

# NDT and Inspection Market by Technique (Visual Testing, Magnetic Particle, Liquid Penetrant, Eddy-Current, Ultrasonic, Radiographic, Terahertz Imaging, Acoustic Emission), Method, Service, Application, Vertical and Region - Global Forecast to 2028

Market Report | 2023-01-09 | 338 pages | MarketsandMarkets

#### **AVAILABLE LICENSES:**

- Single User \$4950.00
- Multi User \$6650.00
- Corporate License \$8150.00
- Enterprise Site License \$10000.00

### **Report description:**

The NDT and Inspection market size is estimated to be USD 10.3 billion in 2023 and is projected to reach USD 18.5 billion by 2028, at a CAGR of 10.1% during the forecast period. The booming NDT and Inspection market is mostly due to the increasing number of companies offering testing equipment and inspection services and increasing demand for public safety. Moreover, technological innovations and rising advancements have further accelerated the growth of the NDT and Inspection market. Competitive manufacturing costs, and a high economic growth rate, are some of the other major factors driving the growth of the NDT and Inspection market.

"Manufacturing vertical to grow at the highest CAGR between 2023 - 2028"

The manufacturing segment is expected to be the fastest-growing vertical of the NDT and inspection market from 2023 to 2028. The manufacturing sector is flourishing in emerging economies such as China, India, and South Africa. Government initiatives such as "Make in India" in India and "Industry 4.0" in Europe are expected to increase the manufacturing output from the respective regions. This, in turn, is expected to drive the demand for NDT equipment and services in the coming years.

"Training Services segment to hold second-largest market share during the forecast period."

The training services segment is projected to account for the second-largest size of the NDT and testing market. The growth of this segment can be attributed to the requirement of training NDT technicians to keep them updated with new technological trends and make them aware of the changing demands of customers. The NDT and inspection industry is facing a shortage of skilled workforce; hence, training services are expected to be in demand in the coming years.

"Ultrasonic Technique to hold largest market share during the forecast period"

The UT segment is projected to account for the largest size of the NDT and inspection market in 2022. The growth of the UT technique segment can be attributed to the ability of this technique to identify defects accurately and determine their severity. Some advanced techniques, such as ultrasonic immersion testing and guided wave ultrasonic testing, can be used in critical applications in the oil & gas and aerospace industries.

"China to account for the largest size of NDT and inspection during the forecast period"

China is expected to continue to account for the largest share of the NDT and inspection market in Asia Pacific in the coming years. China has developed in-house inspection facilities, yet the demand for NDT and inspection techniques from the manufacturing and oil & gas verticals is high in the country. With the exploration of shale gas sites in the country, the demand for NDT and inspection technology in China is expected to increase further during the forecast period. The rapid infrastructural development in China is an emerging opportunity for the NDT and inspection market. Automobile production in China is estimated to grow by 2024, which, in turn, will surge the demand for NDT and inspection equipment and services from the automotive vertical. China's economic growth has led to the expansion of its energy, infrastructure, manufacturing, construction, and transportation industries.

General Electric (US), MISTRAS Group (US), Olympus Corporation (Japan), Astead Technology (Scotland), Nikon Metrology NV (UK) are the key players in the NDT and Inspection market. These top players have strong portfolios of products and services and a presence in both mature and emerging markets.

The study includes an in-depth competitive analysis of these key players in the NDT and Inspection market, with their company profiles, recent developments, and key market strategies.

### Research Coverage

The report defines, describes, and forecasts the NDT and Inspection market based on technique, vertical, method, service, and region. It provides detailed information regarding factors such as drivers, restraints, opportunities, and challenges influencing the growth of NDT and Inspection market. It also analyzes competitive developments such as product launches, acquisitions, expansions, contracts, partnerships, and developments carried out by the key players to grow in the market.

### Key Benefits of Buying the Report

The report will help market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall NDT and Inspection market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to better position their businesses and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

### **Table of Contents:**

1[INTRODUCTION[]27 1.1[]STUDY OBJECTIVES[]27 1.2[]MARKET DEFINITION[]27 1.2.1[INCLUSIONS AND EXCLUSIONS[]28 1.3[]STUDY SCOPE[]29

