



Teknologisk **Institut**

Certificering

af

ATEX-værksted

som

udfører

vedligeholdelse og reparation

af

Ex-materiel



1. Introduktion

Teknologisk Institut er et videnscenter inden for Ex-materiel og er udpeget som bemyndiget organ (Notified body) i henhold til ATEX 2014/34/EU, Maskin- og PED-direktiverne.

Ved Ex-materiel forstås materiel, der anvendes i et Ex-område med eksplosiv atmosfære, (herefter Ex-materiel).

I forbindelse med vedligeholdelse og reparation af Ex-materiel, som anvendes i områder med eksplosiv atmosfære, har service- og reparationsværksteder (herefter ATEX-værksteder) i stigende omfang brug for at kunne sandsynliggøre, at sådanne vedligeholdelser og reparationer også bliver udført efter relevante regler og krav.

Det er de virksomheder, hvor Ex-materiellet er installeret (herefter Ex-virksomheder), der har ansvaret for at Ex-materiellet opfylder de relevante krav. Ex-virksomhederne skal derfor sikre sig og kunne dokumentere, at vedligeholdelses- og reparationsarbejde bliver udført således, at Ex-materiellet fortsat opfylder kravene. Dette gøres mest hensigtsmæssigt ved, at Ex-virksomheder anvender ATEX-værksteder, der kan give den nødvendige dokumentation, for at de er i stand til at udføre vedligeholdelses og reparationsarbejder på Ex-materiel.

Teknologisk Institut rådgiver og certificerer ATEX-værksteder, der foretager vedligeholdelse og reparation af Ex-materiel, således at de enkelte ATEX-værksteder kan dokumentere, at de er i stand til at udføre vedligeholdelses- og reparationsarbejde på Ex-materiel.

Ved Teknologisk Instituts certificering af ATEX-værksteder tages der udgangspunkt i standarden EN60079-19: Explosive atmospheres. Equipment repair, overhaul and reclamation. Standarden dækker ikke udstyr til miner (gruppe I), og certifikatet omfatter således heller ikke materiel, der anvendes i miner.

Certificeringen kan udstedes således, at den også dækker mekaniske produkter, der også er omfattet af ATEX-direktivets krav mht. reparation.

Ex-materiel finder typisk anvendelse inden for følgende brancher:

- Olieraffinaderier, boreplatforme
- Naturgas, f.eks. distributionscentre
- Kraftværker
- Den kemiske industri
- Farve- og lakindustrien
- Papir- og tekstilfremstilling
- Tankning af fly og flyhangarer
- Tankstationer
- Rensningsanlæg – kloakker i visse installationer
- Kornlagre
- Træbearbejdningsindustrien
- Sukkerfabrikker



- I forbindelse med bearbejdning af visse metaller, som giver fint metalstøv, f.eks. magnesium og aluminiumstøv.

2. Formål

Formålet med certificering af ATEX-værksteder er at sikre, at udførte reparationer er udført korrekt, at sikkerheden på materiellet er opretholdt, og at det kan dokumenteres, således at Ex-virksomheder, myndigheder, tilsynsførende og lignende kan formode, at vedligeholdelse og reparationen kan udføres på betryggende vis på det certificerede ATEX-værksted.

3. Certificeringskrav

Et ATEX-værksted kan få udstedt et certifikat, når det af Teknologisk Institut vurderes, at ATEX-værkstedet opfylder bl.a. følgende krav:

- Kvalitetssystemet indeholder relevante procedurer, der har til formål at sikre, at kravene i EN60079-19 opfyldes.
- Tillægskravene specificeret i Bilag 1 til denne procedure er indeholdt i kvalitetsstyringssystemet.
- Værkstedet har og vedligeholder de reparationsfaciliteter, der er nødvendige.
- Anvender kalibreret måleudstyr, og der gennemføres sporbare målinger.
- Et kvalitetssystem, som er på niveau med ISO 9001, forefindes.
- Der foreligger beskrivelse af reparationsteknikker, som beskrevet i EN60079-19.
- Værkstedet er i besiddelse af nødvendige værktøjer til reparation og relevant måleudstyr for verificering og validering, samt foretager vurdering om det personale, der udfører vedligeholdelse- og reparationsarbejde, har den fornødne viden om Ex-kravene mv.
- Værkstedet har udpeget en Ex-materiel kyndig person, som er ansvarlig for opfyldelse af kravene i EN60079-19 samt kravene i forbindelse med gennemførelse af reparationen.
- Værkstedet kan dokumentere, at værkstedet har viden om de relevante beskyttelsesprincipper.
- Anden for serviceværkstedet relevant viden i relation til servicering af Ex-materiel.
- ATEX-værkstederne skal opfylde den seneste udgave af standarden EN60079-19 og senest den dato, der er benævnt som DOW – datoen i standarden.

