

Surface Inspection Market with COVID-19 Impact Analysis, by Component, Surface Type (2D and 3D), System (Computer-based and Camera-based), Deployment Type (Traditional Systems and Robotic Cells), Vertical, and Geography - Global Forecast to 2026

https://marketpublishers.com/r/SDF4F11BCF6EN.html

Date: January 2023

Pages: 318

Price: US\$ 4,950.00 (Single User License)

ID: SDF4F11BCF6EN

Abstracts

The global surface inspection market is projected to grow from USD 4.0 billion in 2023 to USD 5.9 billion by 2028, registering a CAGR of 7.8%. The significant demand for smart cameras, advanced image sensors, and processors offering enhanced surface inspection of products across several industries is expected to support the market growth.

"Camera component accounted for largest share of surface inspection market in 2022"

Various types of cameras are available in the market. The parameters chosen to select a camera for an application are frame rate, area, line format, 2D or 3D technology, sensing technology, interface standard, and imaging technology supported by the camera. Imaging sensors capture light using CMOS or CCD technology and convert it to a set of pixels showing the presence of light in different areas of the observed part. Many applications, such as the inspection of packaging for proper lids and labels and large objects such as doors of automobiles, can require multiple cameras to cover large areas. Cameras are also being regularly upgraded in terms of resolution and frame rate.

"Asia Pacific to account for largest size of surface inspection market in 2022"

The market growth in Asia Pacific can be attributed to the high industrialization in China,



Japan, and South Korea. The region consists of a diverse range of economies with varying levels of development and the presence of various manufacturers. Asia Pacific is considered a major global manufacturing hub and is expected to provide ample growth opportunities to the players in the surface inspection market.

The major players in the market are ISRA VISION (Germany), Cognex (US), OMRON (Japan), Teledyne Technologies (US), and Keyence (Japan).

Research Coverage:

The surface inspection market has been segmented into component, surface type, system, deployment type, vertical and region. The surface inspection market was studied for the Americas, Europe, Asia Pacific, and Rest of the World (RoW).

Reasons to buy the report:

Illustrative segmentation, analysis, and forecast of the market based on component, surface type, system, deployment type, vertical, and region have been conducted to give an overall view of the market.

A value chain analysis has been performed to provide in-depth insights into the surface inspection market.

The key drivers, restraints, opportunities, and challenges pertaining to the surface inspection market have been detailed in this report.

The report includes a detailed competitive landscape of the market, key players, and an in-depth analysis of their revenues.



Contents

1 INTRODUCTION

- 1.1 STUDY OBJECTIVES
- 1.2 DEFINITION
 - 1.2.1 INCLUSIONS AND EXCLUSIONS
- 1.3 STUDY SCOPE
 - 1.3.1 MARKETS COVERED

FIGURE 1 SURFACE INSPECTION MARKET SEGMENTATION

- 1.3.2 YEARS CONSIDERED
- 1.4 CURRENCY CONSIDERED
- 1.5 STAKEHOLDERS
- 1.6 SUMMARY OF CHANGES

2 RESEARCH METHODOLOGY

- 2.1 RESEARCH DATA
- FIGURE 2 SURFACE INSPECTION MARKET: RESEARCH DESIGN
 - 2.1.1 SECONDARY DATA
 - 2.1.1.1 Major secondary sources
 - 2.1.1.2 Key data from secondary sources
 - 2.1.2 PRIMARY DATA
 - 2.1.2.1 Key data from primary sources
 - 2.1.2.2 Breakdown of primaries
 - 2.1.3 SECONDARY AND PRIMARY RESEARCH
 - 2.1.3.1 Key industry insights
- 2.2 MARKET SIZE ESTIMATION
 - 2.2.1 BOTTOM-UP APPROACH

FIGURE 3 SURFACE INSPECTION MARKET: BOTTOM-UP APPROACH

2.2.2 TOP-DOWN APPROACH

FIGURE 4 MARKET SIZE ESTIMATION METHODOLOGY (SUPPLY SIDE):

REVENUE GENERATED FROM COMPANIES IN SURFACE INSPECTION MARKET

FIGURE 5 SURFACE INSPECTION MARKET: TOP-DOWN APPROACH

2.3 MARKET BREAKDOWN AND DATA TRIANGULATION

FIGURE 6 DATA TRIANGULATION

- 2.4 RESEARCH ASSUMPTIONS
- 2.5 PARAMETERS CONSIDERED TO ANALYZE IMPACT OF RECESSION ON SURFACE INSPECTION MARKET



2.6 RESEARCH LIMITATIONS 2.7 RISK ASSESSMENT

3 EXECUTIVE SUMMARY

FIGURE 7 CAMERAS ACCOUNTED FOR LARGEST SHARE OF SURFACE INSPECTION MARKET IN 2022

FIGURE 8 COMPUTER-BASED SYSTEMS TO ACCOUNT FOR LARGER SHARE OF SURFACE INSPECTION MARKET THAN CAMERA-BASED SYSTEMS THROUGHOUT FORECAST PERIOD

FIGURE 9 2D SYSTEMS HELD LARGER SHARE OF SURFACE INSPECTION MARKET THAN 3D SYSTEMS IN 2022

FIGURE 10 TRADITIONAL SYSTEMS TO DOMINATE SURFACE INSPECTION MARKET THROUGHOUT FORECAST PERIOD

FIGURE 11 SURFACE INSPECTION MARKET FOR AUTOMOTIVE VERTICAL TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD

FIGURE 12 ASIA PACIFIC TO RECORD HIGHEST CAGR IN GLOBAL SURFACE INSPECTION MARKET FROM 2022 TO 2027

3.1 ANALYSIS OF RECESSION IMPACT ON SURFACE INSPECTION MARKET FIGURE 13 GDP GROWTH PROJECTIONS TILL 2023 FOR MAJOR ECONOMIES (PERCENTAGE CHANGE)

FIGURE 14 SURFACE INSPECTION MARKET: PRE- AND POST-RECESSION SCENARIO

4 PREMIUM INSIGHTS

4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN SURFACE INSPECTION MARKET