1.3.1 MARKETS COVERED 29 1.3.2 GEOGRAPHIC SCOPE 30 1.3.3 YEARS CONSIDERED 30 1.4 CURRENCY CONSIDERED 30 1.5 LIMITATIONS 31 1.6 UNIT CONSIDERED 31 1.7 STAKEHOLDERS 31 1.8 SUMMARY OF CHANGES 31 1.9 RECESSION IMPACT 32 2 RESEARCH METHODOLOGY 33 2.1 RESEARCH DATA 33 FIGURE 1 NDT AND INSPECTION MARKET: PROCESS FLOW FOR MARKET SIZE ESTIMATION 33 FIGURE 2 RESEARCH DESIGN: NDT AND INSPECTION MARKET 34 2.1.1 SECONDARY DATA 35 2.1.1.1 Key data from secondary sources 35 2.1.2 PRIMARY DATA 36 2.1.2.1 Key data from primary sources 36 2.1.2.2 Key industry insights 37 2.1.2.3 Breakdown of primaries 37 2.1.2.4 Primary interviews with experts 38 2.1.3 SECONDARY AND PRIMARY DATA 38 2.2 MARKET SIZE ESTIMATION 39 2.2.1 BOTTOM-UP APPROACH 39 2.2.1.1 Approach to obtain market size using bottom-up analysis (demand side) 39 FIGURE 3 MARKET SIZE ESTIMATION METHODOLOGY: SUPPLY-SIDE ANALYSIS 40 2.2.2 TOP-DOWN APPROACH 40 2.2.2.1 Approach to obtain market size using top-down analysis (supply side) 41 FIGURE 4[]NDT AND INSPECTION MARKET SIZE ESTIMATION METHODOLOGY: DEMAND SIDE ANALYSIS[]41 ? 2.3 MARKET BREAKDOWN AND DATA TRIANGULATION 42 FIGURE 5□DATA TRIANGULATION□42 2.4 RESEARCH ASSUMPTIONS 43 FIGURE 6 ASSUMPTIONS FOR RESEARCH STUDY 43 2.5 RESEARCH LIMITATIONS 43 2.6 RISK ASSESSMENT 44 2.7 IMPACT OF RECESSION ON NDT AND INSPECTION MARKET 44 TABLE 1 NDT AND INSPECTION MARKET: IMPACT OF RECESSION ON END-USER VERTICALS 44 3 EXECUTIVE SUMMARY 46 FIGURE 7 NDT AND INSPECTION MARKET: PRE- VS. POST-RECESSION ANALYSIS 47 FIGURE 8 SERVICE SEGMENT TO HOLD LARGEST MARKET SHARE IN TERMS OF VALUE THROUGHOUT FORECAST PERIOD 47 FIGURE 9[UT SEGMENT TO HOLD LARGEST SHARE OF NDT AND INSPECTION MARKET IN 2023 IN TERMS OF VALUE[]48 FIGURE 10 POWER GENERATION SEGMENT OF NDT AND INSPECTION MARKET TO HOLD LARGEST SHARE FROM 2023 TO 2028 IN TERMS OF VALUE∏48 FIGURE 11 INSPECTION SERVICES SEGMENT TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FROM 2023 TO 2028 IN TERMS OF VALUE 49 FIGURE 12 NORTH AMERICA ACCOUNTED FOR LARGEST SHARE OF NDT AND INSPECTION MARKET IN 2022 IN TERMS OF VALUE 50 4 PREMIUM INSIGHTS 51

4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN NDT AND INSPECTION MARKET 51

FIGURE 13[]SIGNIFICANT GROWTH OPPORTUNITIES FOR NDT AND INSPECTION MARKET FROM 2023 TO 2028[]51

4.2 NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE 51

FIGURE 14[]SERVICE SEGMENT TO ACCOUNT FOR LARGEST MARKET SHARE FROM 2023 TO 2028 IN TERMS OF VALUE[]51 4.3[]NDT AND INSPECTION MARKET, BY SERVICE[]52

FIGURE 15[]INSPECTION SERVICES TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FROM 2023 TO 2028 IN TERMS OF VALUE[]52

4.4 NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY AND TECHNIQUE, 2022 52

FIGURE 16 CHINA AND UT TECHNIQUE SEGMENT HELD LARGEST SHARES IN OVERALL NDT AND INSPECTION MARKET IN ASIA PACIFIC IN 2022 52

4.5 NDT AND INSPECTION MARKET, BY REGION 53

FIGURE 17[NDT AND INSPECTION MARKET IN INDIA TO GROW AT HIGHEST CAGR FROM 2023 TO 2028 IN TERMS OF VALUE[]53 5[]MARKET OVERVIEW[]54

5.1 [INTRODUCTION]54

5.2 MARKET DYNAMICS 55

FIGURE 18 DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES AFFECTING NDT AND INSPECTION MARKET 55 5.2.1 DRIVERS 55

5.2.1.1 Regulatory compliance by governments regarding public safety and product quality 55

5.2.1.2 Increased adoption of NDT and inspection equipment and services in electronics, automation, and robotics industries 56

5.2.1.3 High adoption of IoT devices 57

5.2.1.4 [Increased demand for structural health monitoring of infrastructures ]57

5.2.1.5 Higher demand for Artificial Intelligence in NDT and inspection 58

FIGURE 19 NDT AND INSPECTION MARKET DRIVERS AND THEIR IMPACT 58

5.2.2 RESTRAINTS 59

5.2.2.1 Dearth of skilled and qualified personnel to carry out NDT and inspection activities 59

5.2.2.2 Huge investments in NDT and inspection equipment 59

FIGURE 20] NDT AND INSPECTION MARKET RESTRAINTS AND THEIR IMPACT [59]

5.2.3 OPPORTUNITIES 60

5.2.3.1 Large-scale infrastructural developments in Asia Pacific, Europe, and South America 60

5.2.3.2 Increased demand for NDT and inspection services from power generation industry 60

5.2.3.3 Technological advancements in NDT and inspection techniques and emergence of new applications 61

5.2.3.4 [Importance of NDT and inspection activities in controlling corrosion in aging infrastructures [61

FIGURE 21[]NDT AND INSPECTION MARKET OPPORTUNITIES AND THEIR IMPACT[]62

5.2.4 CHALLENGES 62

5.2.4.1 Reluctance to adopt new and high-cost NDT and inspection techniques 62

5.2.4.2 Increased complexity of machines and structures 62

5.2.4.3 [] High replacement costs of automated NDT and inspection equipment [] 63