3

4. Virksomheder omfattet af certificeringsordningen

Certificeringsordningen gælder for

- ATEX-værksteder, og virksomheder, som accepterer at overtage hele ansvaret for det materiel, vedligeholdelsen og reparationen bliver udført på, og indestår for, at Ex-materiellet er i overensstemmelse med relevante krav i enhver henseende efter den udførte aktivitet.

Ex-virksomheder, der har eget ATEX-værksted og således foretager vedligeholdelse og reparation af eget materiel og som accepterer at overtage hele ansvaret for det materiel, vedligeholdelsen



og reparationen bliver udført på, og indestår for at Ex-materiellet er i overensstemmelse med relevante krav i enhver henseende efter den udførte aktivitet.
Herefter samlet benævnt ATEX-værksteder.

5. Certificeringsprocedure

ATEX-værkstedet skal samle en dokumentationspakke med relevant information om opfyldelse af certificeringskravene, jf. kravene i EN 60079-19 og pkt. 3.

Dokumentationen skal som minimum indeholde følgende:

- Firmanavn og adresse samt eventuel. adresse, hvor servicearbejder foretages.
- Navnet på den person, som skal være ansvarlig for opfyldelse af kravene til Ex-materiel samt dokumentationen på dennes videnskab.
- Procedure, der beskriver, hvorledes servicearbejdet udføres og dokumenteres i overensstemmelse med EN60079-19 og tillægskravene i Bilag 1
- Eventuel kopi af ISO 9001 certifikat.
- Anden relevant information, f.eks. liste over anvendt udstyr til verifikation.

Dokumentationen skal fremsendes til Teknologisk Institut, Certificering & Inspektion
Gregersensvej 2, 2630 Taastrup.

6. Verifikation

Teknologisk Institut udfører en verifikation af den modtagne dokumentation, jf. pkt. 5 og planlægger et auditbesøg for gennemgang af ATEX-værkstedet og dets opfyldelse af certificeringskravene, jf. pkt. 3.

7. Udstedelse af certifikat

Såfremt Teknologisk Institut vurderer, at dokumentationen opfylder certificeringskravene, jf. pkt. 3, og eventuelle afvigelser, afdækket under auditten, er lukkede, udsteder Teknologisk Institut et certifikat.

Certifikatet har en gyldighed på 3 år. Der vil være en årlig opfølgingsaudit.

8. Vedligeholdelse af certifikatet

I forbindelse med udstedelse af certifikatet indgår ATEX-værkstedet en aftale om, at der skal være en årlig opfølgingsaudit, således at kravene gennemgås 1 gang årligt indenfor certificerings perioden.

ATEX-værksteder, der har gyldigt certifikat, vil blive publiceret på Teknologisk Instituts hjemmeside med navn og adresse samt eventuelt link til værkstedets egen hjemmeside.



9. Annullering af certifikat

Teknologisk Institut kan annullere et certifikat, og Ex-materiel-værkstedets navn blive fjernet fra Teknologisk Instituts hjemmeside, hvis:

- det ønskes af ATEX-værkstedet
- certifikatet er blevet udstedt ved en fejl
- manglende gennemførelse af den årlige opfølgningsaudit
- Teknologisk Institut konstaterer, at reglerne ikke følges
- Teknologisk Institut konstaterer, at ATEX-værkstedet ikke længere opfylder certificeringskravene, jf. pkt. 3
- ATEX-værkstedet har økonomiske udeståender med Teknologisk Institut

10. Opdatering af certifikat

Ønsker ATEX- værkstedet inden for de 3 år, hvor certifikatet er gældende, at udvide eller ændre omfanget af certifikatet, sendes dokumentation for ændringen til Teknologisk Institut.

Der er i den forbindelse krav om, at man kan dokumentere, at man har viden om de relevante beskyttelsesprincipper, som opdateringen vedrører.

