

Machine Vision Market Size, Share & Industry by Component (Hardware, Software), Deployment (General, Robotic Cells), Product (PC-based Machine Vision System, Smart Camera-based Machine Vision System), Application, End-user Industry and Region - Global Forecast to 2028

<https://marketpublishers.com/r/M2A157B42DAEN.html>

Date: November 2023

Pages: 265

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

ID: M2A157B42DAEN

Abstracts

The global Machine vision market is expected to grow from USD 12.9 billion in 2023 to USD 18.4 billion by 2028, registering a CAGR of 7.3%. Machine vision is witnessing impressive growth, attributed to the continual evolution of artificial intelligence, camera technologies, and automation across diverse industries. Its versatile applications in manufacturing, healthcare, automotive, and other sectors are propelling the market to scale new heights. This upward trajectory is fueled by the increasing demand for precision quality control, object recognition, and inspection systems.

“Robotic cell segment to grow at highest CAGR in Liquid analyzer market.”

The Robotics cell segment is experiencing robust growth in the market. Robotic cell deployment in the machine vision market has been rapidly growing. This trend involves integrating robots with machine vision technology to enhance efficiency, quality control, flexibility, labor savings, and 24/7 operation in various industries. It reflects the ongoing shift towards automation and advanced vision systems for industrial applications.

“Hardware components segment accounted for the largest share of the Machine vision market in 2022.”

The machine vision market has experienced rapid growth in hardware components, with

advances in sensors, cameras, and processing units. These components have become more powerful, compact, and cost-effective, enabling improved image capture and analysis for applications like industrial automation, robotics, and quality control.

“PC-based Machine vision System segment accounted for the largest share of the Machine vision market in 2022.”

PC-based machine vision systems are thriving, thanks to their evolution in hardware, software, and AI algorithms. Their momentum is steered by heightened processing potential, cost-efficiency, adaptability, and prowess in managing intricate visual challenges. Industries spanning manufacturing, quality assurance, and robotics are embracing these systems, propelling their ascendancy.

“Foods & Packaging is likely to grow at highest CAGR in forecast period (2023-2028)”

Machine vision has rapidly expanded in the food and packaging industry, enhancing quality control and efficiency. Automated inspection systems detect defects, ensure accurate labeling, and monitor product integrity. This technology streamlines production, reduces errors, and meets stringent regulatory standards, ultimately improving product safety and customer satisfaction.

“Asia Pacific to account for the largest market size in 2022”

The Machine Vision System market in Asia Pacific has experienced an impressive surge, powered by the region's insatiable appetite for innovation and automation. A diverse range of industries, from electronics to food production, has embraced this technology for quality assurance and productivity enhancements. China's rapid technological advancements, Japan's precision engineering, and South Korea's innovative spirit are propelling the region's unique and dynamic growth in the Machine Vision System sector.

The break-up of the profiles of primary participants:

By Company Type – Tier 1 – 35%, Tier 2 – 30%, and Tier 3 – 35%

By Designation – C-level Executives – 45%, Directors – 35%, and Others – 20%

By Region – North America - 35%, Europe – 25%, Asia Pacific – 30%, RoW- 10%

The major players in the market are Cognex Corporation (US), Basler AG (Germany), Keyence Corporation (Japan), Teledyne Technologies (US), TKH Group (Netherland)

Research Coverage:

The Machine vision market has been segmented into Deployment, Components, Product, Industry, and region. The Machine vision market was studied in North America, Europe, Asia Pacific, and the Rest of the World (RoW). The report describes the major drivers, restraints, challenges, and opportunities of the Machine vision market and forecasts the same till 2028. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the Machine vision ecosystem.

Key Benefits of Buying the Report:

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

Analysis of Key Drivers (Growing need for quality control and automated inspection in manufacturing sector, Increasing installation of vision-guided robotic systems in various sectors, Rising need for safety and enhancing product quality in industrial sector), restraints (Vulnerability of industrial robotic systems to cyberattacks, Lack of skilled professionals in manufacturing factories), Opportunities (Adoption of machine vision systems in food & beverage industry, Government-led initiatives to support industrial automation, Increasing use of AI-based systems in manufacturing and non-manufacturing applications, Integration of Industry 4.0 technologies into manufacturing processes, Emergence of miniature smart cameras and processors, Increasing demand for hybrid and electric vehicles), Challenges (Complexities associated with machine vision system integration, Lack of awareness about rapidly changing machine vision technology).