FIGURE 22 NDT AND INSPECTION MARKET CHALLENGES AND THEIR IMPACT 63

5.3 EVOLUTION OF NDT AND INSPECTION METHODS 64

FIGURE 23 NDT AND INSPECTION METHODS: EVOLUTION 64

5.4 SUPPLY CHAIN ANALYSIS 64

FIGURE 24 SUPPLY CHAIN: NDT AND INSPECTION MARKET 65

5.5[ECOSYSTEM]66

FIGURE 25 NDT AND INSPECTION MARKET: ECOSYSTEM 66

TABLE 2 COMPANIES AND THEIR ROLES IN NDT AND INSPECTION ECOSYSTEM 67

5.6 AVERAGE SELLING PRICE ANALYSIS 68

FIGURE 26 AVERAGE SELLING PRICE OF NDT AND INSPECTION TECHNIQUES 68

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

5.7 TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS 68 FIGURE 27 TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS RELATED TO NDT AND INSPECTION MARKET 69 5.8 TECHNOLOGY ANALYSIS 69 5.8.1 EMERGING TRENDS AND TECHNOLOGIES IN NDT AND INSPECTION MARKET 70 5.8.1.1 Drone inspection 70 5.8.1.2 || IoT-powered real-time NDT for predictive maintenance || 70 5.8.1.3 Use of artificial intelligence to detect defects 70 5.8.1.4 Use of combination techniques 70 5.8.1.5 Development of new materials to refurbish market 71 5.8.1.6 Increased customer expectations from NDT and inspection equipment 71 5.9⊓IMPACT OF EMERGING TECHNOLOGIES ON NDT∏71 5.10 PORTER'S FIVE FORCES ANALYSIS 71 TABLE 3 IMPACT OF PORTER'S FIVE FORCES ON NDT AND INSPECTION MARKET 72 FIGURE 28 NDT AND INSPECTION MARKET: PORTER'S FIVE FORCE ANALYSIS 72 5.10.1 BARGAINING POWER OF SUPPLIERS 72 5.10.2 BARGAINING POWER OF BUYERS 72 5.10.3 THREAT OF NEW ENTRANTS 73 5.10.4 THREAT OF SUBSTITUTES 73 5.10.5 INTENSITY OF COMPETITIVE RIVALRY 73 5.11⊓KEY STAKEHOLDERS AND BUYING CRITERIA∏74 5.11.1 KEY STAKEHOLDERS IN BUYING PROCESS 74 FIGURE 29 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS, BY VERTICAL 74 TABLE 4⊓INFLUENCE OF STAKEHOLDERS IN BUYING PROCESS, BY VERTICAL (%)∏74 5.11.2 BUYING CRITERIA 75 FIGURE 30 KEY BUYING CRITERIA, BY VERTICAL 75 TABLE 5 KEY BUYING CRITERIA, BY VERTICAL 75 5.12 CASE STUDIES 76 5.12.1 BOLT-LOAD IN-SERVICE INSPECTION AND MONITORING 76 TABLE 6 CASE STUDY 1: BOLT-LOAD IN-SERVICE INSPECTION AND MONITORING THROUGH NOVEL NON-DESTRUCTIVE TESTING **TECHNOLOGIES**∏76 5.12.2 GENEVA'S OIL TANK INSPECTION 76 TABLE 7 CASE STUDY 2: GENEVA'S OIL TANK INSPECTION-REMOTE MONITORING USING DRONES 76 5.12.3 ⊓REDUCING BOILER DOWNTIME AT EFW (ENERGY-FROM-WASTE) FACILITIES USING INNERSPEC'S THICKNESS MEASUREMENT **TECHNOLOGY**<sub>177</sub> TABLE 8 CASE STUDY 3: REDUCING BOILER DOWNTIME AT EFW (ENERGY-FROM-WASTE) 77 5.13 TRADE DATA ANALYSIS 78 TABLE 9 IMPORT DATA ON MEASURING OR CHECKING INSTRUMENTS, APPLIANCES, AND MACHINES, BY COUNTRY, 2017-2021 (USD MILLION) 78 FIGURE 31 INDT AND INSPECTION MARKET: IMPORT DATA, BY COUNTRY, 2017-2021 (USD MILLION) [79 TABLE 10 EXPORT DATA ON MEASURING OR CHECKING INSTRUMENTS, APPLIANCES, AND MACHINES, BY COUNTRY, 2017-2021 (USD MILLION)∏79 FIGURE 32[INDT AND INSPECTION MARKET: EXPORT DATA, BY COUNTRY, 2017-2021 (USD MILLION)[80 5.14 PATENT ANALYSIS 80 TABLE 11 NOTABLE PATENTS RELATED TO NDT AND INSPECTION MARKET 81 TABLE 12 NUMBER OF PATENTS REGISTERED RELATED TO NDT AND INSPECTION MARKET IN LAST 10 YEARS 184 FIGURE 33 TOP 10 COMPANIES WITH HIGHEST NO. OF PATENT APPLICATIONS IN LAST 10 YEARS 185 FIGURE 34 NO. OF PATENTS GRANTED PER YEAR, 2012-2021 85

