing after repair of windings*Impregnation process**IR**Winding resistance and phase balance**HV test**Varnish/Resin testing**Stoving oven records**Excess varnish resin control* |  |  |  |
| **4.3.6.3.2** | Electric Machines*NL test**Locked rotor rest**Alternative verification* |  |  |  |
| **4.3.6.4** | Additional requirements |  |  |  |
| **4.3.6.5** | Lubricants and corrosion inhibitors*Bearing lubrication* |  |  |  |
| **4.3.6.6** | Inverter fed electric machines |  |  |  |
| **4.3.6.7** | Variable speed drives |  |  |  |
| **4.3.7** | Control Equipment *Annex E* |  |  |  |

3.3 Assessment to IEC 60079-19 – Ex “d”

*(the following table maybe removed if Ex “d” is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **5** | Additional requirements for Ex “d” equipment |  |  |  |
| **5.1** | Application |  |  |  |
| **5.2** | Repair and overhaul |  |  |  |
| **5.2.1** | Enclosures |  |  |  |
| **5.2.1.1** | General |  |  |  |
| **5.2.1.2** | Over-pressure testing |  |  |  |
| **5.2.2** | Water jackets |  |  |  |
| **5.2.3** | Entries into enclosures |  |  |  |
| **5.2.4** | Terminations |  |  |  |
| **5.2.5** | Insulation |  |  |  |
| **5.2.6** | Internal connections |  |  |  |
| **5.2.7** | Electric Machines |  |  |  |
| **5.2.7.1** | General |  |  |  |
| **5.2.7.2** | Repair of electric machine rotors |  |  |  |
| **5.2.7.3** | Temperature sensors |  |  |  |
| **5.2.7.3.1** | Repaired windings |  |  |  |
| **5.2.7.3.2** | Overhaul |  |  |  |
| **5.2.7.4** | Flameproof brake units |  |  |  |
| **5.2.7.5** | Other auxiliary devices |  |  |  |
| **5.2.8** | Auxiliary equipment |  |  |  |
| **5.2.8.1** | Light-transmitting parts |  |  |  |
| **5.2.8.2** | Encapsulated parts |  |  |  |
| **5.2.8.3** | Batteries |  |  |  |
| **5.2.8.4** | Lamps |  |  |  |
| **5.2.8.5** | Lampholders |  |  |  |
| **5.2.8.6** | Ballasts |  |  |  |
| **5.2.8.7** | Breathing devices |  |  |  |
| **5.3** | Reclamation |  |  |  |
| **5.3.1** | General |  |  |  |
| **5.3.2** | Enclosures |  |  |  |
| **5.3.2.1** | Components |  |  |  |
| **5.3.2.2** | Flameproof joints |  |  |  |
| **5.3.2.2.1** | General |  |  |  |
| **5.3.2.2.2** | Flange joints |  |  |  |
| **5.3.2.2.3** | Spigot/cylindrical joints |  |  |  |
| **5.3.2.2.4** | Threaded joints |  |  |  |
| **5.3.2.3** | Threaded holes for fasteners*GO, NO-GO* *Testing* |  |  |  |
| **5.3.3** | Sleeving |  |  |  |
| **5.3.4** | Shafts and housings |  |  |  |
| **5.3.5** | Sleeve bearings |  |  |  |
| **5.3.6** | Rotors and stators |  |  |  |
| **5.4** | Alterations and modification |  |  |  |
| **5.4.1** | Enclosures |  |  |  |
| **5.4.2** | Entries into enclosures |  |  |  |
| **5.4.3** | Terminations |  |  |  |
| **5.4.4** | Windings |  |  |  |
| **5.4.5** | Auxiliary equipment |  |  |  |