Product Development/Innovation: Detailed insights on research & development activities and new product launches in the Machine vision market.

Market Development: Comprehensive information about lucrative markets – the report analyses the Machine vision market across varied regions.

Market Diversification: Exhaustive information about new products, untapped geographies, recent developments, and investments in the Machine vision market.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and product offerings of leading players like Cognex Corporation (US), Basler AG (Germany), Omron Corporation (Japan), National Instrument Corporation (US), Keyence Corporation (Japan), Teledyne Technologies (US), Sick AG (Germany), TKH Group (Netherland), Sony Corporation (Japan), Texas Instruments Incorporated (US), Intel Corporation (US), Atlas Copco (Sweden), Microsoft (US) among others in the Machine vision market.

Contents

1 INTRODUCTION

- 1.1 STUDY OBJECTIVES
- 1.2 MARKET DEFINITION
 - 1.2.1 INCLUSIONS AND EXCLUSIONS
- 1.3 STUDY SCOPE
 - 1.3.1 MARKETS COVERED
 - 1.3.2 REGIONAL SCOPE
 - 1.3.3 YEARS CONSIDERED
 - 1.3.4 CURRENCY CONSIDERED
- 1.4 LIMITATIONS
- 1.5 STAKEHOLDERS
- 1.6 SUMMARY OF CHANGES
- 1.7 RECESSION IMPACT

2 RESEARCH METHODOLOGY

2.1 INTRODUCTION

FIGURE 1 MACHINE VISION MARKET: RESEARCH DESIGN

- 2.1.1 SECONDARY DATA
 - 2.1.1.1 List of major secondary sources
 - 2.1.1.2 Key data from secondary sources
- 2.1.2 PRIMARY DATA
 - 2.1.2.1 Breakdown of primaries
 - 2.1.2.2 Key data from primary sources
- 2.1.3 SECONDARY AND PRIMARY RESEARCH
 - 2.1.3.1 Key industry insights

2.2 MARKET SIZE ESTIMATION

FIGURE 2 MARKET SIZE ESTIMATION (SUPPLY SIDE): REVENUE GENERATED FROM SALES OF MACHINE VISION SYSTEMS

- 2.2.1 BOTTOM-UP APPROACH
 - 2.2.1.1 Approach to derive market size using bottom-up analysis (demand side)

FIGURE 3 MARKET SIZE ESTIMATION: BOTTOM-UP APPROACH

- 2.2.2 TOP-DOWN APPROACH
 - 2.2.2.1 Approach to derive market size using top-down analysis (supply side)

FIGURE 4 MARKET SIZE ESTIMATION: TOP-DOWN APPROACH

2.3 MARKET BREAKDOWN AND DATA TRIANGULATION

FIGURE 5 DATA TRIANGULATION

2.4 RESEARCH ASSUMPTIONS

FIGURE 6 ASSUMPTIONS

2.5 APPROACH TO ANALYZE IMPACT OF RECESSION ON MACHINE VISION MARKET

2.6 RISK ASSESSMENT

3 EXECUTIVE SUMMARY

FIGURE 7 CAMERAS SEGMENT TO DOMINATE MACHINE VISION MARKET DURING FORECAST PERIOD

FIGURE 8 GENERAL SEGMENT TO ACCOUNT FOR LARGER MARKET SHARE IN 2023

FIGURE 9 SMART CAMERA-BASED SEGMENT TO ACCOUNT FOR LARGER MARKET SHARE IN 2028

FIGURE 10 FOOD & PACKAGING SEGMENT TO HOLD LARGEST MARKET SHARE IN 2028

FIGURE 11 ASIA PACIFIC MACHINE VISION MARKET TO EXHIBIT HIGHEST CAGR DURING FORECAST PERIOD

4 PREMIUM INSIGHTS

4.1 ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN MACHINE VISION MARKET

FIGURE 12 EXPANDING FOOD & PACKAGING INDUSTRY TO CREATE LUCRATIVE OPPORTUNITIES FOR MARKET PLAYERS

4.2 MACHINE VISION MARKET, BY DEPLOYMENT

FIGURE 13 ROBOTIC CELL SEGMENT TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD

4.3 MACHINE VISION MARKET, BY COMPONENT

FIGURE 14 HARDWARE SEGMENT TO HOLD LARGER MARKET SHARE IN 2028

4.4 MACHINE VISION MARKET, BY PRODUCT

FIGURE 15 SMART CAMERA-BASED SEGMENT TO HOLD LARGER MARKET SHARE IN 2028

4.5 MACHINE VISION MARKET, BY INDUSTRY

FIGURE 16 FOOD & PACKAGING SEGMENT TO DOMINATE MACHINE VISION MARKET DURING FORECAST PERIOD

4.6 MACHINE VISION MARKET, BY REGION

FIGURE 17 ASIA PACIFIC TO HOLD LARGEST MARKET SHARE IN 2028

4.7 MACHINE VISION MARKET, BY COUNTRY

FIGURE 18 CHINA MACHINE VISION MARKET TO REGISTER HIGHEST CAGR DURING FORECAST PERIOD

5 MARKET OVERVIEW

5.1 INTRODUCTION

5.2 MARKET DYNAMICS

FIGURE 19 MACHINE VISION MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES

5.2.1 DRIVERS

5.2.1.1 Growing need for quality control and automated inspection in manufacturing sector

5.2.1.2 Increasing installation of vision-guided robotic systems in various sectors
FIGURE 20 ANNUAL INSTALLATION OF INDUSTRIAL ROBOTICS, 2017–2022

5.2.1.3 Rising need for safety and enhancing product quality in industrial sector
FIGURE 21 MACHINE VISION MARKET: IMPACT ANALYSIS OF DRIVERS

5.2.2 RESTRAINTS

5.2.2.1 Vulnerability of industrial robotic systems to cyberattacks
5.2.2.2 Shortage of skilled professionals for operating machine vision systems in manufacturing sector

FIGURE 22 MACHINE VISION MARKET: IMPACT ANALYSIS OF RESTRAINTS

5.2.3 OPPORTUNITIES

5.2.3.1 Adoption of machine vision systems in food & beverage industry
5.2.3.2 Government-led initiatives to support industrial automation
5.2.3.3 Increasing use of AI-based systems in manufacturing and non-manufacturing applications
5.2.3.4 Integration of Industry 4.0 technologies into manufacturing processes
5.2.3.5 Emergence of miniaturized smart cameras and processors
5.2.3.6 Increasing demand for hybrid and electric vehicles

FIGURE 23 GLOBAL ELECTRIC VEHICLE SALES, 2010–2022

FIGURE 24 MACHINE VISION MARKET: IMPACT ANALYSIS OF OPPORTUNITIES

5.2.4 CHALLENGES

5.2.4.1 Complexities associated with integration of different components of machine vision systems at application sites and production lines
5.2.4.2 Lack of awareness and high cost associated with AI-based machine vision systems

FIGURE 25 MACHINE VISION MARKET: IMPACT ANALYSIS OF CHALLENGES

5.3 SUPPLY CHAIN ANALYSIS

FIGURE 26 MACHINE VISION MARKET: SUPPLY CHAIN ANALYSIS

5.4 ECOSYSTEM MAPPING

FIGURE 27 MACHINE VISION MARKET: ECOSYSTEM MAPPING

TABLE 1 COMPANIES AND THEIR ROLE IN MACHINE VISION ECOSYSTEM

5.5 PRICING ANALYSIS

5.5.1 AVERAGE SELLING PRICE (ASP) OF MACHINE VISION SYSTEMS OFFERED BY THREE KEY PLAYERS, BY COMPONENT

FIGURE 28 AVERAGE SELLING PRICE (ASP) OF MACHINE VISION SYSTEMS, 2022–2028 (USD)

FIGURE 29 AVERAGE SELLING PRICE (ASP) OF CAMERAS AND OPTICS OFFERED BY THREE KEY PLAYERS, BY COMPONENT

TABLE 2 AVERAGE SELLING PRICE (ASP) OF CAMERAS AND OPTICS OFFERED BY THREE KEY PLAYERS (USD)

TABLE 3 AVERAGE SELLING PRICE (ASP) OF OPTICS, BY REGION (USD)