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

5.15⊓KEY CONFERENCES AND EVENTS, 2022-2023⊓86 TABLE 13[INDT AND INSPECTION MARKET: DETAILED LIST OF CONFERENCES AND EVENTS[]86 5.16 REGULATIONS AND STANDARDS RELATED TO NDT AND INSPECTION 87 5.16.1 LEADING ASSOCIATIONS FOR NDT AND INSPECTION 87 5.16.1.1 American Society for Nondestructive Testing 87 5.16.1.2 British Institute of Non-Destructive Testing 88 5.16.1.3 ASTM International 91 6 NDT AND INSPECTION MARKET, BY TECHNIQUE 93 6.1 INTRODUCTION 94 FIGURE 35 SERVICE SEGMENT TO ACCOUNT FOR LARGER SIZE OF NDT AND INSPECTION MARKET FROM 2023 TO 2028 94 TABLE 14 NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION) 95 TABLE 15 NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION) 95 FIGURE 36⊓UT TECHNIQUE SEGMENT TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FROM 2023 TO 2028⊓96 TABLE 16 NDT AND INSPECTION MARKET, BY TECHNIQUE, 2019-2022 (USD MILLION) 96 TABLE 17 NDT AND INSPECTION MARKET, BY TECHNIQUE, 2023-2028 (USD MILLION) 97 TABLE 18 NDT AND INSPECTION MARKET, BY TECHNIQUE, 2019-2022 (THOUSAND UNITS) 98 TABLE 19 NDT AND INSPECTION MARKET, BY TECHNIQUE, 2023-2028 (THOUSAND UNITS) 98 6.2 ULTRASONIC TESTING (UT) 99 6.2.1 STRAIGHT BEAM TESTING 100 6.2.1.1∏Growing deployment of straight beam testing for crack detection∏100 6.2.2 ANGLE BEAM TESTING 100 6.2.2.1 Surging demand for angle beam testing in weld inspections 100 6.2.3⊓IMMERSION TESTING⊓100 6.2.3.1 Rising adoption of immersion testing in industrial and manufacturing sectors to assure welding quality 6.2.4 GUIDED WAVE TESTING 101 6.2.4.1 Growing use of guided wave testing for overall screening of pipe walls 101 6.2.5 PHASED ARRAY TESTING 101 6.2.5.1 [Increasing deployment of phased array inspection technique for corrosion, flaw, and crack detection and weld inspection[]101 6.2.6 TIME-OF-FLIGHT DIFFRACTION (TOFD) 101 6.2.6.1 Surging adoption of time-of-flight diffraction technique for weld flaw detection 101 ? 6.2.7 □ PROCESS COMPENSATED RESONANCE TESTING (PCRT) □ 102 6.2.7.1 Increased adoption in aerospace and power generation applications 102 FIGURE 37 NDT AND INSPECTION MARKET, BY PCRT TECHNIQUE, 2019-2028 (USD MILLION) 103 TABLE 20[PCRT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)[103 TABLE 21 PCRT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 103 FIGURE 38[]OIL AND GAS VERTICAL TO HOLD LARGEST SHARE OF NDT AND INSPECTION MARKET FOR UT TECHNIQUE IN 2022[]104 TABLE 22[]UT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)[]104 TABLE 23 TUT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 105 TABLE 24⊓UT: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)∏105 TABLE 25[]UT: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)[]106 6.3 VISUAL TESTING (VT) 106 6.3.1 GENERAL VISUAL INSPECTION 106 6.3.1.1 Rising demand for deployment of cost-effective general visual inspection technique for quick detection of flaws in test objects[]106

6.3.2 AIDED VISUAL INSPECTION 107

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

6.3.2.1 Growing use of aided visual inspection for predictive and regular maintenance of fixed and movable assets 107 6.3.2.2 Borescopes 107 6.3.2.2.1 Surging demand for borescopes to inspect aircraft engines, steam turbines, diesel engines, and automobile engines 6.3.2.3 Endoscopes 107 6.3.2.3.1 Rising adoption of endoscopes in NDT and inspection activities owing to their cost-effectiveness 107 6.3.2.4 Videoscopes 108 6.3.2.4.1 Produce high-quality images for flaw detection 108 TABLE 26[]VT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)[]108 TABLE 27[]VT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION)[]109 TABLE 28⊓VT: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)∏109 TABLE 29 VT: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION) 109 6.4 MAGNETIC PARTICLE TESTING (MPT) 110 6.4.1 ⊓RISING DEMAND FOR MAGNETIC PARTICLE TESTING TO CONDUCT UNDERWATER INSPECTIONS∏110 TABLE 30∏MPT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏111 FIGURE 39[]MANUFACTURING SEGMENT TO HOLD LARGEST SHARE OF NDT AND INSPECTION MARKET FOR MPT TECHNIQUE IN 2028 111 TABLE 31 MPT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) TABLE 32□MPT: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)□112 TABLE 33[]MPT: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)[]112 6.5⊓LIQUID PENETRANT TESTING (LPT)⊓113 6.5.1 INCREASING DEMAND FOR LIQUID PENETRANT TESTING TO TEST DIFFERENT MATERIALS 113 TABLE 34 COMPARISON OF DIFFERENT LPT TECHNIQUES 113 TABLE 35⊓LPT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏114 TABLE 36 LPT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) TABLE 37□LPT: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)□115 TABLE 38 LPT: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION) 115 6.6 EDDY-CURRENT TESTING (ECT) 115 6.6.1 ALTERNATING CURRENT FIELD MEASUREMENT (ACFM) 116 6.6.1.1 [Growing use of ACFM technique in weld and threat inspections of magnetic and non-magnetic components]116 6.6.2 REMOTE FIELD TESTING (RFT) 116 6.6.2.1 Surging use of RFT to detect defects in internal and external surfaces 116 6.6.3 DDY-CURRENT ARRAY (ECA) 116 6.6.3.1 Surging demand for ECA technique to detect corrosion 116 TABLE 39∏ECT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏117 TABLE 40 ECT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) TABLE 41□ECT: NDT INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)□118 TABLE 42 TECT: NDT INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION) 118 6.7 RADIOGRAPHIC TESTING (RT) 118 6.7.1 X-RAY TESTING 119 6.7.1.1 Rising use of X-ray testing to detect surface and internal discontinuities 119 6.7.2 GAMMA RAY TESTING 119 6.7.2.1 Increasing use of gamma-ray testing to detect internal voids in materials 119 6.7.3 COMPUTED RADIOGRAPHY 119 6.7.3.1 Growing adoption of computed radiography owing to its reliability, flexibility, and cost-effectiveness 119 6.7.4 FILM RADIOGRAPHY 120 6.7.4.1 Surging deployment of film radiography to inspect hidden flaws in different types of materials 120 6.7.5 DIRECT RADIOGRAPHY (REAL-TIME) 120