Teknologisk Institut vurderer herefter ændringen og tager stilling til, om et nyt audit skal gennemføres, eller om den eksisterende dokumentation er tilstrækkelig.

Teknologisk Institut udsteder et nyt certifikat eller et tillæg, hvoraf det fremgår, at det eksisterende certifikat er opdateret med ændringen.

5

11. Opfyldelse af krav

ATEX-værkstedet har ansvaret for, at alle vedligeholdelser, reparationer og modifikationer opfylder certificeringskravene, jf. pkt. 3, herunder kravene og i EN60079-19, samt de af Teknologisk Institut stillede krav. ATEX-værkstedet skal i den forbindelse dokumentere det udførte arbejde ved at levere en rapport til kunden og mærke materiellet med de til enhver tid gældende relevante symboler.

Ønskes det, at Teknologisk Institut's logo indgår i reparationslabelen, kan der ansøges om dette hos Teknologisk Institut.

Denne procedure kan ændres af Teknologisk Institut uden forudgående varsel til certifikatholderne. Udstedelse af certifikat er omfattet af de til en vær tid gældende "Almindelige vilkår for certificerings-, inspektions- eller godkendelsesordninger tilknyttet Teknologisk Institut (Instituttet).

Udgave: 2017.01.01

Udarbejdet af: JNIT

BILAG 1

Tillægskrav

(Specificeret i forhold til punkt 3)

Clause	Subject
3.1	Documentation requirements
3.1.1	General The Ex Service Facility shall develop a process plan to establish verification of the Repair/Overhaul processes to the requirements of EN 60079-19. The Service Facility shall identify and record the range of test and measurement capabilities and limitations. Any "Off-Site" repair or overhaul performed by the Service Facility requires documented procedures and or work instructions and shall be defined in their scope of Service Facility Certification. During the surveillance audits, DTI are required to assess identified changes.
3.1.2.	Records The following requirements are additional to those of ISO 9001, Clause 4.2.4: Records must be kept of serviced Ex equipment that are serviced in conformity with the requirements of EN 60079-19 and that are provided with the R-label. Also, records must be kept of Ex equipment that, even after being serviced, do not comply with the requirements of EN 60079-19 and are not marked with the R-label. As a minimum, records shall be kept for 10 years.
3.2	Management responsibility The following requirements are additional to those of ISO 9001, Clause 5: The top management shall establish a mechanism to ensure that there is at least one person appointed to deputize when necessary for the management representative in matters relating to the scope of work covered by the Service Facility Certification. The responsibilities and authorities of the management representative and any deputies shall be documented. DTI shall be notified of any changes to the personnel appointed as competent.
3.3	Resource management The following requirements are additional to those of ISO 9001, Clause 6: The Ex Service Facility shall provide for training of all personnel performing activities affecting the repair, overhaul and reclamation process. Competent persons performing assigned tasks shall be qualified on the basis of appropriate education, training and/or experience, as defined in EN 60079-19. Appropriate training and refreshments courses records shall be maintained. Competent persons shall maintain their competence with DTI required to verify the currency of the competency of competent persons as part of the on-going surveillance of the Ex Service Facility.