3.4 Assessment to IEC 60079-19 – Ex “I”

*(the following table maybe removed if Ex “I” is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **6** | Additional requirements for Ex “ i” equipment |  |  |  |
| **6.1** | Application*Schedule drawings* |  |  |  |
| **6.2** | Repair and overhaul |  |  |  |
| **6.2.1** | Enclosures |  |  |  |
| **6.2.2** | Cable glands |  |  |  |
| **6.2.3** | Terminations |  |  |  |
| **6.2.4** | Soldered connections |  |  |  |
| **6.2.5** | Fuses |  |  |  |
| **6.2.6** | Relays |  |  |  |
| **6.2.7** | Shunt diode safety barriers and galvanic isolators |  |  |  |
| **6.2.8** | Printed circuit boards |  |  |  |
| **6.2.9** | Optocouplers and piezoelectric components |  |  |  |
| **6.2.10** | Electrical components |  |  |  |
| **6.2.11** | Batteries |  |  |  |
| **6.2.12** | Internal wiring |  |  |  |
| **6.2.13** | Transformers |  |  |  |
| **6.2.14** | Encapsulated components |  |  |  |
| **6.2.15** | Non-electrical parts |  |  |  |
| **6.2.16** | Testing |  |  |  |
| **6.3** | Reclamation |  |  |  |
| **6.4** | Modifications |  |  |  |

3.5 Assessment to IEC 60079-19 – Ex “p” (includes “pD”)

*(the following table maybe removed if Ex “p” is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **7** | Additional requirements for Ex “p” equipment |  |  |  |
| **7.1** | Application |  |  |  |
| **7.2** | Repair and overhaul |  |  |  |
| **7.2.1** | Enclosures |  |  |  |
| **7.2.2** | Entries into enclosures |  |  |  |
| **7.2.3** | Terminations |  |  |  |
| **7.2.4** | Insulation |  |  |  |
| **7.2.5** | Internal connections |  |  |  |
| **7.2.6** | Electric Machines |  |  |  |
| **7.2.6.1** | General*Internal air path verification* |  |  |  |
| **7.2.6.2** | Repair of electric machine rotors |  |  |  |
| **7.2.6.3** | Pressurization*Leakage verification, or user agreement**Internal air path verification*  |  |  |  |
| **7.2.6.3.1** | General |  |  |  |
| **7.2.6.3.2** | Rotating machines |  |  |  |
| **7.2.6.4** | Temperature sensors |  |  |  |
| **7.2.6.4.1** | Repaired windings |  |  |  |
| **7.2.6.4.2** | Overhaul |  |  |  |
| **7.2.7** | Auxiliary devices |  |  |  |
| **7.2.8** | Light-transmitting parts |  |  |  |
| **7.2.9** | Encapsulated parts |  |  |  |
| **7.2.10** | Batteries |  |  |  |
| **7.2.11** | Lamps |  |  |  |
| **7.2.12** | Lampholders |  |  |  |
| **7.2.13** | Ballasts |  |  |  |
| **7.3** | Reclamation |  |  |  |
| **7.3.1** | General |  |  |  |
| **7.3.2** | Enclosures |  |  |  |
| **7.3.2.1** | General |  |  |  |
| **7.3.2.2** | Joints |  |  |  |
| **7.3.3** | Shafts and housings |  |  |  |
| **7.3.4** | Sleeve bearings |  |  |  |
| **7.3.5** | Rotors and stators |  |  |  |
| **7.4** | Alterations and modifications |  |  |  |
| **7.4.1** | Enclosures |  |  |  |
| **7.4.2** | Entries into enclosures |  |  |  |
| **7.4.3** | Terminations |  |  |  |
| **7.4.4** | Windings |  |  |  |
| **7.4.5** | Auxiliary equipment |  |  |  |
| **7.5** | Pressurization systems |  |  |  |