FIGURE 15 ASIA PACIFIC TO PROVIDE LUCRATIVE OPPORTUNITIES TO MARKET PLAYERS

4.2 SURFACE INSPECTION MARKET, BY SYSTEM

FIGURE 16 COMPUTER-BASED SURFACE INSPECTION SYSTEMS HELD LARGER MARKET SHARE IN 2022

4.3 SURFACE INSPECTION MARKET, BY SURFACE TYPE

FIGURE 17 2D SURFACE INSPECTION SYSTEMS TO CAPTURE LARGER MARKET SHARE IN 2023

4.4 SURFACE INSPECTION MARKET, BY VERTICAL

FIGURE 18 AUTOMOTIVE VERTICAL TO CAPTURE LARGEST MARKET SHARE DURING 2023?2028



4.5 SURFACE INSPECTION MARKET, BY REGION FIGURE 19 CHINA TO REGISTER HIGHEST CAGR IN GLOBAL SURFACE INSPECTION MARKET DURING FORECAST PERIOD

5 MARKET OVERVIEW

- 5.1 INTRODUCTION
- 5.2 MARKET DYNAMICS

FIGURE 20 DRIVERS, RESTRAINTS, OPPORTUNITIES, & CHALLENGES

- 5.2.1 DRIVERS
- 5.2.1.1 Integration of smart cameras, advanced software, and powerful image processors into surface inspection systems
 - 5.2.1.2 Increase in remuneration across various countries
 - 5.2.1.3 Rise in demand for electrical and electronic devices

FIGURE 21 IMPACT OF DRIVERS ON SURFACE INSPECTION MARKET 5.2.2 RESTRAINTS

- 5.2.2.1 Lack of technical know-how regarding integration of surface inspection systems with robots and 3D models
- 5.2.2.2 Interoperability issues in surface inspection systems and robotic framework in existing facilities

FIGURE 22 IMPACT OF RESTRAINTS ON SURFACE INSPECTION MARKET 5.2.3 OPPORTUNITIES

- 5.2.3.1 Surging adoption of collaborative robots (cobots) owing to their progressive features
 - 5.2.3.2 Rising integration of surface inspection systems with IIoT, AI, and cloud
- 5.2.3.3 Substantial demand for surface inspection systems from food & beverage companies

FIGURE 23 IMPACT OF OPPORTUNITIES ON SURFACE INSPECTION MARKET 5.2.4 CHALLENGES

- 5.2.4.1 Intricacies in product designing and manufacturing
- 5.2.4.2 Functional and operational challenges with respect to surface inspection systems

FIGURE 24 IMPACT OF CHALLENGES ON SURFACE INSPECTION MARKET 5.3 SUPPLY CHAIN ANALYSIS

FIGURE 25 SUPPLY CHAIN ANALYSIS OF SURFACE INSPECTION ECOSYSTEM: R&D AND MANUFACTURING PHASES ADD MAXIMUM VALUE

- 5.3.1 PLANNING & REVISING FUND
- 5.3.2 RESEARCH & DEVELOPMENT
- 5.3.3 MANUFACTURING



5.3.4 ASSEMBLY, DISTRIBUTION, & AFTER-SALES SERVICES

5.4 ECOSYSTEM MAPPING

FIGURE 26 SURFACE INSPECTION ECOSYSTEM

TABLE 1 LIST OF COMPANIES AND THEIR ROLES IN SURFACE INSPECTION ECOSYSTEM

5.5 TRENDS IMPACTING CUSTOMER BUSINESS

FIGURE 27 SHIFT IN CLIENT'S REVENUE: LENS ON AUTOMOTIVE, ELECTRICAL & ELECTRONICS, SEMICONDUCTOR, AND MEDICAL & PHARMACEUTICAL INDUSTRIES

5.6 CASE STUDIES

5.6.1 AUTOMOTIVE

5.6.1.1 STEMMER IMAGING (Germany) integrated vision camera, processors, and software from Teledyne DALSA (Canada) into lighting equipment from Smart Vision Lights (US) to create vision solution for automotive assembly process

5.6.2 SEMICONDUCTOR

- 5.6.2.1 Detection of quality issues in low-volume PCB assemblies using FH series of vision-integrated cobot systems by OMRON (Japan)
- 5.6.2.2 Use of Allied Vision's Mako and Manta cameras in hard disk drives for quality control and inspection applications
 - 5.6.3 FOOD & PACKAGING
- 5.6.3.1 Newbaze Ireland Nutrition employed vision solutions provided by Datalogic (Italy) and AIS (Spain) to ensure product quality and safety
- 5.6.3.2 Suntory PepsiCo (Vietnam) deployed Imaging OCR software and vision controller offered by Matrox Electronic Systems (Canada) for accurate identification and verification of manufacturing and expiration dates

5.7 PORTER'S FIVE FORCES ANALYSIS

FIGURE 28 PORTER'S FIVE FORCES ANALYSIS

TABLE 2 SURFACE INSPECTION MARKET: PORTER'S FIVE FORCES ANALYSIS

- 5.7.1 THREAT OF NEW ENTRANTS
- 5.7.2 THREAT OF SUBSTITUTES
- 5.7.3 BARGAINING POWER OF BUYERS
- 5.7.4 BARGAINING POWER OF SUPPLIERS
- 5.7.5 INTENSITY OF COMPETITIVE RIVALRY
- 5.8 TECHNOLOGY TRENDS
 - 5.8.1 KEY TECHNOLOGIES
- 5.8.1.1 Advancements in CMOS technology make it increasingly appealing for industrial machines
 - 5.8.1.2 Emergence of mobile/portable vision systems
 - 5.8.2 COMPLEMENTARY TECHNOLOGY



5.8.2.1 Rapid advancements in AI and deep learning enable new capabilities in vision systems

5.8.3 ADJACENT TECHNOLOGY

5.8.3.1 Modular smart camera designs offer flexibility in selecting lenses and lighting equipment for multipurpose applications

5.9 AVERAGE SELLING PRICE ANALYSIS

TABLE 3 AVERAGE SELLING PRICE OF KEY COMPONENTS OF SURFACE INSPECTION SYSTEM

TABLE 4 AVERAGE SELLING PRICE OF SURFACE INSPECTION SYSTEMS
OFFERED BY ISRA VISION AND VITRONIC BASED ON NUMBER OF CAMERAS
ADOPTED