Clause	Subject
3.4	Product realization The following requirements are additional to those of ISO 9001, Clause 7: The Service Facility shall establish procedures or work instructions for overhaul and repair of Ex Equipment. These procedures or work instructions shall consider each process covered under the scope of the DTI Service Facility Certificate to the requirements of EN 60079-19 and in accordance with the parameters listed below: • Type of service offered • Type of equipment, e.g. rotating machines, instruments • Types of protection of equipment being serviced, e.g. Ex d, Ex e, Ex I, etc. • Measurement/test/inspection facilities available • Recall of product after despatch, should the Service Facility become aware of any critical or major defect after the repaired product has been released. Such procedures shall provide for the notification to the DTI of the problem and to national authorities, e.g. Mining Regulators for Group I • Details and evidence of competency for responsible persons and operatives, nominated as Competent Persons • Sub-contractor activities
3.5	Measurement, analysis and improvement
3.5.1	Planning Clause 8.1 of ISO 9001 applies with the following exceptions: Improvements are not within the scope of this Document. They may be made at the discretion of the Ex Service Facility, but the provisions of 3.2 shall apply at all times.
3.5.2	Customer satisfaction Clause 8.2.1 of ISO 9001 is replaced by the following requirement: For the purpose of this document, 'customer satisfaction' is in relation to the Service Facilities compliance with the relevant requirements of EN 60079-19. However, additional measures of customer satisfaction according to ISO 9001 are encouraged.
3.5.3	Internal audit Clause 8.2.2 of ISO 9001 and the following applies: The audit program shall address the effectiveness of the elements of the Quality Management System (QMS) as described in this document to ensure that the repair, overhaul and reclamation processes are in conformity with EN 60079-19. The period between audits should normally not exceed 12 months.
3.5.4	Monitoring and measurement of processes The following requirement is additional to those of ISO 9001, Clause 8.2.3: Where a process can affect the integrity of a type of protection, and where the resulting integrity cannot be verified after manufacture e.g. the environmental conditions required for curing an encapsulant, that specific process shall be measured or monitored and documentary evidence.
3.5.5	Monitoring and measurement of product The following requirement is additional to those of ISO 9001, Clause 8.2.4: Where tests are required, they shall be performed as specified in EN 60079-19 or Standards with no sampling techniques being permitted.



Clause	Subject
3.5.6	Control of nonconforming product The following requirements are additional to those of ISO 9001, Clause 8.3: • The Service Facility shall maintain a system such that the customer or owner can be identified in the event of repaired, overhauled or reclaimed Ex product later being found not to be complying with Ex requirements • The Service Facility shall take action, appropriate to the degree of risk, where nonconforming product has been supplied to a customer. • The Service Facility shall liaise with the DTI responsible for the issue of the DTI Service Facility Certificate of Conformity for all non-conforming products that have been released, the Service Facility shall maintain records of: • Serial numbers or identification of product supplied • The customer who received the product • The action taken to inform customers and the relevant DTI • The action taken to implement corrective and preventative action; • Actions and communications taken with a relevant regulator (whenever applicable)
3.5.9	Corrective action
3.5.10	Preventive action
8	Process assessment by DTIs
8.1	Compliance with DTI General terms and Conditions DTIs shall assess the Service Facility's procedures and processes for compliance to EN 60079-19. This shall include assessment of the Service Facility's inspection and test plans and verification that such inspection and test plans clearly define the method for pass/fail criteria. This requires the DTI to assess the Service Facility's documented procedures to ensure that the specific requirements of EN 60079-19 have been included or covered by the Service Facility's Quality Management System (QMS).
8.2	Use of subcontractors DTIs shall assess the method of control the Service Facility maintains over any subcontractor used to perform part of the repair, overhaul and reclamation processes, including testing and calibration activities. The Service Facility agrees to arrange for the DTI to evaluate relevant documentation and to arrange a visit to any subcontractor that the DTI deems warranted. Subcontractors conducting operations that have the potential to impact on the explosion protection technique shall be subject to audit by the DTI. Subcontracting by Service Facilities shall be clearly defined in agreements between the DTI and the Service Facility and the DTI and the Subcontractor or, by delegation of the DTI, directly between the Service Facility and the Subcontractor. The scope of activity is an integral part of such agreements as well as evidence of competence of the Subcontractor (e.g. certificates, initial and annual audits by the DTI). The overall responsibility remains in any case with the DTI which certified the Service Facility. Agreements mentioned above shall be registered by DTI. NOTE 1: Subcontracting activities shall be used on a limited basis, mainly in cases where the investments for such activities are rather high and volume for such work at the Service Facility rather low. Examples are: metal spaying techniques, gland openings, grinding of flameproof flanges. NOTE 2: Subcontracting activities related to the main scope of repair, overhaul or reclamation of Ex equipment, indicated in the DTI Ex Certificate, is not allowed.