5.6 TRENDS/DISRUPTIONS IMPACTING CUSTOMERS' BUSINESSES

FIGURE 30 TRENDS/DISRUPTIONS IMPACTING CUSTOMERS' BUSINESSES

5.7 TECHNOLOGY ANALYSIS

5.7.1 1D MACHINE VISION

5.7.2 2D MACHINE VISION

5.7.3 3D MACHINE VISION

5.7.4 CARTESIAN ROBOTS/INDUSTRIAL ROBOTICS

5.7.5 INDUSTRIAL INTERNET OF THINGS (IIOT) AND AI

5.7.6 LIQUID LENSES

5.7.7 ROBOTIC VISION

5.7.8 5G

5.8 PORTER'S FIVE FORCES ANALYSIS

TABLE 4 MACHINE VISION MARKET: PORTER'S FIVE FORCES ANALYSIS, 2022

FIGURE 31 MACHINE VISION MARKET: PORTER'S FIVE FORCES ANALYSIS, 2022

5.8.1 THREAT OF NEW ENTRANTS

5.8.2 THREAT OF SUBSTITUTES

5.8.3 BARGAINING POWER OF SUPPLIERS

5.8.4 BARGAINING POWER OF BUYERS

5.8.5 INTENSITY OF COMPETITIVE RIVALRY

5.9 KEY STAKEHOLDERS AND BUYING CRITERIA

5.9.1 KEY STAKEHOLDERS IN BUYING PROCESS

FIGURE 32 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE INDUSTRIES

TABLE 5 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE INDUSTRIES (%)

5.9.2 BUYING CRITERIA

FIGURE 33 KEY BUYING CRITERIA FOR TOP THREE INDUSTRIES

TABLE 6 KEY BUYING CRITERIA FOR TOP THREE INDUSTRIES

5.10 CASE STUDY ANALYSIS

5.10.1 BOX SORTING INNOVATIVE MACHINE VISION SOLUTION WAS DEVELOPED TO VERIFY KEY COMPONENTS ON EACH BOX

5.10.2 BLUEWRIST DEVELOPED BLUEWRIST 3D VISION ROBOT GUIDANCE SOLUTION FOR AUTOMAKER

5.10.3 RNA MK360 GLASS DISC VISION MACHINE WAS DEVELOPED FOR PHARMACEUTICAL INDUSTRY

5.11 TRADE ANALYSIS

FIGURE 34 IMPORT DATA FOR PRODUCTS UNDER HS CODE 852580, BY KEY COUNTRY, 2018–2022 (USD MILLION)

FIGURE 35 EXPORT DATA FOR PRODUCTS UNDER HS CODE 852580, BY KEY COUNTRY, 2018–2022 (USD MILLION)

5.12 PATENT ANALYSIS

FIGURE 36 TOP 10 COMPANIES WITH HIGHEST NUMBER OF PATENT APPLICATIONS IN LAST 10 YEARS

FIGURE 37 PATENTS REGISTERED RELATED TO MACHINE VISION SYSTEMS, 2013–2022

TABLE 7 TOP 20 PATENT OWNERS IN LAST 10 YEARS

5.12.1 LIST OF MAJOR PATENTS RELATED TO MACHINE VISION SYSTEMS

TABLE 8 MACHINE VISION MARKET: PATENTS AND INNOVATIONS

5.13 KEY CONFERENCES AND EVENTS, 2023–2024

TABLE 9 MACHINE VISION MARKET: LIST OF CONFERENCES AND EVENTS

5.14 REGULATORY LANDSCAPE

5.14.1 REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 10 NORTH AMERICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 11 EUROPE: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 12 ASIA PACIFIC: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

TABLE 13 ROW: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS

5.15 STANDARDS

5.15.1 INTERFACE/CONNECTIVITY

5.15.1.1 GigE Vision

5.15.1.2 USB3 Vision

5.15.1.3 CoaXPress (CXP)

5.15.2 CAMERA

5.15.2.1 EMVA 1288

5.15.2.2 ASTM E57

5.15.3 LENS

5.15.3.1 Japan Industrial Imaging Association (JIAA)

5.15.4 PROGRAMMING INTERFACE

5.15.4.1 GenICam

TABLE 14 MACHINE VISION MARKET: STANDARDS

6 MACHINE VISION MARKET, BY APPLICATION

6.1 INTRODUCTION

FIGURE 38 MACHINE VISION MARKET, BY APPLICATION

6.2 QUALITY ASSURANCE AND INSPECTION

6.2.1 GROWING USE OF MACHINE VISION SYSTEMS TO DETECT DEFECTS, CONTAMINANTS, AND FUNCTIONAL FAILURES IN VARIOUS INDUSTRIES