3.6 Assessment to IEC 60079-19 – Ex “e”

*(the following table maybe removed if Ex “e” is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **8** | Additional requirements for Ex “e” equipment |  |  |  |
| **8.1** | Application |  |  |  |
| **8.2** | Repair and overhaul |  |  |  |
| **8.2.1** | Enclosures |  |  |  |
| **8.2.2** | Entries into enclosures |  |  |  |
| **8.2.3** | Terminations |  |  |  |
| **8.2.4** | Insulation |  |  |  |
| **8.2.5** | Internal connections |  |  |  |
| **8.2.6** | Electric machines |  |  |  |
| **8.2.6.1** | General |  |  |  |
| **8.2.6.1.1** | Repair of electric machine stator windings |  |  |  |
| **8.2.6.1.1** | For machines with a rated voltage of 1000 V or less*Full winding data* *Core flux test**Winding resistance**EASA/AEMT rewind study**DS2013/006* |  |  |  |
| **8.2.6.1.2** | For machines with a rated voltage of greater than 1000 V*Full winding data* *Core flux test**Winding resistance**EASA/AEMT rewind study**DS2013/006* |  |  |  |
| **8.2.6.2** | Repair of electric machine rotors |  |  |  |
| **8.2.6.3** | Temperature sensors |  |  |  |
| **8.2.6.3.1** | Repaired windings |  |  |  |
| **8.2.6.3.2** | Overhaul |  |  |  |
| **8.2.7** | Light-transmitting parts |  |  |  |
| **8.2.8** | Encapsulated parts |  |  |  |
| **8.2.9** | Batteries |  |  |  |
| **8.2.10** | Lamps |  |  |  |
| **8.2.11** | Lampholders |  |  |  |
| **8.2.12** | Ballasts |  |  |  |
| **8.2.13** | Breathing devices |  |  |  |
| **8.3** | Reclamation |  |  |  |
| **8.3.1** | General |  |  |  |
| **8.3.2** | Enclosures |  |  |  |
| **8.3.2.1** | General |  |  |  |
| **8.3.2.2** | Joints |  |  |  |
| **8.3.2.3** | Shafts and housings |  |  |  |
| **8.3.3** | Sleeve bearings |  |  |  |
| **8.3.4** | Rotors and stators |  |  |  |
| **8.4** | Modifications |  |  |  |
| **8.4.1** | Enclosures |  |  |  |
| **8.4.2** | Entries into enclosures |  |  |  |
| **8.4.3** | Terminations |  |  |  |
| **8.4.4** | Windings |  |  |  |
| **8.4.5** | Auxiliary equipment |  |  |  |

3.7 Assessment to IEC 60079-19 – Ex “n”

*(the following table maybe removed if Ex “n” is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **9** | Additional requirements for Ex “n” equipment |  |  |  |
| **9.1** | Application |  |  |  |
| **9.2** | Repair and overhaul |  |  |  |
| **9.2.1** | Enclosures |  |  |  |
| **9.2.2** | Entries into enclosures |  |  |  |
| **9.2.3** | Terminations |  |  |  |
| **9.2.4** | Insulation |  |  |  |
| **9.2.5** | Internal connections |  |  |  |
| **9.2.6** | Electric Machines |  |  |  |
| **9.2.6.1** | Repair of windings |  |  |  |
| **9.2.6.1.1** | General |  |  |  |
| **9.2.6.1.2** | Machines evaluated to IEC 60079-15:1987 or IEC 60079-15:2001 |  |  |  |
| **9.2.6.1.3** | Machines voltage ≤1 000 v to IEC 60079-15:2005 or more recent |  |  |  |
| **9.2.6.1.4** | Machines voltage >1 000 v to IEC 60079-15:2005 or more recent |  |  |  |
| **9.2.6.1.5** | Copy rewind Techniques |  |  |  |
| **9.2.6.2** | Repair of electric machine rotors |  |  |  |
| **9.2.6.3** | Temperature sensors |  |  |  |
| **9.2.6.3.1** | Repaired windings |  |  |  |
| **9.2.6.3.2** | Overhaul |  |  |  |
| **9.2.7** | Light-transmitting parts |  |  |  |
| **9.2.8** | Encapsulated parts |  |  |  |
| **9.2.9** | Batteries |  |  |  |
| **9.2.10** | Lamps |  |  |  |
| **9.2.11** | Lamp holders |  |  |  |
| **9.2.12** | Ballasts |  |  |  |
| **9.2.13** | Enclosed break devices |  |  |  |
| **9.2.14** | Breathing devices |  |  |  |
| **9.3** | Reclamation |  |  |  |
| **9.3.1** | General |  |  |  |
| **9.3.2** | Enclosures |  |  |  |
| **9.3.3** | Joints |  |  |  |
| **9.3.4** | Shafts and housings |  |  |  |
| **9.3.5** | Sleeve bearings |  |  |  |
| **9.3.6** | Rotors and stators |  |  |  |
| **9.4** | Alterations and modifications |  |  |  |
| **9.4.1** | Enclosures |  |  |  |
| **9.4.2** | Entries into enclosures |  |  |  |
| **9.4.3** | Terminations |  |  |  |
| **9.4.4** | Windings |  |  |  |
| **9.4.5** | Auxiliary equipment |  |  |  |