Clause	Subject
8.3	Assessment of competencies The DTI shall evaluate the Service Facility's mechanism for verification of current competencies of their nominated Competent Persons, including the Responsible Person and operatives, as required by EN 60079-19. For Competent Persons having a Certificate of Personnel Competencies, or having any other evidence of appropriate assessment and demonstration of Competencies based on EN 60079-19, DTI shall verify that the certified or assessed scope of activities covers the actual activities within the Service Facility. Those qualifying as Competent Persons shall be identified in the Service Facility's documented system, along with their scope of activity. A Service Facility certificate remains valid only while the competent person(s) listed in the facility's documented system, operating as the 'Responsible Person' remains engaged in the activity. Any change that may impact on the Service Facility complying with DTI requirements, e.g. change of 'Personnel' is required to be notified to the DTI immediately. It should be noted that the status of a competent person is linked to the Service Facility and is therefore not transferable between service facilities without assessment by an DTI. Replacement Competent Person(s) shall have the evidence of their competencies verified by the DTI.
8.4	Records Results of the service and tests conducted by the Service Facility shall be recorded by use of appropriate means that ensure: • Legibility • Traceability of measured results to calibrated instruments with actual measurements recorded. A tick to just indicate pass is not accepted • Stored to enable retrieval in accordance with 3.1.2 above The Ex Service Facility shall retain all repair, overhaul and reclamation
8.5	Marking Marking shall be in accordance with the requirements of EN 60079-19. Use of the DTIs own Mark on reports and promotional material may be permitted subject to an additional agreement signed with DTI.
8.6	Ex Service Facilities processes and procedures shall comply with the following, concerning dimensional checks. When conducting dimensional measurements, the Service Facility shall record "as found" and "as left" values on their Service Facility check sheet or Examination Reports for future reference. A simple "tick" to indicate pass or fail is NOT sufficient on its own. Evidence of compliance will be sampled and reviewed by DTIs during each audit. The measurement equipment used for the measurements of the Ex d flame paths shall also be mentioned in the report with respect to the traceability of calibration to (inter)national standards.
8.7	Conditions for equipment release Ex Service Facilities processes and procedures shall comply with the following, concerning Ex equipment release. Repaired, overhauled or reclaimed equipment shall be released from the Service Facility's premises only when a Responsible Person (as defined in EN 60079-19) is satisfied that all the required activities have been undertaken and the Examination Report indicates authorization of results of inspection and tests. On release of equipment, Service Facilities shall supply a "Service Facilities Report" as defined in EN 60079-19, to cover each item released from the Ex Service Facility.
A.1	Assessment of Responsible Persons and Operatives



Clause	Subject
4	Additional requirements associated with Efficiency to maintain T Ratings of rotating machines When rewinding Ex motors an DTI Certified Service Facility needs to ensure that their rewind processes do not adversely affect the efficiency of the motor. Any reduction in efficiency will increase the losses within the machine which will increase surface temperatures and potentially this could exceed the protection concept temperature class. Guidance on how to rewind motors without adversely affecting their efficiency is freely available from EASA and AEMT. The document is titled <i>The Effect of Repair /Rewinding on Motor Efficiency</i>. DTI Service Facilities rewinding Ex motors should be able to demonstrate to their Certification Body how they meet the EASA and AEMT guidance on how to maintain efficiency when rewinding Ex motors via their procedures and competency training.
5.1	Machining limits for Flameproof Surfaces (for Ex d) After repair, tests and measurements shall be performed as agreed when the repair work was accepted by the Service Facility. Where the work involved is confined to machining flameproof surfaces, certification and approval will not be considered invalidated, provided that the cumulative effect of such machining does not: a) reduce the flanges below the minimums where the minimum dimension of the thickness of flanges is detailed in the certification drawings; b) alter the volume of the enclosure (without internal parts) by more than 0.5 %; c) reduce the length of any flamepath whether plain or threaded; or d) result in any deviation to the requirements of the relevant Standards, i.e. the Standard the item was certified to. Where the Service Facility has doubt or questions the validity of documentation or the integrity of the enclosure, the over-pressure test of Clause 5.2 should be considered.
5.2	Overpressure (for Ex d) Where the Service Facility has doubt or questions the validity of documentation or the integrity of the enclosure, the following tests should be considered. For flameproof protection type "d" enclosures – an over-pressure test must be conducted to the following: The pressure to be used for the over-pressure test should be either the value mentioned in the certification documents for such purpose or 1.5 times the explosion pressure (reference pressure). NOTE Reference pressure information should be obtained from the Ex equipment manufacturer. If neither the over-pressure test value nor the reference pressure test value are known, the values for the pressure test should be according to EN 60079-19 Clause 5.2.1.2 "Overpressure testing". Where welding repairs may affect the integrity of the Ex "d" enclosure an over-pressure test shall be conducted as a practical method to test the integrity of the welding.