FIGURE 29 ASP TREND FOR SURFACE INSPECTION SYSTEMS BASED ON NUMBER OF CAMERAS

FIGURE 30 ASP TREND FOR SURFACE INSPECTION SYSTEMS BASED ON SYSTEM

FIGURE 31 ASP TREND FOR SURFACE INSPECTION SYSTEMS BASED ON SURFACE TYPE

5.10 TRADE ANALYSIS

5.10.1 IMPORT SCENARIO

5.10.1.1 Import scenario for surface inspection systems

TABLE 5 IMPORT DATA FOR PRODUCTS COVERED UNDER HS CODE 903180 (INSTRUMENTS, APPLIANCES, AND MACHINES FOR MEASURING OR CHECKING), 2011–2020 (USD MILLION)

FIGURE 32 IMPORT DATA FOR INSTRUMENTS, APPLIANCES, AND MACHINES FOR MEASURING OR CHECKING (INCLUDING SURFACE INSPECTION SYSTEMS), 2016–2020

5.10.2 EXPORT SCENARIO

5.10.2.1 Export scenario for surface inspection systems

TABLE 6 EXPORT DATA FOR PRODUCTS COVERED UNDER HS CODE 903180 (INSTRUMENTS, APPLIANCES, AND MACHINES FOR MEASURING OR CHECKING), 2011–2020 (USD MILLION)

FIGURE 33 EXPORT DATA FOR INSTRUMENTS, APPLIANCES, AND MACHINES FOR MEASURING OR CHECKING (INCLUDING SURFACE INSPECTION SYSTEMS), 2016–2020

5.11 PATENT ANALYSIS

TABLE 7 PATENTS FILED FOR VARIOUS TYPES OF SURFACE INSPECTION SYSTEMS, 2018–2020

FIGURE 34 FILED PATENTS FOR SURFACE INSPECTION SYSTEMS, 2010–2020 FIGURE 35 TOP 10 COMPANIES WITH HIGHEST NO. OF PATENT APPLICATIONS,



2010-2020

5.12 TARIFF AND REGULATORY LANDSCAPE

5.12.1 TARIFF

TABLE 8 US: MFN TARIFF FOR INSTRUMENTS, APPLIANCES, AND MACHINES DESIGNED FOR MEASURING OR CHECKING (INCLUDING SURFACE INSPECTION SYSTEMS) EXPORTED, BY KEY COUNTRY

TABLE 9 CHINA: MFN TARIFF FOR INSTRUMENTS, APPLIANCES, AND MACHINES DESIGNED FOR MEASURING OR CHECKING (INCLUDING SURFACE INSPECTION SYSTEMS) EXPORTED, BY KEY COUNTRY

- 5.12.1.1 Positive impact of tariff on surface inspection systems
- 5.12.1.2 Negative impact of tariff on surface inspection systems
- 5.12.2 REGULATIONS AND STANDARDS
 - 5.12.2.1 Leading associations for machine vision-based inspection systems

6 DEFECTS IDENTIFIED BY SURFACE INSPECTION SYSTEMS

- 6.1 INTRODUCTION
- 6.2 HOLES
- 6.3 SCRATCHES
- 6.4 CRACKS
- 6.5 WEAR
- 6.6 FINISH
- 6.7 JOINTS
- 6.8 OTHERS

7 SURFACE INSPECTION MARKET, BY COMPONENT

7.1 INTRODUCTION

FIGURE 36 SOFTWARE SEGMENT TO REGISTER HIGHEST CAGR IN SURFACE INSPECTION MARKET, BY COMPONENT, FROM 2023 TO 2028

TABLE 10 SURFACE INSPECTION MARKET, BY COMPONENT, 2019–2022 (USD MILLION)

TABLE 11 SURFACE INSPECTION MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

7.2 CAMERAS

TABLE 12 CAMERAS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 13 CAMERAS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)



7.2.1 FRAME RATES

7.2.1.1 Automobile industry to witness strong demand for cameras with higher frame rates

FIGURE 37 CAMERAS WITH FRAME RATE OF >125 FPS TO EXHIBIT HIGHEST CAGR IN SURFACE INSPECTION MARKET DURING FORECAST PERIOD TABLE 14 CAMERAS: SURFACE INSPECTION MARKET, BY FRAME RATE, 2019–2022 (USD MILLION)

TABLE 15 CAMERAS: SURFACE INSPECTION MARKET, BY FRAME RATE, 2023–2028 (USD MILLION)

7.2.2 FORMATS

TABLE 16 CAMERAS: SURFACE INSPECTION MARKET, BY FORMAT, 2019–2022 (USD MILLION)

TABLE 17 CAMERAS: SURFACE INSPECTION MARKET, BY FORMAT, 2023–2028 (USD MILLION)

7.2.2.1 Area scan cameras

7.2.2.1.1 Ability to capture 3D images in fast-moving scenes to drive demand

7.2.2.2 Line scan cameras

7.2.2.2.1 Capability to record data at rapid rate to boost demand

7.2.3 SENSING TECHNOLOGY

FIGURE 38 CMOS SENSORS PROJECTED TO LEAD MARKET FOR CAMERAS THROUGHOUT FORECAST PERIOD

TABLE 18 CAMERAS: SURFACE INSPECTION MARKET, BY SENSING TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 19 CAMERAS: SURFACE INSPECTION MARKET, BY SENSING TECHNOLOGY, 2023–2028 (USD MILLION)

7.2.3.1 CCD

7.2.3.1.1 High-quality images and advanced device designing and fabrication technology to accelerate demand

7.2.3.2 CMOS

7.2.3.2.1 Low fabrication cost and high power efficiency to boost requirement for CMOS sensors

7.2.3.3 CCD and CMOS

7.2.3.3.1 CMOS sensor-based cameras to register higher CAGR during forecast period

TABLE 20 CCD VS. CMOS CAMERAS

7.2.4 INTERFACE STANDARDS

TABLE 21 CAMERAS: SURFACE INSPECTION MARKET, BY INTERFACE STANDARD, 2019–2022 (USD MILLION)

TABLE 22 CAMERAS: SURFACE INSPECTION MARKET, BY INTERFACE



STANDARD, 2023-2028 (USD MILLION)