3.8 Assessment to IEC 60079-19 – equipment covered by IEC 60079-26

*(the following table maybe removed if not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **10** | Additional requirements for equipment covered by IEC 60079-26 |  |  |  |

3.9 Assessment to IEC 60079-19 – Ex “t” (formerly known as “tD”, “DIP”)

*(the following table maybe removed if not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **11** | Additional requirements for Ex “t” equipment |  |  |  |
| **11.1** | Application |  |  |  |
| **11.2** | Repair and overhaul |  |  |  |
| **11.2.1** | Enclosures |  |  |  |
| **11.2.2** | Entries into enclosures |  |  |  |
| **11.2.3** | Terminations |  |  |  |
| **11.2.4** | Insulation |  |  |  |
| **11.2.5** | Internal connections |  |  |  |
| **11.2.6** | Electric machines |  |  |  |
| **11.2.6.1** | General |  |  |  |
| **11.2.6.2** | Repair of machine rotors |  |  |  |
| **11.2.6.3** | Temperature sensors |  |  |  |
| **11.2.6.3.1** | Repaired windings |  |  |  |
| **11.2.6.3.2** | Overhaul |  |  |  |
| **11.2.7** | Light-transmitting parts |  |  |  |
| **11.2.8** | Batteries |  |  |  |
| **11.2.9** | Lamps |  |  |  |
| **11.2.10** | Lamp holders |  |  |  |
| **11.2.11** | Ballasts |  |  |  |
| **11.2.12** | Breathing devices |  |  |  |
| **11.3** | Reclamation |  |  |  |
| **11.3.1** | General |  |  |  |
| **11.3.2** | Enclosures |  |  |  |
| **11.3.3** | Joints |  |  |  |
| **11.3.4** | Shafts and housings |  |  |  |
| **11.3.5** | Sleeve bearings |  |  |  |
| **11.3.6** | Rotors and stators |  |  |  |
| **11.4** | Alterations and modifications |  |  |  |
| **11.4.1** | Enclosures |  |  |  |
| **11.4.2** | Cable and conduit entries |  |  |  |
| **11.4.3** | Windings |  |  |  |
| **11.4.4** | Auxiliary equipment |  |  |  |

3.10 Assessment to IEC 60079-19 – Ex “o”

*(the following table maybe removed if Ex “o“ is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **12** | Additional requirements for Ex “o” equipment |  |  |  |
| **12.1** | Application |  |  |  |
| **12.2** | Repair and overhaul |  |  |  |
| **12.2.1** | Associated Types of Protection  |  |  |  |
| **12.2.2** | Removal of protective liquid |  |  |  |
| **12.2.3** | Replacement of components |  |  |  |
| **12.2.4** | Preparation for replacing protective liquid |  |  |  |
| **12.2.5** | Protective liquid |  |  |  |
| **12.2.6** | Closure of container |  |  |  |
| **12.3** | Reclamation |  |  |  |
| **12.4** | Modifications |  |  |  |

3.11 Assessment to IEC 60079-19 – Ex “q”

*(the following table maybe removed if Ex “q“ is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **13** | Additional requirements for Ex “q” equipment |  |  |  |
| **13.1** | Application |  |  |  |
| **13.2** | Repair and overhaul |  |  |  |
| **13.2.1** | Associated Types of Protection  |  |  |  |
| **13.2.2** | Removal of protective materials |  |  |  |
| **13.2.3** | Replacement of components |  |  |  |
| **13.2.4** | Preparation for replacing protective materials |  |  |  |
| **13.2.5** | Protective materials |  |  |  |
| **13.2.6** | Closure of container |  |  |  |
| **13.3** | Reclamation |  |  |  |
| **13.4** | Modifications |  |  |  |