6.7.5.1 Increasing use of direct radiography to detect cracks 120 TABLE 43[]RT: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)[]120 FIGURE 40 MANUFACTURING VERTICAL TO HOLD LARGEST SHARE OF NDT AND INSPECTION MARKET FOR RT TECHNIQUE FROM 2023 TO 2028[121 TABLE 44∏RT: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION)∏121 TABLE 45 RT: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION) 122 TABLE 46∏RT: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)∏122 6.8 ACOUSTIC EMISSION TESTING (AET) 122 6.8.1 INCREASING DEMAND FOR AET FROM METAL INDUSTRY 122 TABLE 47∏AET: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏123 TABLE 48 AET: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) TABLE 49⊓AET: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)∏124 TABLE 50 AET: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION) 6.9⊓OTHERS⊓124 6.9.1 TERAHERTZ IMAGING 124 6.9.1.1 Growing use to test various material layers 124 TABLE 51 APPLICATIONS OF TERAHERTZ IMAGING, BY INDUSTRY 125 6.9.2 NEAR-INFRARED SPECTROSCOPY 125 6.9.2.1 Growing use to meet requirement for testing bulk materials 125 TABLE 52 APPLICATIONS OF NEAR-INFRARED SPECTROSCOPY, BY INDUSTRY 125 TABLE 53[OTHERS: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)[126 TABLE 54[OTHERS: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION)[126 TABLE 55∏OTHERS: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)∏127 TABLE 56 OTHERS: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION) 127 7 NDT AND INSPECTION MARKET, BY SERVICE 128 7.1 INTRODUCTION 129 TABLE 57[]NDT AND INSPECTION MARKET, BY SERVICE, 2019-2022 (USD MILLION)[]129 FIGURE 41 INSPECTION SERVICES SEGMENT TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET IN 2028 129 TABLE 58[INDT AND INSPECTION MARKET, BY SERVICE, 2023-2028 (USD MILLION)[130 7.2□INSPECTION SERVICES□130 7.2.1 ULTRASONIC INSPECTION 131 7.2.1.1 Growing ultrasonic inspections to detect internal defects with high accuracy 131 7.2.2 RADIOGRAPHIC INSPECTION 131 7.2.2.1 Increasing adoption of radiographic inspection to identify planar and volumetric defects 131 7.2.3 VISUAL INSPECTION 132 7.2.3.1 Rising use of cost-effective visual inspection technique to inspect objects, parts, or components 7.2.4 MAGNETIC PARTICLE INSPECTION 132 7.2.4.1 Used to spot surface and subsurface discontinuities in ferromagnetic materials 132 7.2.5 ADVANCED EDDY-CURRENT INSPECTION 133 7.2.5.1 Growing demand to detect faults in condensers, tubing, and heat exchangers and inspect complex shapes of conductive materials∏133 7.2.6 LIQUID PENETRANT INSPECTION 133 7.2.6.1 Used to expose surface discontinuities in ferromagnetic and non-ferromagnetic materials TABLE 59∏INSPECTION SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏133 TABLE 60∏INSPECTION SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION)∏134 7.3 EQUIPMENT RENTAL SERVICES 134 7.3.1 FLOURISHING MARKET FOR EQUIPMENT RENTAL SERVICES GLOBALLY 134