7.2.4.1 Camera link

7.2.4.1.1 High data transmission rate and compatibility with small-sized connectors and cables to propel growth

7.2.4.2 GigE

7.2.4.2.1 Need for interoperability between hardware and software across various vendors to drive demand

7.2.4.3 USB 3.0

7.2.4.3.1 Plug-and-play interface and power over cable features to stimulate demand

7.2.4.4 CoaXPress

7.2.4.4.1 Necessity for high-speed serial communication to transmit videos and images to increase adoption of CXP

7.2.4.5 Others

7.2.4.6 Comparison between various interface standards

TABLE 23 COMPARISON BETWEEN INTERFACE STANDARDS

7.2.5 IMAGING TECHNOLOGY

FIGURE 39 MARKET FOR TIME-OF-FLIGHT CAMERAS TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD

TABLE 24 CAMERAS: SURFACE INSPECTION MARKET, BY IMAGING TECHNOLOGY, 2019–2022 (USD MILLION)

TABLE 25 CAMERAS: SURFACE INSPECTION MARKET, BY IMAGING TECHNOLOGY, 2023–2028 (USD MILLION)

7.2.5.1 Structured light

7.2.5.1.1 High accuracy in depth, geometric construction, and surface information of objects offered by triangulation method to provide growth opportunities

7.2.5.2 Time-of-flight

7.2.5.2.1 Use of optical and non-contact methods to sense 3D shape of objects by ToF cameras to accelerate growth

7.2.5.3 Stereo vision

7.2.5.3.1 Full view offered by stereo vision systems for 3D measurement without using lasers or LEDs to stimulate demand

7.2.5.4 Comparison between various imaging technologies

TABLE 26 COMPARISON BETWEEN VARIOUS IMAGING TECHNOLOGIES 7.3 FRAME GRABBERS

7.3.1 ABILITY OF FRAME GRABBERS TO PROCESS, STORE, AND VISUALIZE MULTIPLE IMAGES AT ONCE AND PERFORM REAL-TIME COMPRESSION TO DRIVE DEMAND

FIGURE 40 3D FRAME GRABBERS TO RECORD HIGHER CAGR DURING



FORECAST PERIOD

TABLE 27 FRAME GRABBERS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 28 FRAME GRABBERS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

7.4 OPTICS

7.4.1 USE OF LIQUID LENSES TO ENHANCE VISION CAMERA VIEW AND ADJUST FOCAL LENGTHS TO BOOST DEMAND

TABLE 29 OPTICS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 30 OPTICS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

7.5 LIGHTING EQUIPMENT

7.5.1 LIGHTING EQUIPMENT HELP CAMERAS TO FUNCTION PROPERLY AND PRECISELY AND IMPROVE QUALITY OF IMAGES CAPTURED

FIGURE 41 2D LIGHTING EQUIPMENT TO WITNESS HIGHER CAGR IN SURFACE INSPECTION MARKET DURING FORECAST PERIOD

TABLE 31 LIGHTING EQUIPMENT: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 32 LIGHTING EQUIPMENT: SURFACE INSPECTION MARKETS, BY SURFACE TYPE, 2023–2028 (USD MILLION)

7.6 PROCESSORS

7.6.1 PROCESSORS PERFORM ARITHMETIC ALGORITHMS TO GAIN HIGHEST PERFORMANCE IN SURFACE INSPECTION SYSTEMS

TABLE 33 PROCESSORS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 34 PROCESSORS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

7.7 SOFTWARE

7.7.1 SOFTWARE DRIVES IMAGE ACQUISITION, PROCESSING, AND ANALYSIS FUNCTIONS THAT SIGNIFICANTLY INCREASE SYSTEM COST FIGURE 42 3D SEGMENT TO REGISTER HIGHER CAGR IN SURFACE

INSPECTION MARKET FOR SOFTWARE DURING FORECAST PERIOD

TABLE 35 SOFTWARE: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 36 SOFTWARE: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

7.8 OTHERS

TABLE 37 OTHERS: SURFACE INSPECTION MARKET, BY SURFACE TYPE,



2019-2022 (USD MILLION)

TABLE 38 OTHERS: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

8 SURFACE INSPECTION MARKET, BY SURFACE TYPE

8.1 INTRODUCTION

TABLE 39 COMPARISON BETWEEN 3D AND 2D SURFACE INSPECTION SYSTEMS FIGURE 43 MARKET FOR 3D SYSTEMS TO GROW AT HIGHER CAGR DURING FORECAST PERIOD

TABLE 40 SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 41 SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

8.2 2D

8.2.1 USE OF 2D SYSTEMS TO INCREASE PRODUCTIVITY AND ACCURACY BY DIMINISHING EFFECTS OF REFLECTIONS

TABLE 42 COMPANIES MANUFACTURING 2D SURFACE INSPECTION SYSTEMS FIGURE 44 2D SURFACE INSPECTION MARKET FOR CAMERA-BASED SYSTEMS TO GROW AT HIGHER CAGR DURING FORECAST PERIOD

TABLE 43 2D: SURFACE INSPECTION MARKET, BY COMPONENT, 2019–2022 (USD MILLION)

TABLE 44 2D: SURFACE INSPECTION MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

TABLE 45 2D: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 46 2D: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 47 2D: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 48 2D: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

8.3 3D

8.3.1 IMPLEMENTATION OF 3D SYSTEMS FOR QUALITY AND PRECISE INSPECTION APPLICATIONS IN VARIOUS INDUSTRIES

TABLE 49 COMPANIES MANUFACTURING 3D SURFACE INSPECTION SYSTEMS FIGURE 45 MARKET FOR CAMERA-BASED 3D SURFACE INSPECTION SYSTEMS TO GROW AT HIGHER CAGR DURING FORECAST PERIOD

TABLE 50 3D: SURFACE INSPECTION MARKET, BY COMPONENT, 2019–2022



(USD MILLION)

TABLE 51 3D: SURFACE INSPECTION MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

TABLE 52 3D: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 53 3D: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 54 3D: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 55 3D: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

