

ISO 24367:2023-12 (E)

Non-destructive testing - Acoustic emission testing - Metallic pressure equipment

| Contents | | Page |
|-----------------|---|-------------|
| | Foreword..... | v |
| | Introduction..... | vi |
| 1 | Scope | 1 |
| 2 | Normative references | 1 |
| 3 | Terms and definitions | 1 |
| 4 | General principles | 3 |
| 5 | Personnel qualification | 3 |
| 6 | Testing equipment | 3 |
| 6.1 | Acoustic emission testing system..... | 3 |
| 6.2 | Acoustic emission sensors..... | 4 |
| 6.3 | Acoustic emission signal cables..... | 4 |
| 6.4 | Couplant..... | 4 |
| 6.5 | Preamplifiers..... | 4 |
| 6.6 | Power signal cables..... | 4 |
| 6.7 | Filters..... | 5 |
| 6.8 | Acoustic emission instrument..... | 5 |
| 6.9 | Maintenance and verification of testing equipment..... | 6 |
| 6.10 | Pressure gauge..... | 6 |
| 7 | On-site operation | 6 |
| 7.1 | Preparation..... | 6 |
| 7.1.1 | Preliminary information..... | 6 |
| 7.1.2 | Site investigation..... | 7 |
| 7.1.3 | Preparation of acoustic emission testing instruction and record sheets..... | 7 |
| 7.1.4 | Determination of the system testing threshold..... | 7 |
| 7.1.5 | Determination of the attenuation curve..... | 7 |
| 7.1.6 | Sensor array..... | 7 |
| 7.1.7 | Pressurization sequence..... | 8 |
| 7.2 | Sensor mounting..... | 8 |
| 7.3 | Settings of the acoustic emission instrument..... | 8 |
| 7.3.1 | General requirements..... | 8 |
| 7.3.2 | Sensitivity check..... | 8 |
| 7.3.3 | Verification of the location system..... | 9 |
| 7.3.4 | Intensity analysis..... | 9 |
| 7.4 | Performing the test..... | 9 |
| 7.4.1 | Pressurization sequence..... | 9 |
| 7.4.2 | Data acquisition and observations during acoustic emission testing..... | 11 |
| 7.4.3 | On-line data analysis and stop criteria..... | 12 |
| 8 | Interpretation and evaluation of AE data | 13 |
| 8.1 | General..... | 13 |
| 8.2 | Off-line data analysis..... | 13 |
| 8.3 | Classification of the acoustic emission sources of the test object..... | 14 |
| 8.3.1 | Determination of the area of an acoustic emission cluster or zone..... | 14 |
| 8.3.2 | Classification system for acoustic emission sources..... | 14 |
| 8.3.3 | Classification method 1..... | 15 |
| 8.3.4 | Classification method 2..... | 17 |
| 8.3.5 | Classification method 3..... | 18 |

| | | |
|--|--|-----------|
| 9 | Acceptance criteria | 21 |
| 10 | Documentation | 21 |
| 10.1 | General..... | 21 |
| 10.2 | Written acoustic emission testing instruction..... | 22 |
| 10.3 | Test records..... | 22 |
| 10.4 | Test report..... | 23 |
| Annex A (informative) Guidelines for acoustic emission sensor placement | | 24 |
| Bibliography | | 27 |