TABLE 61∏EQUIPMENT RENTAL SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏135 FIGURE 42 POWER GENERATION SEGMENT TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FOR EQUIPMENT RENTAL SERVICES IN 2028 136 TABLE 62∏EQUIPMENT RENTAL SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION)∏136 7.4 CALIBRATION SERVICES 137 7.4.1 GROWING REQUIREMENT FOR HIGHLY ACCURATE TESTING EQUIPMENT TO DRIVE DEMAND FOR CALIBRATION SERVICES TABLE 63 CALIBRATION SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION) 137 TABLE 64 CALIBRATION SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 138 7.5 TRAINING SERVICES 138 7.5.1 □ FLOURISHING MARKET FOR TRAINING SERVICES OWING TO RISING DEMAND FOR SKILLED TECHNICIANS □ 138 TABLE 65∏TRAINING SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏139 FIGURE 43 POWER GENERATION SEGMENT TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FOR TRAINING SERVICES IN 2028 139 TABLE 66∏TRAINING SERVICES: NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION)∏140 8 NDT AND INSPECTION MARKET, BY METHOD 141 8.1⊓INTRODUCTION⊓142 FIGURE 44//VOLUMETRIC INSPECTION METHOD TO LEAD NDT AND INSPECTION MARKET FROM 2023 TO 2028/142 TABLE 67 NDT AND INSPECTION MARKET, BY METHOD, 2019-2022 (USD MILLION) 143 TABLE 68[INDT AND INSPECTION MARKET, BY METHOD, 2023-2028 (USD MILLION)[]143 8.2 VISUAL INSPECTION 143 8.2.1 EMERGENCE OF VISUAL INSPECTION AS MOST COST-EFFECTIVE METHOD FOR SURFACE INSPECTION 143 8.3 SURFACE INSPECTION 144 8.3.1 □ DEPLOYMENT OF SURFACE INSPECTION METHOD TO DETECT CRACKS AND DISCONTINUITIES ON COMPONENT SURFACES □ 144 8.4 VOLUMETRIC INSPECTION 145 8.4.1 UOLUMETRIC INSPECTION METHOD HELD LARGEST SHARE OF NDT AND INSPECTION MARKET IN 2022 145 8.5 OTHERS 146 9 NDT AND INSPECTION MARKET, BY VERTICAL 147 9.1 INTRODUCTION 148 TABLE 69 TESTING REQUIREMENTS OF DIFFERENT INDUSTRIES 148 TABLE 70⊓NDT AND INSPECTION MARKET, BY VERTICAL, 2019-2022 (USD MILLION)∏149 FIGURE 45∏POWER GENERATION SEGMENT TO HOLD LARGEST MARKET SHARE IN 2022∏149 TABLE 71 NDT AND INSPECTION MARKET, BY VERTICAL, 2023-2028 (USD MILLION) 150 9.2 MANUFACTURING 150 9.2.1 ADVANCED NDT AND INSPECTION TECHNIQUES FOR MANUFACTURING VERTICAL 9.2.1.1 Electromagnetic acoustic transducer (EMAT) technique 151 9.2.1.1.1 EMAT technique increases overall probability of flaw and fracture detection in metal surfaces TABLE 72 MANUFACTURING: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION) 151 TABLE 73[MANUFACTURING: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION)[151 TABLE 74∏MANUFACTURING: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)∏152 FIGURE 46]ASIA PACIFIC TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FOR MANUFACTURING VERTICAL IN 2028 152 TABLE 75[]MANUFACTURING: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)]152 TABLE 76[]MANUFACTURING: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2019-2022 (USD MILLION)[]153 TABLE 77[MANUFACTURING: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)[153] TABLE 78∏MANUFACTURING: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)∏153 TABLE 79∏MANUFACTURING: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2023-2028 (USD MILLION)∏154 TABLE 80[MANUFACTURING: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)[154

TABLE 81[]MANUFACTURING: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)[]154 TABLE 82[]MANUFACTURING: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION)[]155 TABLE 83[]MANUFACTURING: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)[]155

?

9.3 OIL AND GAS 155

9.3.1 REFINERIES 156

9.3.1.1 Adoption of NDT and inspection technique to ensure operating safety and avoid unplanned outages 156 9.3.2 TRANSMISSION PIPELINES 156

9.3.2.1 Increased demand for NDT and inspection techniques for inspection and maintenance of transmission pipelines 156 9.3.3 SUBSEA PIPELINES 157

9.3.3.1 Deployment of NDT and inspection techniques for corrosion mapping in subsea pipelines 157

9.3.4 STORAGE TANKS 158

9.3.4.1 Application of NDT and inspection techniques for detection of imperfections in storage tanks 158

9.3.5 ADVANCED NDT TECHNIQUES FOR OIL & GAS VERTICAL 159

9.3.5.1 Long-range ultrasonic technique (LRUT) 159

9.3.5.1.1 Surging adoption of long-range ultrasonic technique in onshore and offshore oil & gas pipelines 159 9.3.5.2 Positive metal identification technique 159

9.3.5.2.1[Use of positive metal identification technique for identification of flow acceleration corrosion]159 TABLE 84[]OIL AND GAS: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION)]159 TABLE 85[]OIL AND GAS: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION)]159 TABLE 86[]OIL AND GAS: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)]160 TABLE 87[]OIL AND GAS: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)]160 TABLE 88[]OIL AND GAS: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)]160 TABLE 88[]OIL AND GAS: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2019-2022 (USD MILLION)]161 TABLE 99[]OIL AND GAS: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)]161 TABLE 90[]OIL AND GAS: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)]161 TABLE 90[]OIL AND GAS: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)]161 TABLE 91[]OIL AND GAS: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)]161 TABLE 92[]OIL AND GAS: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)]162 TABLE 93[]OIL AND GAS: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)]162 FIGURE 47[]MIDDLE EAST TO HOLD LARGEST SHARE OF NDT AND INSPECTION MARKET FOR OIL AND GAS VERTICAL IN 2023[]162 TABLE 94[]OIL AND GAS: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION)]163 TABLE 95[]OIL AND GAS: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION)]163 TABLE 95[]OIL AND GAS: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)]163 TABLE 95[]OIL AND GAS: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)]163 TABLE 95[]OIL AND GAS: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)]163