6.3 POSITIONING AND GUIDANCE

6.3.1 INCREASING ADOPTION OF MACHINE VISION SYSTEMS TO ENSURE HIGH-SPEED PRODUCTION AND PRECISE OBJECT ORIENTATION AND PLACEMENT

6.4 MEASUREMENT

6.4.1 RISING DEPLOYMENT OF MACHINE VISION SYSTEMS IN AUTOMOTIVE AND ELECTRONICS INDUSTRIES TO DETERMINE PRECISE OBJECT DIMENSIONS

6.5 IDENTIFICATION

6.5.1 INCREASING ADOPTION OF MACHINE VISION SYSTEMS TO READ VARIOUS CODES AND ALPHANUMERIC CHARACTERS PRINTED ON PARTS

6.6 PREDICTIVE MAINTENANCE

6.6.1 GROWING USE OF MACHINE VISION SYSTEMS IN PREDICTIVE MAINTENANCE TO AGGREGATE AND PROCESS DATA FASTER AND AVOID MACHINE DOWNTIME

7 MACHINE VISION MARKET, BY DEPLOYMENT

7.1 INTRODUCTION

FIGURE 39 MACHINE VISION MARKET, BY DEPLOYMENT

FIGURE 40 GENERAL SEGMENT TO HOLD LARGER MARKET SHARE IN 2023

TABLE 15 MACHINE VISION MARKET, BY DEPLOYMENT, 2019–2022 (USD MILLION)

TABLE 16 MACHINE VISION MARKET, BY DEPLOYMENT, 2023–2028 (USD MILLION)

7.1.1 GENERAL

7.1.1.1 Use of machine vision systems to automate inspections using cameras and software in various industries to drive market

7.1.2 ROBOTIC CELL

7.1.2.1 Growing demand for automation and technological advancements in robotic cells to fuel market growth

8 MACHINE VISION MARKET, BY COMPONENT

8.1 INTRODUCTION

FIGURE 41 MACHINE VISION MARKET, BY COMPONENT

FIGURE 42 SOFTWARE SEGMENT TO REGISTER HIGHER CAGR DURING FORECAST PERIOD

TABLE 17 MACHINE VISION MARKET, BY COMPONENT, 2019–2022 (USD MILLION)

TABLE 18 MACHINE VISION MARKET, BY COMPONENT, 2023–2028 (USD MILLION)

8.2 HARDWARE

TABLE 19 MACHINE VISION MARKET, BY HARDWARE, 2019–2022 (USD MILLION)

TABLE 20 MACHINE VISION MARKET, BY HARDWARE, 2023–2028 (USD MILLION)

TABLE 21 CAMERAS: MACHINE VISION HARDWARE MARKET, 2022 (MILLION UNITS)

8.2.1 CAMERAS

8.2.1.1 Emergence of 3D cameras with high-precision vision

TABLE 22 CAMERAS: MACHINE VISION MARKET FOR HARDWARE, BY PRODUCT, 2019–2022 (USD MILLION)

TABLE 23 CAMERAS: MACHINE VISION MARKET FOR HARDWARE, BY PRODUCT, 2023–2028 (USD MILLION)

8.2.1.2 Interface standards

8.2.1.2.1 USB 2.0

8.2.1.2.2 USB 3.0

8.2.1.2.3 Camera Link

8.2.1.2.4 Camera Link HS

8.2.1.2.5 GigE

8.2.1.2.6 10 GigE & 25 GigE bandwidth over GigE Vision

8.2.1.2.7 Others

8.2.1.3 Imaging spectrum

8.2.1.3.1 Visible light

8.2.1.3.2 Visible + IR/IR

TABLE 24 CAMERAS: MACHINE VISION HARDWARE MARKET, BY IMAGING SPECTRUM, 2019–2022 (USD MILLION)

