

Dit document mag slechts op een stand-alone PC worden geïnstalleerd. Gebruik op een netwerk is alleen toestaan als een aanvullende licentieovereenkomst voor netwerkgebruik met NEN is afgesloten. This document may only be used on a stand-alone PC. Use in a network is only permitted when a supplementary license agreement for us in a network with NEN has been concluded.

Vervangt NEN-EN 14584:2003 Ontw.

Nederlandse norm

NEN-EN 14584 (en)

Non-destructive testing - Acoustic emission -
Examination of metallic pressure equipment
during proof testing - Planar location of AE
sources

ICS 17.140.20; 77.040.20
september 2005

Als Nederlandse norm is aanvaard:
 - EN 14584:2005, IDT

Voorbeeld
 Preview

Normcommissie 342 092 "Niet-des (Niet) onderzoek"

Apart from exceptions provided by the law, nothing from this publication may be duplicated and/or published by means of photocopy, microfilm, storage in computer files or otherwise, which also applies to full or partial processing, without the written consent of the Netherlands Standardization Institute.

The Netherlands Standardization Institute shall, with the exclusion of any other beneficiary, collect payments owed by third parties for duplication and/or act in and out of law, where this authority is not transferred or falls by right to the Reproduction Rights Foundation.

Auteursrecht voorbehouden. Behoudens uitzondering door de wet gesteld mag zonder schriftelijke toestemming van het Nederlands Normalisatie-instituut niets uit deze uitgave worden verveelvoudigd en/of openbaar gemaakt door middel van fotokopie, microfilm, opslag in computerbestanden of anderszins, hetgeen ook van toepassing is op gehele of gedeeltelijke bewerking.

Het Nederlands Normalisatie-instituut is met uitsluiting van ieder ander gerechtigd de door derden verschuldigde vergoedingen voor verveelvoudiging te innen en/of daartoe in en buiten rechte op te treden, voor zover deze bevoegdheid niet is overgedragen c.q. rechtens toekomt aan de Stichting Reprorecht.

Although the utmost care has been taken with this publication, errors and omissions cannot be entirely excluded. The Netherlands Standardization Institute and/or the members of the committees therefore accept no liability, not even for direct or indirect damage, occurring due to or in relation with the application of publications issued by the Netherlands Standardization Institute.

Hoewel bij deze uitgave de uiterste zorg is nagestreefd, kunnen fouten en onvolledigheden niet geheel worden uitgesloten. Het Nederlands Normalisatie-instituut en/of de leden van de commissies aanvaardden derhalve geen enkele aansprakelijkheid, ook niet voor directe of indirecte schade, ontstaan door of verband houdend met toepassing van door het Nederlands Normalisatie-instituut gepubliceerde uitgaven.

Nederlands voorwoord

Voor de in deze norm vermelde normatieve verwijzingen bestaan in Nederland de volgende equivalenten:

<u>vermelde norm</u>	<u>Nederlandse norm</u>	<u>titel</u>
EN 473	NEN-EN 473	Niet-destructief onderzoek - Kwalificatie en certificatie van personeel voor niet-destructief onderzoek - Algemene principes (en,nl)
EN 1330-1:1998	NEN-EN 1330-1:1998	Niet-destructief onderzoek - Termen en definities - Deel 1: Lijst van algemene termen (en,nl)
EN 1330-2:1998	NEN-EN 1330-2:1998	Niet-destructief onderzoek - Termen en definities - Deel 2: Termen die voor niet-destructieve onderzoeksmethoden worden toegepast (en,fr,de,nl)
EN 1330-9:2000	NEN-EN 1330-9:2000	Niet-destructief onderzoek - Termen en definities - Deel 9: Termen gebruikt bij onderzoek met akoestische emissie (en,fr,de,nl)
EN 13477-1	NEN-EN 13477-1	Niet-destructief onderzoek - Akoestische emissie - Karakterisering van apparatuur - Deel 1: Beschrijving van apparatuur (en)
EN 13477-2	NEN-EN 13477-2	Niet-destructief onderzoek - Akoestische emissie - Karakterisering van apparatuur - Deel 2: Verificatie van bedieningseigenschappen (en)