9.4[AEROSPACE]163

TABLE 96 NDT AND INSPECTION TECHNIQUES IN AEROSPACE VERTICAL 164

9.4.1 AIRCRAFT ENGINE PART PRODUCTION 165

9.4.1.1 Deployment of Eddy-current testing, ultrasonic testing, and visual testing for checking aircraft engine parts 165 9.4.2 COMPOSITE AIRFRAME MANUFACTURING 165

9.4.2.1 Increased use of NDT and inspection methods for testing composite materials used in aircraft 165

9.4.3 AIRCRAFT MAINTENANCE 165

9.4.3.1 Deployment of ultrasonic testing, radiographic testing, visual testing, and infrared thermography for aircraft maintenance 165

TABLE 97 ESSENTIAL NDT AND INSPECTION TECHNIQUES FOR AIRCRAFT MAINTENANCE 166

9.4.4 MATERIAL ANALYSIS 166

9.4.4.1 Adoption of penetrant testing for material analysis in aerospace industry 166

9.4.5 ADVANCED NDT AND INSPECTION TECHNIQUES FOR AEROSPACE VERTICAL 167

9.4.5.1 Dynamic thermography 167

9.4.5.1.1 Use of technique for real-time high-speed scanning and contactless inspection of test objects 167

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

9.4.5.2 Air-coupled ultrasound 167

9.4.5.2.1 Designed to detect defects with high accuracy 167

9.4.5.3 Dynamic interferometry 167

9.4.5.3.1 Helpful in carrying out cost-effective and fast inspections 167

TABLE 98[]AEROSPACE: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION)[]167 TABLE 99[]AEROSPACE: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION)[]168 TABLE 100[]AEROSPACE: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)[]168 TABLE 101[]AEROSPACE: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)[]168 TABLE 102[]AEROSPACE: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)[]168 TABLE 102[]AEROSPACE: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2019-2022 (USD MILLION)[]169 TABLE 103[]AEROSPACE: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)[]169 TABLE 104[]AEROSPACE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)[]169 TABLE 105[]AEROSPACE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)[]170 TABLE 105[]AEROSPACE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)[]170 TABLE 106[]AEROSPACE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)[]170 TABLE 107[]AEROSPACE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)[]170 TABLE 107[]AEROSPACE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)[]170 TABLE 107[]AEROSPACE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)[]170 TABLE 107[]AEROSPACE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)[]171 TABLE 108[]AEROSPACE: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION)[]171 TABLE 109[]AEROSPACE: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)[]171 9.5[]PUBLIC INFRASTRUCTURE[]171

9.5.1 MILITARY AND DEFENSE 172

9.5.1.1 Adoption of NDT and inspection techniques to detect flaws and repair military and defense equipment 172 9.5.2 AIRPORT SECURITY 172

9.5.2.1 Increased use of NDT and inspection techniques in airport security to screen goods to be transported 172 9.5.3 RAILWAYS 173

9.5.3.1 Railways use NDT and inspection techniques to check rail wheels, axles, and tracks 173

9.5.4 BRIDGES AND TUNNELS 173

9.5.4.1 Surged demand for maintenance of aging bridges and tunnels 173

9.5.5 BORDER CROSSING 174

9.5.5.1 Increased use of NDT and inspection techniques to check barriers used at border crossing 174

9.5.6 NUCLEAR WASTE STORAGE AND DECOMMISSIONING 174

9.5.6.1 Deployment of NDT and inspection techniques in nuclear power plants for leak detection 174

9.5.7 ADVANCED NDT AND INSPECTION TECHNIQUES EMPLOYED FOR PUBLIC INFRASTRUCTURES 174

9.5.7.1[]Impact echo[]174

9.5.7.1.1 Useful in carrying out highly accurate and reliable inspections 174

9.5.7.2 Ground penetrating radars (GPR) 175

9.5.7.2.1 Helpful in detecting rebar, corrosion, and delamination in surfaces under test 175

TABLE 110 PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION) 175 TABLE 111 PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION) 175 TABLE 112 PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION) 176

FIGURE 48 NORTH AMERICA TO HOLD LARGEST SHARE OF NDT AND INSPECTION MARKET FOR PUBLIC INFRASTRUCTURE VERTICAL FROM 2023 TO 2028 176

TABLE 113[PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)[]176 TABLE 114[]PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2019-2022 (USD MILLION)[]177

TABLE 115\_PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)\_177

TABLE 116[]PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)[]178 TABLE 117[]PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2023-2028 (USD MILLION)[]178 TABLE 118[]PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)[]178

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com www.scotts-international.com

TABLE 119[PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)[]179 TABLE 120[PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION)[]179 TABLE 121[PUBLIC INFRASTRUCTURE: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)[]179 9.6[]AUTOMOTIVE[]180

