ISO 16371-2:2017-09 (E)

Non-destructive testing - Industrial computed radiography with storage phosphor ima ging plates - Part 2: General principles for testing of metallic materials using X-rays and gamma rays

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **2**

4 Symbols and abbreviated terms ... **5**

5 Personnel qualification ... **6**

6 Classification of computed radiographic techniques and compensation principles ... **6**
6.1 Classification ... 6
6.2 Compensation principles, CP I and CP II ... 6

7 General ... **7**
7.1 Protection against ionizing radiation ... 7
7.2 Surface preparation and stage of manufacture ... 7
7.3 Identification of radiographs ... 7
7.4 Marking ... 7
7.5 Overlap of phosphor imaging plates ... 7
7.6 Types and positions of image quality indicators and IQI values ... 8

8 Recommended techniques for making computed radiographs ... **9**
8.1 Test arrangements ... 9
8.2 Choice of X-ray tube voltage and radiation source ... 9
8.2.1 X-ray equipment ... 9
8.2.2 Other radiation sources ... 10
8.3 CR systems and screens ... 11
8.3.1 Minimum normalized signal-to-noise ratio ... 11
8.3.2 Metal screens and shielding ... 11
8.4 Maximum unsharpness and basic spatial resolution for CR system selection ... 13
8.4.1 System selection ... 13
8.4.2 Compensation principle II ... 13
8.5 Alignment of beam ... 15
8.6 Reduction of scattered radiation ... 15
8.6.1 Metal filters and collimators ... 15
8.6.2 Interception of back scattered radiation ... 15
8.7 Source to object distance ... 15
8.7.1 General requirements ... 15
8.7.2 Testing of planar objects and curved objects with flexible IPs ... 15
8.7.3 Testing of curved objects with IPs in cassettes ... 16
8.7.4 Exceptions for panoramic projection exposures with the source in the centre of the pipe ... 16
8.8 Maximum area for a single exposure ... 18
8.9 Erasure of imaging plates ... 19
8.10 Data processing ... 19
8.10.1 Image processing ... 19
8.10.2 Monitor, viewing conditions and storage of digital radiographs ... 19

9 Test report **19**

Annex A (normative) **Determination of basic spatial resolution,** $SR_b^{detector}$ **21**

Annex B (normative) **Determination of normalized SNR_N from $SNR_{measured}$** **26**

Annex C (normative) **Determination of minimum grey value** **28**

Bibliography **31**