Preview

ICS 17.140.20; 77.040.20

English Version

Non-destructive testing - Acoustic emission - Examination of
metallic pressure equipment during proof testing - Planar
location of AE sources

Essais non destructifs - Emission acoustique - Vérification
des équipements métalliques sous pression pendant
l'épreuve - Localisation planaire des sources d'EA

Zerstörungsfreie Prüfung - Schallemissionsprüfung -
Prüfung von metallischen Druckgeräten während der
Abnahmeprüfung - Planare Ortung von
Schallemissionsquellen

This European Standard was approved by CEN on 8 July 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Terms and definitions.....	4
4 Personnel qualification.....	4
5 Test method.....	4
5.1 General.....	4
5.2 Application of load.....	5
5.3 Sensors.....	5
5.4 Location.....	5
5.5 Preliminary information.....	5
5.6 Written instruction requirements.....	6
6 Instrumentation.....	6
7 Testing.....	7
7.1 Pre-test measurements.....	7
7.2 Test steps.....	9
8 Interpretation of results.....	10
8.1 Grading criteria.....	10
8.2 Real time control.....	10
8.3 AE source severity grading.....	11
9 Documentation.....	12
Annex A (normative) Distance peak amplitude correction procedures.....	13
Bibliography.....	15

Foreword

This European Standard (EN 14584:2005) has been prepared by Technical Committee CEN/TC 138 "Non-destructive testing", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2006, and conflicting national standards shall be withdrawn at the latest by February 2006.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Orb
Preview
EEN

1 Scope

This European Standard specifies the method for conducting acoustic emission (AE) + testing of metallic pressure equipment during acceptance pressure testing using a planar location method. General principles of acoustic emissions are described in EN 13554.

The objectives of the AE testing are to provide 100 % volumetric testing to define regions of the structure, which are acoustically active with burst type AE e.g. as a result of sub-critical flaw evolution; thus increasing the reliability of the acceptance test. The test provides a reference map for comparison with results of future tests.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 473, *Non-destructive testing – Qualification and certification of NDT personnel – General principles*

EN 1330-1:1998, *Non-destructive testing – Terminology – Part 1: List of general terms*

EN 1330-2:1998, *Non-destructive testing – Terminology – Part 2: Terms common to the non-destructive testing methods*

EN 1330-9:2000, *Non-destructive testing – Terminology – Part 9: Terms used in acoustic emission testing*

EN 13477-1, *Non-destructive testing – Acoustic emission – Equipment characterisation – Part 1: Equipment description*

EN 13477-2, *Non-destructive testing – Acoustic emission – Equipment characterisation – Part 2: Verification of operating characteristic*

3 Terms and definitions

For the purpose of this European Standard, the terms and definitions given in EN 1330-1:1998, EN 1330-2:1998 and EN 1330-9:2000 apply.

4 Personnel qualification

It is assumed that acoustic emission testing is performed by qualified and capable personnel. In order to prove this qualification, it is recommended to certify the personnel in accordance with EN 473.

NOTE For pressure equipment see directive 97/23/EC, Annex 3.1.3: "For pressure equipment in categories III and IV, the personnel must be approved by a third party organization recognized by a Member State".

5 Test method

5.1 General

The main target of the AE test is to locate and monitor acoustic emission sources caused by phenomena e.g. crack growth and yielding generated by the applied load to the equipment.

The properties and structural state of the material, the type and magnitude of the applied stress and stress rate are significant factors affecting the emission.

All the relevant located AE sources shall be evaluated by other NDT methods.

5.2 Application of load

The application of the stress to the equipment shall be made using internal pressure following the procedure specified in the relevant product standard. The rate of the application of pressure shall be established so as to avoid burst signal overlap. The pressurising system shall permit pressurisation at a steady controllable rate and shall allow the pressure to be held constant at the hold points. The pressurisation rate would not normally exceed 1 % for pneumatic and 5 % for hydraulic test pressure per minute. The intermediate hold periods, if necessary according to the AE activity or the pre-defined pressure schedule, will normally be 5 min to 10 min. The final hold period at the test pressure shall have a minimum duration of 15 min.