TABLE 25 CAMERAS: MACHINE VISION HARDWARE MARKET, BY IMAGING SPECTRUM, 2023–2028 (USD MILLION)

8.2.1.4 Frame rate

8.2.1.4.1 Less than 25 frames per second

8.2.1.4.2 25–125 frames per second

8.2.1.4.3 More than 125 frames per second

TABLE 26 CAMERAS: MACHINE VISION HARDWARE MARKET, BY FRAME RATE, 2019–2022 (USD MILLION)

TABLE 27 CAMERAS: MACHINE VISION HARDWARE MARKET, BY FRAME RATE, 2023–2028 (USD MILLION)

8.2.1.5 Format

8.2.1.5.1 Line scan

8.2.1.5.2 Area scan

TABLE 28 CAMERAS: MACHINE VISION HARDWARE MARKET, BY FORMAT, 2019–2022 (USD MILLION)

TABLE 29 CAMERAS: MACHINE VISION HARDWARE MARKET, BY FORMAT, 2023–2028 (USD MILLION)

8.2.1.6 Sensor

8.2.1.6.1 Complementary metal oxide semiconductor (CMOS)

8.2.1.7 Charged-coupled device (CCD)

8.2.2 FRAME GRABBERS

8.2.2.1 Growing use of frame grabbers in large and fast machine vision systems

8.2.3 OPTICS

8.2.3.1 Rising use in conjunction with camera body to capture images of objects

8.2.4 LED LIGHTING

8.2.4.1 Growing demand for structured lighting

8.2.5 PROCESSORS

8.2.5.1 High frame rate, high resolution, real-time video analytics, and increased complexity in vision algorithms

8.2.5.2 Field-programmable gate array (FPGA)

8.2.5.3 Digital signal processor (DSP)

8.2.5.4 Microcontroller and microprocessor

8.2.5.5 Vision processing unit

8.3 SOFTWARE

TABLE 30 MACHINE VISION MARKET, BY SOFTWARE, 2019–2022 (USD MILLION)

TABLE 31 MACHINE VISION MARKET, BY SOFTWARE, 2023–2028 (USD MILLION)**8.3.1 TRADITIONAL SOFTWARE**

8.3.1.1 Increasing use to process, analyze, and measure various characteristics of objects or products for decision-making

8.3.2 DEEP LEARNING SOFTWARE

8.3.2.1 High flexibility to design and train customized deep neural networks

8.3.2.2 Convolutional neural networks

8.3.2.3 Recurrent neural networks

9 MACHINE VISION MARKET, BY PRODUCT**9.1 INTRODUCTION**

FIGURE 43 MACHINE VISION MARKET, BY PRODUCT

FIGURE 44 SMART CAMERA-BASED SEGMENT TO REGISTER HIGHER CAGR FROM 2023 TO 2028

TABLE 32 MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD MILLION)

TABLE 33 MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD MILLION)

9.2 PC-BASED MACHINE VISION SYSTEM

9.2.1 HIGH PROCESSING POWER AND VERSATILITY WITH DIVERSE APPLICATIONS AND CAMERAS TO DRIVE DEMAND

9.3 SMART CAMERA-BASED MACHINE VISION SYSTEM

9.3.1 GROWING USE OF SMART CAMERA-BASED MACHINE VISION SYSTEMS IN IMAGING AND SECURITY APPLICATIONS TO DRIVE MARKET

10 MACHINE VISION MARKET, BY INDUSTRY**10.1 INTRODUCTION**

FIGURE 45 MACHINE VISION MARKET, BY INDUSTRY

FIGURE 46 FOOD & PACKAGING SEGMENT TO HOLD LARGEST SHARE OF MACHINE VISION MARKET IN 2028

TABLE 34 MACHINE VISION MARKET, BY INDUSTRY, 2019–2022 (USD MILLION)

TABLE 35 MACHINE VISION MARKET, BY INDUSTRY, 2023–2028 (USD MILLION)

10.2 AUTOMOTIVE

10.2.1 RISING ADOPTION OF MACHINE VISION SYSTEMS TO IMPROVE PRECISION AND EFFICIENCY IN AUTOMOBILE MANUFACTURING

TABLE 36 AUTOMOTIVE: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 37 AUTOMOTIVE: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 38 AUTOMOTIVE: MACHINE VISION MARKET, BY PRODUCT, 2019–2022
(USD MILLION)