 TABLE 122[]ADVANTAGES OF USING DIFFERENT NDT AND INSPECTION TECHNOLOGIES IN AUTOMOTIVE VERTICAL[]180

 9.6.1[]ADVANCED NDT AND INSPECTION TECHNIQUES ADOPTED IN AUTOMOTIVE VERTICAL[]182

9.6.1.1 High-energy digital radiography 182

9.6.1.1.1 Designed to detect flaws and corrosion in large components of automobiles 182

TABLE 123[]AUTOMOTIVE: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION)[]182 TABLE 124[]AUTOMOTIVE: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION)[]182 TABLE 125[]AUTOMOTIVE: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)[]183 TABLE 126[]AUTOMOTIVE: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)]]183 TABLE 127[]AUTOMOTIVE: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)]]183 TABLE 128[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2019-2022 (USD MILLION)]]184 TABLE 129[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)]]184 TABLE 130[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)]]184 TABLE 130[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2023-2028 (USD MILLION)]]184 TABLE 131[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)]]185 TABLE 132[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)]]185 TABLE 132[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)]]185 TABLE 132[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)]]185 TABLE 132[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)]]185 TABLE 133[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION)]]185 TABLE 133[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION)]]185 TABLE 134[]AUTOMOTIVE: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION)]]186 9.7]POWER GENERATION]186

9.7.1 NUCLEAR POWER PLANTS 187

9.7.1.1 [Increased use of NDT and inspection techniques in nuclear power plants ]187

TABLE 135 APPLICATIONS OF NDT AND INSPECTION TECHNIQUES IN NUCLEAR POWER PLANTS 187

9.7.2 WIND TURBINES 187

9.7.2.1 Surged activities for maintenance and inspection of wind turbines 187

9.7.3 SOLAR POWER 188

9.7.3.1 Risen use of digital radiography to detect defects accurately and efficiently in solar panels 188

9.7.4 FOSSIL FUEL ENERGY PLANTS 188

9.7.4.1 Increased adoption of radiographic and ultrasonic testing in fossil fuel energy plants 188

9.7.5 ADVANCED NDT AND INSPECTION TECHNIQUES USED IN POWER GENERATION VERTICAL 189

9.7.5.1 Galvano static pulse measurement 189

9.7.5.1.1 Offers real-time evaluation of corrosion in metal structures of power plants 189

9.7.5.2 Ultrasonic pulse echo testing 189

9.7.5.2.1 Detects presence of cracks and porosity in metal or steel structures 189

TABLE 136 POWER GENERATION: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2019-2022 (USD MILLION)[]189 TABLE 137 POWER GENERATION: NDT AND INSPECTION MARKET, BY TECHNIQUE AND SERVICE, 2023-2028 (USD MILLION)[]189 TABLE 138 POWER GENERATION: NDT AND INSPECTION MARKET, BY REGION, 2019-2022 (USD MILLION)[]190 TABLE 139 POWER GENERATION: NDT AND INSPECTION MARKET, BY REGION, 2023-2028 (USD MILLION)[]190 TABLE 140 POWER GENERATION: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2019-2022 (USD MILLION)[]191 TABLE 141 POWER GENERATION: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)[]191 TABLE 142 POWER GENERATION: NDT AND INSPECTION MARKET IN NORTH AMERICA, BY COUNTRY, 2023-2028 (USD MILLION)[]191 TABLE 142 POWER GENERATION: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)[]192 TABLE 143 POWER GENERATION: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)[]192 TABLE 144 POWER GENERATION: NDT AND INSPECTION MARKET IN EUROPE, BY COUNTRY, 2019-2022 (USD MILLION)]]192 TABLE 144 POWER GENERATION: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2019-2022 (USD MILLION)]]192 FIGURE 49 CHINA TO ACCOUNT FOR LARGEST SHARE OF NDT AND INSPECTION MARKET FOR POWER GENERATION VERTICAL FROM 2023 TO 2028[]193

TABLE 145 POWER GENERATION: NDT AND INSPECTION MARKET IN ASIA PACIFIC, BY COUNTRY, 2023-2028 (USD MILLION) 193

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com www.scotts-international.com

TABLE 146 POWER GENERATION: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2019-2022 (USD MILLION) 194 TABLE 147 POWER GENERATION: NDT AND INSPECTION MARKET IN ROW, BY REGION, 2023-2028 (USD MILLION) 194



# NDT and Inspection Market by Technique (Visual Testing, Magnetic Particle, Liquid Penetrant, Eddy-Current, Ultrasonic, Radiographic, Terahertz Imaging, Acoustic Emission), Method, Service, Application, Vertical and Region - Global Forecast to 2028

Market Report | 2023-01-09 | 338 pages | MarketsandMarkets

To place an Order with Scotts International:

- Print this form
- Complete the relevant blank fields and sign
- Send as a scanned email to support@scotts-international.com

### **ORDER FORM:**

Select license	License		Price
	Single User		\$4950.00
	Multi User		\$6650.00
	Corporate License		\$8150.00
	Enterprise Site License		\$10000.00
		VAT	
		Total	

\*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346. []\*\* VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	Phone*	
First Name*	Last Name*	
Job title*		
Company Name*	EU Vat / Tax ID / NIP	number*
Address*	City*	

7in	Code*
Zip	Code

Country\*

Date

Signature

2025-05-20