9 SURFACE INSPECTION MARKET, BY SYSTEM

9.1 INTRODUCTION

FIGURE 46 CAMERA-BASED SURFACE INSPECTION SYSTEMS TO WITNESS HIGHER CAGR DURING FORECAST PERIOD

TABLE 56 SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 57 SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

9.2 COMPUTER-BASED

9.2.1 HIGH PROCESSING POWER OF COMPUTER-BASED SYSTEMS TO HANDLE COMPLEX ALGORITHMS TO DRIVE DEMAND

TABLE 58 COMPUTER-BASED: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)

TABLE 59 COMPUTER-BASED: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

TABLE 60 COMPUTER-BASED: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 61 COMPUTER-BASED: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

9.3 CAMERA-BASED

9.3.1 QUICKER SETUP AND UTILIZATION OF INTELLIGENT PROCESSORS IN CAMERA-BASED SYSTEMS TO BOOST DEMAND

FIGURE 47 3D CAMERA-BASED SYSTEMS TO EXHIBIT HIGHER CAGR DURING FORECAST PERIOD

TABLE 62 CAMERA-BASED: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2019–2022 (USD MILLION)



TABLE 63 CAMERA-BASED: SURFACE INSPECTION MARKET, BY SURFACE TYPE, 2023–2028 (USD MILLION)

TABLE 64 CAMERA-BASED: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 65 CAMERA-BASED: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

10 SURFACE INSPECTION MARKET, BY DEPLOYMENT TYPE

10.1 INTRODUCTION

FIGURE 48 ROBOTIC CELL SEGMENT TO REGISTER HIGHER CAGR IN SURFACE INSPECTION MARKET DURING FORECAST PERIOD

TABLE 66 SURFACE INSPECTION MARKET, BY DEPLOYMENT TYPE, 2019–2022 (USD MILLION)

TABLE 67 SURFACE INSPECTION MARKET, BY DEPLOYMENT TYPE, 2023–2028 (USD MILLION)

10.2 TRADITIONAL SYSTEMS

10.2.1 LOWER MAINTENANCE AND IMPLEMENTATION COSTS AND REQUIREMENT FOR LESS SPACE TO BOOST DEMAND 10.3 ROBOTIC CELLS

10.3.1 INCREASING DEMAND FOR COBOTS WORLDWIDE TO DRIVE MARKET GROWTH

11 SURFACE INSPECTION MARKET, BY VERTICAL

11.1 INTRODUCTION

FIGURE 49 AUTOMOTIVE VERTICAL TO EXHIBIT HIGHEST CAGR DURING FORECAST PERIOD

TABLE 68 SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 69 SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

11.2 SEMICONDUCTOR

TABLE 70 SEMICONDUCTOR: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 71 SEMICONDUCTOR: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 72 SEMICONDUCTOR: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)



TABLE 73 SEMICONDUCTOR: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

- 11.2.1 IR VISION-BASED INSPECTION
- 11.2.1.1 Ability of IR cameras to identify cracks and broken traces in assembly line products
 - 11.2.2 MACRO-DEFECT INSPECTION
- 11.2.2.1 Adoption of brightfield and darkfield inspection technologies to maximize all macro defects
 - 11.2.3 ROBOT VISION-BASED INSPECTION
- 11.2.3.1 Implementation of robotic cells in manufacturing industry to handle complex assemblies and tiny parts
 - 11.2.4 PRINTED CIRCUIT BOARD (PCB) INSPECTION
- 11.2.4.1 Use of bar code reading technology to inspect appropriate placement of PCB components
 - 11.2.5 SEMICONDUCTOR FABRICATION INSPECTION
- 11.2.5.1 Deployment of semiconductor fabrication inspection systems for high-speed wafer inspection
- 11.3 AUTOMOTIVE

TABLE 74 AUTOMOTIVE: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 75 AUTOMOTIVE: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 76 AUTOMOTIVE: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 77 AUTOMOTIVE: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

- 11.3.1 ASSEMBLY VERIFICATION
- 11.3.1.1 Necessity to inspect assembly line to ensure proper functioning of complex configuration of components
 - 11.3.2 FLAW DETECTION
- 11.3.2.1 Deployment of vision-based surface inspection systems to detect flaws and inspect surface quality of objects
 - 11.3.3 PRINT VERIFICATION
- 11.3.3.1 Need to detect pre-printing errors such as missing content, color variation, and text/print errors
 - 11.3.4 INSPECTION OF PAINTED SURFACES
- 11.3.4.1 Requirement to detect defect dents, scratches, and flaking on painted surfaces
 - 11.3.5 INSPECTION OF CFRP AND GFRP CAR MATS



11.3.5.1 Necessity to inspect surface structure of carbon-fiber webs

11.3.6 INSPECTION OF WELD AND BRAZED SEAMS

11.3.6.1 Necessity of welded seam inspection of axle carriers, vehicle body, steel wheels, and seats in car body

11.4 ELECTRICAL & ELECTRONICS

11.4.1 SUITABILITY OF ROBOT-BASED SURFACE INSPECTION SYSTEMS TO DETECT BENT PINS ON PORTS AND CONNECTORS, LOOSE SCREWS, AND MISSING COMPONENTS

TABLE 78 ELECTRICAL & ELECTRONICS: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 79 ELECTRICAL & ELECTRONICS: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 80 ELECTRICAL & ELECTRONICS: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 81 ELECTRICAL & ELECTRONICS: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.5 GLASS & METAL

TABLE 82 GLASS & METAL: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 83 GLASS & METAL: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 84 GLASS & METAL: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 85 GLASS & METAL: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.5.1 CUT PLATE INSPECTION

11.5.1.1 Need for automatic inspection and rejection of glasses according to userdefined tolerance with minimum operator interventions

11.5.2 MIRRORED GLASS INSPECTION

11.5.2.1 Use of mirrored glass inspection for verification of glass identity, pinhole detection, and paint defect detection

11.5.3 FLOAT GLASS INSPECTION

11.5.3.1 Adoption of float glass inspection to detect inclusion, tin, and ream defects 11.5.4 COATED GLASS INSPECTION

11.5.4.1 Deployment of coated glass inspection systems in architectural and automotive industries

11.5.5 LAMINATED GLASS INSPECTION

11.5.5.1 Implementation of laminated glass inspection systems to detect bubbles, cracks, and scratches



11.5.6 PRISTINE GLASS INSPECTION

11.5.6.1 Employment of pristine glass inspection systems to detect strains, scratches, cracks, and fingerprints and provide crystal-clear images