TABLE 39 AUTOMOTIVE: MACHINE VISION MARKET, BY PRODUCT, 2023–2028
(USD MILLION)

10.3 ELECTRONICS & SEMICONDUCTORS

10.3.1 RISING USE OF MACHINE VISION SYSTEMS TO OPTIMIZE ELECTRONIC
PRODUCTION BY DETECTING DEFECTS AND ENHANCE SEMICONDUCTOR
FABRICATION

TABLE 40 ELECTRONICS & SEMICONDUCTORS: MACHINE VISION MARKET, BY
REGION, 2019–2022 (USD MILLION)

TABLE 41 ELECTRONICS & SEMICONDUCTORS: MACHINE VISION MARKET, BY
REGION, 2023–2028 (USD MILLION)

TABLE 42 ELECTRONICS & SEMICONDUCTORS: MACHINE VISION MARKET, BY
PRODUCT, 2019–2022 (USD MILLION)

TABLE 43 ELECTRONICS & SEMICONDUCTORS: MACHINE VISION MARKET, BY
PRODUCT, 2023–2028 (USD MILLION)

10.4 CONSUMER ELECTRONICS

10.4.1 INCREASING DEMAND FOR MACHINE VISION SYSTEMS TO ENHANCE
ELECTRONIC ASSEMBLY BY AUTOMATING INSPECTION

TABLE 44 CONSUMER ELECTRONICS: MACHINE VISION MARKET, BY REGION,
2019–2022 (USD MILLION)

TABLE 45 CONSUMER ELECTRONICS: MACHINE VISION MARKET, BY REGION,
2023–2028 (USD MILLION)

TABLE 46 CONSUMER ELECTRONICS: MACHINE VISION MARKET, BY PRODUCT,
2019–2022 (USD MILLION)

TABLE 47 CONSUMER ELECTRONICS: MACHINE VISION MARKET, BY PRODUCT,
2023–2028 (USD MILLION)

10.5 GLASS

10.5.1 GROWING USE OF MACHINE VISION SYSTEMS TO OPTIMIZE
ELECTRONICS PRODUCTION VIA AUTOMATED PRECISION INSPECTIONS

TABLE 48 GLASS: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD
MILLION)

TABLE 49 GLASS: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD
MILLION)

TABLE 50 GLASS: MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD
MILLION)

TABLE 51 GLASS: MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD
MILLION)

10.6 METALS

10.6.1 INCREASING DEPLOYMENT OF MACHINE VISION SYSTEMS TO ENHANCE PRODUCT QUALITY USING 3D INSPECTION

TABLE 52 METALS: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 53 METALS: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 54 METALS: MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD MILLION)

TABLE 55 METALS: MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD MILLION)

10.7 WOOD & PAPER

10.7.1 GROWING ADOPTION OF MACHINE VISION SYSTEMS TO OPTIMIZE PRODUCTION AND QUALITY CONTROL

TABLE 56 WOOD & PAPER: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 57 WOOD & PAPER: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 58 WOOD & PAPER: MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD MILLION)

TABLE 59 WOOD & PAPER: MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD MILLION)

10.8 PHARMACEUTICALS

10.8.1 INCREASING DEMAND FOR MACHINE VISION SYSTEMS TO ENHANCE PRODUCT QUALITY AND ENSURE COMPLIANCE WITH INDUSTRY STANDARDS

TABLE 60 PHARMACEUTICALS: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 61 PHARMACEUTICALS: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD MILLION)

TABLE 62 PHARMACEUTICALS: MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD MILLION)

TABLE 63 PHARMACEUTICALS: MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD MILLION)

10.9 FOOD & PACKAGING

10.9.1 FOOD

10.9.1.1 Growing use of machine vision systems to enhance food processing and reduce labor cost

10.9.2 PACKAGING

10.9.2.1 Rising adoption of machine vision systems to streamline packaging quality and efficiency

TABLE 64 FOOD & PACKAGING: MACHINE VISION MARKET, BY REGION,
2019–2022 (USD MILLION)