NOTE Intermediate hold periods are strongly recommended, especially if pressurisation rates exceed 0,5 %/min for pneumatic or 2 %/min for hydraulic tests.

Prior to starting the test, all the necessary actions shall be taken to identify and to reduce potential sources of extraneous noise.

Dependent upon the results of the initial loading, a reduction of the load to working pressure or lower, followed by re-pressurisation, may be required.

5.3 Sensors

The most commonly used frequency range is 100 kHz to 300 kHz. Lower frequency monitoring allows detection at greater distances and high frequency monitoring provides improved rejection of external noise. Selection of frequency range may optimise location accuracy by avoiding the detection of multiple wave modes.

The equipment surface below the sensors shall be cleaned to ensure the maximum coupling efficiency. The sensor couplant shall be as specified in the written test instruction. The sensors may be directly attached to the structure using magnetic devices or an adhesive.

The effectiveness and reliability of the acoustic couplant shall be verified. The characteristics of the type of the acoustic couplant used shall not affect the structure adversely.

5.4 Location

The location of AE sources is performed using delta t measurement.

The accuracy is normally within $\pm 5\%$ of the sensor spacing and shall be measured and verified using an artificial source. If the accuracy is not within $\pm 5\%$, appropriate action shall be taken.

For difficult geometry e.g. nozzles, manholes, reference measurements shall be made.

5.5 Preliminary information

Prior to the test, the AE Test Organisation shall collect the following information, as relevant:

- a) relevant product standard;
- b) type of equipment or structure and material characteristics and specifications;
- c) assembly and/or layout drawings with sufficient details of the structure;
- d) material specifications, including heat treatment, if applicable;
- e) proposed pressure/stress application sequence;
- f) potential acoustic noise interference sources and the isolating mechanism applied;

Bestelformulier

NEN

Stuur naar:

NEN Standards Products & Services
t.a.v. afdeling Klantenservice
Antwoordnummer 10214
2600 WB Delft

NEN Standards Products & Services

Postbus 5059
2600 GB Delft

Vlinderweg 6
2623 AX Delft

T (015) 2 690 390
F (015) 2 690 271

www.nen.nl/normshop

Ja, ik bestel

__ ex. NEN-EN 14584:2005 en Niet-destructief onderzoek - Akoestische emissie - Onderzoek van metalen drukapparatuur gedurende proeftesten - Planaire lokatie van EA bronnen € 49.30

Wilt u deze norm in PDF-formaat? Deze bestelt u eenvoudig via www.nen.nl/normshop

Gratis e-mailnieuwsbrieven

Wilt u op de hoogte blijven van de laatste ontwikkelingen op het gebied van normen, normalisatie en regelgeving? Neem dan een gratis abonnement op een van onze e-mailnieuwsbrieven. www.nen.nl/nieuwsbrieven

Retourneren

Fax: (015) 2 690 271
E-mail: klantenservice@nen.nl
Post: NEN Standards Products & Services,
t.a.v. afdeling Klantenservice
Antwoordnummer 10214,
2600 WB Delft
(geen postzegel nodig).

Gegevens

Bedrijf / Instelling _____

T.a.v. _____ O M O V

E-mail _____

Klantnummer NEN _____

Uw ordernummer _____ BTW nummer _____

Postbus / Adres _____

Postcode _____ Plaats _____

Telefoon _____ Fax _____

Factuuradres (indien dit afwijkt van bovenstaand adres)

Postbus / Adres _____

Postcode _____ Plaats _____

Datum _____ Handtekening _____

Voorwaarden

- De prijzen zijn geldig tot 31 december 2016, tenzij anders aangegeven.
- Alle prijzen zijn excl. btw, verzend- en handelingskosten en onder voorbehoud bij o.m. ISO- en IEC-normen.
- Bestelt u via de normshop een pdf, dan betaalt u geen handeling en verzendkosten.
- Meer informatie: telefoon (015) 2 690 391, dagelijks van 8.30 tot 17.00 uur.
- Wijzigingen en typfouten in teksten en prijsinformatie voorbehouden.
- U kunt onze algemene voorwaarden terugvinden op: www.nen.nl/leveringsvoorwaarden.