11.5.7 STRUCTURED SOLAR GLASS INSPECTION

11.5.7.1 Adoption of structured solar glass inspection technique to detect round bubble and glass chip defects

11.5.8 COATING

11.5.8.1 Application of coating to prevent metal from rusting, as well as for cosmetic appeal

11.5.9 COLD ROLLING

11.5.9.1 Use of cold rolling to attain thinner sheets with roll speeds up to 7,000 ft per minute

11.5.10 CONVERTING

11.5.10.1 Adoption of conversion technique to convert metal sheets into smaller sizes for easy transportation

11.5.11 HOT ROLLING

11.5.11.1 Implementation of hot rolling technique to reduce metal thickness 11.6 FOOD & PACKAGING

TABLE 86 FOOD & PACKAGING: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 87 FOOD & PACKAGING: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 88 FOOD & PACKAGING: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 89 FOOD & PACKAGING: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.6.1 QUALITY ASSURANCE

11.6.1.1 Consistent quality assurance to encourage customer loyalty and maintain brand image

11.6.2 GRADING

11.6.2.1 Need to check quality grades based on size, shape, and color

11.6.3 LABEL VALIDATION

11.6.3.1 Adoption of label validation technique to detect tears, double labels, wrinkles, and incorrect dates on packages and containers

11.6.4 SAFETY INSPECTION

11.6.4.1 Utilization of safety inspection systems to check quality and safety of packages and containers

11.6.5 GLASS CONTAINERS INSPECTION

11.6.5.1 Deployment of surface inspection technique to check quality of bottles at



faster rate

11.6.6 METAL CONTAINERS INSPECTION

11.6.6.1 Necessity to check correct usage of graphics and colors on metal containers 11.6.7 PLASTIC BOTTLE INSPECTION

11.6.7.1 Inspection of plastic bottles to check appropriate fill height, labels, registration details, and bottle caps

11.7 PAPER & WOOD

11.7.1 DEPLOYMENT OF SURFACE INSPECTION SYSTEMS IN PRINTING, SHEETING, WRAPPING, AND PULP DRYING PROCESSES IN PAPER MANUFACTURING

TABLE 90 PAPER & WOOD: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 91 PAPER & WOOD: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 92 PAPER & WOOD: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 93 PAPER & WOOD: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.8 PHARMACEUTICAL

FIGURE 50 COMPUTER-BASED SYSTEMS TO ACCOUNT FOR LARGER MARKET SHARE FOR PHARMACEUTICAL VERTICAL THROUGHOUT FORECAST PERIOD TABLE 94 PHARMACEUTICAL: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 95 PHARMACEUTICAL: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 96 PHARMACEUTICAL: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 97 PHARMACEUTICAL: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.8.1 VIAL INSPECTION

- 11.8.1.1 Necessity to inspect fill levels, stoppers, and containers and verify barcodes 11.8.2 BLISTER PACK INSPECTION
- 11.8.2.1 Use of blister pack inspection technique to remove defective capsules and tablets before reaching consumers
 - 11.8.3 TRANSDERMAL PATCHES INSPECTION
- 11.8.3.1 Necessity to inspect transdermal patches for presence of active ingredients in medicine
 - 11.8.4 INSULIN PEN INSPECTION
 - 11.8.4.1 Importance of inspecting plastic sleeves, grease, dosage knobs, and angle



of rotation of insulin pens

11.9 PLASTIC & RUBBER

11.9.1 ADOPTION OF SURFACE INSPECTION SYSTEMS IN RUBBER INDUSTRY FOR INSPECTING GELS, CARBON SPECS, HOLES, CONTAMINANTS, EDGE CRACKS, WRINKLES, AND SCRATCHES IN RUBBER PARTS

TABLE 98 PLASTIC & RUBBER: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 99 PLASTIC & RUBBER: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 100 PLASTIC & RUBBER: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 101 PLASTIC & RUBBER: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.10 PRINTING

11.10.1 IMPLEMENTATION OF VISION-BASED SURFACE INSPECTION SYSTEMS TO CAPTURE DEFECTS RELATED TO CURRENCIES, BANKNOTES, STAMPS, LABELS, AND PACKAGING MATERIALS

FIGURE 51 CAMERA-BASED SYSTEMS TO REGISTER HIGHER CAGR IN SURFACE INSPECTION MARKET FOR PRINTING VERTICAL DURING FORECAST PERIOD

TABLE 102 PRINTING: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 103 PRINTING: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 104 PRINTING: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 105 PRINTING: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.11 NONWOVENS

11.11.1 NEED FOR ACCURATE SURFACE INSPECTION OF NONWOVEN FABRICS LAMINATED BY CHEMICALS, SOLVENTS, AND HOT GLUES TABLE 106 NONWOVENS: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 107 NONWOVENS: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 108 NONWOVENS: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 109 NONWOVENS: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)



11.12 POSTAL & LOGISTICS

11.12.1 UTILIZATION OF SURFACE INSPECTION SYSTEMS IN POSTAL & LOGISTICS FOR CHECKING PACKAGING ESTHETICS AND PRINT QUALITY AND VERIFYING ADDRESS AND BARCODES

FIGURE 52 COMPUTER-BASED SYSTEMS TO RECORD HIGHER CAGR IN SURFACE INSPECTION MARKET FOR POSTAL & LOGISTICS VERTICAL DURING FORECAST PERIOD

TABLE 110 POSTAL & LOGISTICS: SURFACE INSPECTION MARKET, BY SYSTEM, 2019–2022 (USD MILLION)

TABLE 111 POSTAL & LOGISTICS: SURFACE INSPECTION MARKET, BY SYSTEM, 2023–2028 (USD MILLION)

TABLE 112 POSTAL & LOGISTICS: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 113 POSTAL & LOGISTICS: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

12 SURFACE INSPECTION MARKET, BY REGION

12.1 INTRODUCTION

FIGURE 53 CHINA TO EXHIBIT HIGHEST CAGR IN SURFACE INSPECTION MARKET DURING 2023–2028

TABLE 114 SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 115 SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

