

DIN EN 16016-2:2012-01 (E)

Non destructive testing - Radiation methods - Computed tomography - Part 2: Principle, equipment and samples

Contents	Page
Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 General principles	5
4.1 Basic principles	5
4.2 Advantages of CT	5
4.3 Limitations of CT	6
4.4 Main CT process steps	6
4.4.1 Acquisition	6
4.4.2 Reconstruction	7
4.4.3 Visualisation and analysis	7
4.5 Artefacts in CT images	8
5 Equipment and apparatus	8
5.1 General	8
5.2 Radiation sources	9
5.3 Detectors	10
5.4 Manipulation	10
5.5 Acquisition, reconstruction, visualisation and storage system	10
6 CT system stability	11
6.1 General	11
6.2 X-Ray Stability	11
6.3 Manipulator stability	11
7 Geometric alignment	12
8 Sample considerations	12
8.1 Size and shape of sample	12
8.2 Materials (including table voltage / thickness of penetration)	12
Annex A (informative) CT system components	15
A.1 Radiation sources	15
A.1.1 Open Tube X-ray sets	15
A.1.2 Sealed Tube X-ray Sets	16
A.1.3 Linear Accelerators	16
A.1.4 X-ray target assemblies	17
A.2 Detectors	18
A.2.1 Ionisation detectors	18
A.2.2 Scintillation detectors	18
A.2.3 Semiconductor detectors	19
A.3 Manipulation	19
A.4 Acquisition, reconstruction, visualisation and storage system	19

A.4.1	Acquisition system	19
A.4.2	Reconstruction system	20
A.4.3	Visualisation system	20
A.4.4	Storage system	20
Bibliography		21