3.12 Assessment to IEC 60079-19 – Ex “s”

*(the following table maybe removed if Ex “s“ is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **14** | Additional requirements for Ex “s” equipment |  |  |  |

3.13 Assessment for Electric resistance trace heating to IEC/IEEE 60079-30

*(the following table maybe removed if electric trace heating is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **15** | Additional requirements for electric resistance trace heating equipment |  |  |  |

3.14 Assessment to IEC 60079-19 – Annex A – Identification of repaired equipment by marking

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **A.1** | Marking information |  |  |  |
| **A.2** | Symbols |  |  |  |
| **A.2.1** | Repair in accordance with schedule drawings or manufacturer’s specification |  |  |  |
| **A.2.2** | Repair in accordance with the Type of Protection standards but not the schedule drawings |  |  |  |
| **A.2.3** | Other situations |  |  |  |

3.15 Assessment to IEC 60079-19 – Annex B – Knowledge, skills and competencies of “responsible persons” and “operatives”

| **Clause** | **Subject** | SF reference document | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **B.1** | General |  |  |  |
| **B.2** | Knowledge and skills |  |  |  |
| **B.2.1** | Responsible persons |  |  |  |
| **B.2.2** | Operatives |  |  |  |
| **B.3** | Competencies |  |  |  |
| **B.3.1** | General |  |  |  |
| **B.3.2** | Responsible persons |  |  |  |
| **B.3.3** | Operatives |  |  |  |
| **B.4** | Assessment |  |  |  |
| **B.5** | Qualification of reclamation operatives |  |  |  |

3.16 Assessment to IEC 60079-19 – Annex C – Requirements for measurements in flameproof equipment during overhaul, repair and reclamation (including guidance on tolerances)

*(the following table maybe removed if rotating electric machines are not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **C.1** | Determination of maximum gap of reclaimed parts |  |  |  |

3.17 Assessment to IEC 60079-19 – Annex D – Evaluation of best practice during rewinding and repair

*(the following table maybe removed if rotating electric machines are not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
|  | EASA/AEMT rewind study best practice*Burnout temperature**Core test before & after striping**Winding cross-section area & MLT control**Stator bore surface cleaning control**Bearing lubrication* |  |  |  |

3.18 Assessment to IEC 60079-19 – Annex E – Additional requirements relating to control equipment

*(the following table maybe removed if control equipment is not within the scope of application)*

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **E.1** | General  |  |  |  |
| **E.2** | Common items |  |  |  |
| **E.3** | Isolators and circuit interrupters |  |  |  |
| **E.4** | Interlocks and mechanical linkages |  |  |  |
| **E.5** | Earth fault devices |  |  |  |
| **E.6** | Other devices |  |  |  |
| **E.7** | Transformers |  |  |  |

3.19 Assessment to OD 315-5

| **Clause** | **Subject** | **SF reference document** | **Audit findings** | **NCR No.** |
| --- | --- | --- | --- | --- |
| **4** | Additional requirements associated with Efficiency to maintain T Ratings of rotating machines |  |  |  |
| **5.1** | Machining limits for Flameproof Surfaces(for Ex d) |  |  |  |
| **5.2** | Overpressure (for Ex d) |  |  |  |

**IECEx 03 - 5**

**Typical Non Conformity Report (NCR)**

|  |  |
| --- | --- |
| **IECEx FAR No.:** | xxxx |
| **Date(s) of assessment:** | xxxx |

|  |
| --- |
| **Non Conformity Number:** mm/yyyy/xx(Month/Year/No. issued)  |
| **Requirement reference:** (e.g. IEC 60079-19 / OD314-5 / OD 315-5, Clause …)  |
| **Response time by Auditee:**  |
| **Non Conformance** (objective finding and statement of non-conformance):  |
| **ExCB Auditor:** | **Service Facility representative:** |
| **Response of Service Facility** |
| 1) Proposed Corrective Action + Timeframe*Include a statement describing actual corrective action* |
| **ExCB Auditor:** | **Service Facility representative:** |
| 2) Corrections and Corrective actions:*Include a statement describing actual corrective/preventative action implemented*  |
| 3) Verification of Corrective and Preventive Action by ExCB: |
| **ExCB Auditor:** | **Service Facility representative:** |