12.2 AMERICAS

FIGURE 54 AMERICAS: SNAPSHOT OF SURFACE INSPECTION MARKET TABLE 116 AMERICAS: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 117 AMERICAS: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

TABLE 118 AMERICAS: SURFACE INSPECTION MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 119 AMERICAS: SURFACE INSPECTION MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

12.2.1 US

12.2.1.1 Open investment policy, highly skilled workforce, and infrastructure to boost market

12.2.2 CANADA

12.2.2.1 Skilled workforce and low labor cost to propel growth



12.2.3 MEXICO

12.2.3.1 Increased use of automation and digitalization to drive growth 12.2.4 BRAZIL

12.2.4.1 Growing industrialization, low manufacturing costs, and availability of economical workforce to stimulate growth

12.2.5 REST OF AMERICAS

12.3 EUROPE

FIGURE 55 EUROPE: SNAPSHOT OF SURFACE INSPECTION MARKET

TABLE 120 EUROPE: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 121 EUROPE: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

TABLE 122 EUROPE: SURFACE INSPECTION MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 123 EUROPE: SURFACE INSPECTION MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

12.3.1 GERMANY

12.3.1.1 Increasing use of surface inspection systems by several manufacturing firms to boost market

12.3.2 UK

12.3.2.1 Rising demand from food & packaging and pharmaceutical industries to boost market

12.3.3 FRANCE

12.3.3.1 Rapid industrial modernization with government incentives and funding to create opportunities for market players

12.3.4 ITALY

12.3.4.1 Surging adoption of surface inspection systems by small and medium-sized players to accelerate growth

12.3.5 SPAIN

12.3.5.1 Increasing focus of process industries on automation to boost market 12.3.6 REST OF EUROPE

12.4 ASIA PACIFIC

FIGURE 56 ASIA PACIFIC: SNAPSHOT OF SURFACE INSPECTION MARKET TABLE 124 ASIA PACIFIC: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 125 ASIA PACIFIC: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

TABLE 126 ASIA PACIFIC: SURFACE INSPECTION MARKET, BY COUNTRY, 2019–2022 (USD MILLION)



TABLE 127 ASIA PACIFIC: SURFACE INSPECTION MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

12.4.1 CHINA

12.4.1.1 Rising adoption from automotive and electrical & electronics industries to drive market

12.4.2 JAPAN

12.4.2.1 Early adoption of robot-based 3D surface inspection systems to contribute to market growth

12.4.3 SOUTH KOREA

12.4.3.1 Rising inclination toward automation to create opportunities for vision-based surface inspection system providers

12.4.4 INDIA

12.4.4.1 Increasing requirement for surface inspection systems from warehousing and packaging industries to accelerate growth

12.4.5 REST OF ASIA PACIFIC

12.5 ROW

TABLE 128 ROW: SURFACE INSPECTION MARKET, BY VERTICAL, 2019–2022 (USD MILLION)

TABLE 129 ROW: SURFACE INSPECTION MARKET, BY VERTICAL, 2023–2028 (USD MILLION)

TABLE 130 ROW: SURFACE INSPECTION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 131 ROW: SURFACE INSPECTION MARKET, BY REGION, 2023–2028 (USD MILLION)

12.5.1 MIDDLE EAST

12.5.1.1 Increasing investment in manufacturing and automation sectors to fuel market growth

12.5.2 AFRICA

12.5.2.1 Thriving food & beverage and automotive industries to drive growth

13 COMPETITIVE LANDSCAPE

13.1 OVERVIEW

13.2 STRATEGIES ADOPTED BY KEY PLAYERS

TABLE 132 OVERVIEW OF STRATEGIES DEPLOYED BY SURFACE INSPECTION COMPANIES

13.2.1 PRODUCT PORTFOLIO

13.2.2 REGIONAL FOCUS

13.2.3 MANUFACTURING FOOTPRINT



13.2.4 ORGANIC/INORGANIC PLAY

13.3 FIVE-YEAR COMPANY REVENUE ANALYSIS

FIGURE 57 FIVE-YEAR REVENUE ANALYSIS OF TOP 5 PLAYERS IN SURFACE INSPECTION MARKET

13.4 MARKET SHARE ANALYSIS, 2022

TABLE 133 DEGREE OF COMPETITION, SURFACE INSPECTION MARKET (2022)

13.5 COMPANY EVALUATION QUADRANT

13.5.1 STARS

13.5.2 EMERGING LEADERS

13.5.3 PERVASIVE PLAYERS

13.5.4 PARTICIPANTS

FIGURE 58 SURFACE INSPECTION MARKET: COMPANY EVALUATION QUADRANT, 2022

13.6 STARTUPS/SMES EVALUATION MATRIX

TABLE 134 STARTUPS/SMES IN SURFACE INSPECTION MARKET

13.6.1 PROGRESSIVE COMPANIES

13.6.2 RESPONSIVE COMPANIES

13.6.3 DYNAMIC COMPANIES

13.6.4 STARTING BLOCKS

FIGURE 59 SURFACE INSPECTION MARKET, STARTUPS/SMES EVALUATION MATRIX, 2022

13.7 COMPANY FOOTPRINT (40 COMPANIES)

TABLE 135 COMPANY FOOTPRINT

TABLE 136 COMPANY COMPONENT FOOTPRINT (40 COMPANIES)

TABLE 137 COMPANY VERTICAL FOOTPRINT (40 COMPANIES)

TABLE 138 COMPANY REGION FOOTPRINT (40 COMPANIES)

13.8 COMPETITIVE SCENARIO

13.8.1 PRODUCT LAUNCHES

TABLE 139 PRODUCT LAUNCHES, SEPTEMBER 2021-DECEMBER 2022

13.8.2 DEALS

TABLE 140 DEALS, FEBRUARY 2020-SEPTEMBER 2022

13.8.3 OTHERS

TABLE 141 EXPANSIONS, JANUARY 2020-OCTOBER 2022

14 COMPANY PROFILES

14.1 KEY PLAYERS

(Business Overview, Products/Services/Solutions Offered, MnM View, Key Strengths and Right to Win, Strategic Choices Made, Weaknesses and Competitive Threats,



Recent Developments)*

14.1.1 ISRA VISION

TABLE 142 ISRA VISION: BUSINESS OVERVIEW FIGURE 60 ISRA VISION: COMPANY SNAPSHOT TABLE 143 ISRA VISION: PRODUCT OFFERINGS

TABLE 144 ISRA VISION: PRODUCT LAUNCHES

TABLE 145 ISRA VISION: DEALS

14.1.2 COGNEX

TABLE 146 COGNEX: BUSINESS OVERVIEW FIGURE 61 COGNEX: COMPANY SNAPSHOT TABLE 147 COGNEX: PRODUCT OFFERINGS TABLE 148 COGNEX: PRODUCT LAUNCHES

14.1.3 OMRON

TABLE 149 OMRON: BUSINESS OVERVIEW FIGURE 62 OMRON: COMPANY SNAPSHOT TABLE 150 OMRON: PRODUCT OFFERINGS TABLE 151 OMRON: PRODUCT LAUNCHES

TABLE 152 OMRON: DEALS TABLE 153 OMRON: OTHERS

14.1.4 TELEDYNE TECHNOLOGIES

TABLE 154 TELEDYNE TECHNOLOGIES: BUSINESS OVERVIEW FIGURE 63 TELEDYNE TECHNOLOGIES: COMPANY SNAPSHOT TABLE 155 TELEDYNE TECHNOLOGIES: PRODUCT OFFERINGS TABLE 156 TELEDYNE TECHNOLOGIES: PRODUCT LAUNCHES

TABLE 157 TELEDYNE TECHNOLOGIES: DEALS

14.1.5 VITRONIC

TABLE 158 VITRONIC: BUSINESS OVERVIEW TABLE 159 VITRONIC: PRODUCT OFFERINGS TABLE 160 VITRONIC: PRODUCT LAUNCHES

TABLE 161 VITRONIC: DEALS TABLE 162 VITRONIC: OTHERS

14.1.6 PANASONIC

TABLE 163 PANASONIC: BUSINESS OVERVIEW FIGURE 64 PANASONIC: COMPANY SNAPSHOT TABLE 164 PANASONIC: PRODUCT OFFERINGS

TABLE 165 PANASONIC: DEALS

14.1.7 MATROX ELECTRONIC SYSTEMS

TABLE 166 MATROX ELECTRONIC SYSTEMS: BUSINESS OVERVIEW TABLE 167 MATROX ELECTRONIC SYSTEMS: PRODUCT OFFERINGS



TABLE 168 MATROX ELECTRONIC SYSTEMS: PRODUCT LAUNCHES

TABLE 169 MATROX ELECTRONIC SYSTEMS: OTHERS

14.1.8 IMS MESSSYSTEME

TABLE 170 IMS MESSSYSTEME: BUSINESS OVERVIEW TABLE 171 IMS MESSSYSTEME: PRODUCT OFFERINGS

TABLE 172 IMS MESSSYSTEME: OTHERS

14.1.9 KEYENCE

TABLE 173 KEYENCE: BUSINESS OVERVIEW FIGURE 65 KEYENCE: COMPANY SNAPSHOT TABLE 174 KEYENCE: PRODUCT OFFERINGS TABLE 175 KEYENCE: PRODUCT LAUNCHES

14.1.10 DATALOGIC

TABLE 176 DATALOGIC: BUSINESS OVERVIEW FIGURE 66 DATALOGIC: COMPANY SNAPSHOT TABLE 177 DATALOGIC: PRODUCT OFFERINGS TABLE 178 DATALOGIC: PRODUCT LAUNCHES

TABLE 179 DATALOGIC: DEALS

*Business Overview, Products/Services/Solutions Offered, MnM View, Key Strengths and Right to Win, Strategic Choices Made, Weaknesses and Competitive Threats, Recent Developments might not be captured in case of unlisted companies.

14.2 OTHER KEY PLAYERS

14.2.1 AMETEK SURFACE VISION

14.2.2 KITOV

14.2.3 TELEDYNE FLIR

14.2.4 SONY

14.2.5 NATIONAL INSTRUMENTS

14.2.6 SICK

14.2.7 BASLER

14.2.8 INDUSTRIAL VISION SYSTEMS

14.2.9 ALLIED VISION TECHNOLOGIES

14.2.10 BAUMER

14.2.11 IN-CORE SYST?MES

14.2.12 DARK FIELD TECHNOLOGIES

14.2.13 SIPOTEK

14.2.14 MORITEX

14.2.15 PIXARGUS

15 ADJACENT MARKET



15.1 MACHINE VISION MARKET

15.2 INTRODUCTION

FIGURE 67 SMART CAMERA-BASED MACHINE VISION SYSTEMS TO WITNESS HIGHER CAGR FROM 2022 TO 2027

TABLE 180 MACHINE VISION MARKET, BY PRODUCT, 2018–2021 (USD MILLION) TABLE 181 MACHINE VISION MARKET, BY PRODUCT, 2022–2027 (USD MILLION) 15.3 PC-BASED MACHINE VISION SYSTEMS

15.3.1 PC-BASED MACHINE VISION SYSTEMS CAN DETECT UNEXPECTED VARIATIONS IN CERTAIN TASKS

15.4 SMART CAMERA-BASED MACHINE VISION SYSTEMS

15.4.1 SMART CAMERA-BASED MACHINE VISION SYSTEMS CONSIST OF EMBEDDED CONTROLLERS WITH INTEGRATED VISION SOFTWARE

16 APPENDIX

- 16.1 INSIGHTS FROM INDUSTRY EXPERTS
- **16.2 DISCUSSION GUIDE**
- 16.3 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL
- **16.4 CUSTOMIZATION OPTIONS**
- 16.5 RELATED REPORTS
- 16.6 AUTHOR DETAILS



I would like to order

Product name: Surface Inspection Market with COVID-19 Impact Analysis, by Component, Surface Type

(2D and 3D), System (Computer-based and Camera-based), Deployment Type

(Traditional Systems and Robotic Cells), Vertical, and Geography - Global Forecast to

2026

Product link: https://marketpublishers.com/r/SDF4F11BCF6EN.html

Price: US\$ 4,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer

Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/SDF4F11BCF6EN.html