TABLE 65 FOOD & PACKAGING: MACHINE VISION MARKET, BY REGION,
2023–2028 (USD MILLION)

TABLE 66 FOOD & PACKAGING: MACHINE VISION MARKET, BY PRODUCT,
2019–2022 (USD MILLION)

TABLE 67 FOOD & PACKAGING: MACHINE VISION MARKET, BY PRODUCT,
2023–2028 (USD MILLION)

10.10 RUBBER & PLASTICS

10.10.1 INCREASING USE OF MACHINE VISION SYSTEMS TO AUTOMATE
INSPECTION AND ENHANCE EFFICIENCY OF VARIOUS PROCESSES

TABLE 68 RUBBER & PLASTICS: MACHINE VISION MARKET, BY REGION,
2019–2022 (USD MILLION)

TABLE 69 RUBBER & PLASTICS: MACHINE VISION MARKET, BY REGION,
2023–2028 (USD MILLION)

TABLE 70 RUBBER & PLASTICS: MACHINE VISION MARKET, BY PRODUCT,
2019–2022 (USD MILLION)

TABLE 71 RUBBER & PLASTICS: MACHINE VISION MARKET, BY PRODUCT,
2023–2028 (USD MILLION)

10.11 PRINTING

10.11.1 RISING ADOPTION OF MACHINE VISION SYSTEMS TO ENSURE
QUALITY IN PRINTING PROCESSES

TABLE 72 PRINTING: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD
MILLION)

TABLE 73 PRINTING: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD
MILLION)

TABLE 74 PRINTING: MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD
MILLION)

TABLE 75 PRINTING: MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD
MILLION)

10.12 MACHINERY

10.12.1 INCREASING USE OF MACHINE VISION SYSTEMS TO COMPLETE
PROCESSES RAPIDLY, DETECT DEFECTS, AND VALIDATE PRODUCT QUALITY

TABLE 76 MACHINERY: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD
MILLION)

TABLE 77 MACHINERY: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD
MILLION)

TABLE 78 MACHINERY: MACHINE VISION MARKET, BY PRODUCT, 2019–2022
(USD MILLION)

TABLE 79 MACHINERY: MACHINE VISION MARKET, BY PRODUCT, 2023–2028
(USD MILLION)

10.13 SOLAR PANEL MANUFACTURING

10.13.1 GROWING USE OF INDUSTRIAL MACHINE VISION-BASED INSPECTION
TOOLS TO EXAMINE QUALITY OF SOLAR PANELS

TABLE 80 SOLAR PANEL MANUFACTURING: MACHINE VISION MARKET, BY
REGION, 2019–2022 (USD MILLION)

TABLE 81 SOLAR PANEL MANUFACTURING: MACHINE VISION MARKET, BY
REGION, 2023–2028 (USD MILLION)

TABLE 82 SOLAR PANEL MANUFACTURING: MACHINE VISION MARKET, BY
PRODUCT, 2019–2022 (USD MILLION)

TABLE 83 SOLAR PANEL MANUFACTURING: MACHINE VISION, BY PRODUCT,
2023–2028 (USD MILLION)

10.14 TEXTILES

10.14.1 INCREASING DEPLOYMENT OF MACHINE VISION SYSTEMS TO LOWER
OPERATIONAL COSTS, REDUCE WASTE, AND MAINTAIN SUSTAINABILITY

TABLE 84 TEXTILES: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD
MILLION)

TABLE 85 TEXTILES: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD
MILLION)

TABLE 86 TEXTILES: MACHINE VISION MARKET, BY PRODUCT, 2019–2022 (USD
MILLION)

TABLE 87 TEXTILES: MACHINE VISION MARKET, BY PRODUCT, 2023–2028 (USD
MILLION)

11 MACHINE VISION MARKET, BY REGION

11.1 INTRODUCTION

FIGURE 47 MACHINE VISION MARKET, BY REGION

FIGURE 48 ASIA PACIFIC MACHINE VISION MARKET TO REGISTER HIGHEST
CAGR DURING FORECAST PERIOD

TABLE 88 MACHINE VISION MARKET, BY REGION, 2019–2022 (USD MILLION)

TABLE 89 MACHINE VISION MARKET, BY REGION, 2023–2028 (USD MILLION)

11.2 NORTH AMERICA

11.2.1 NORTH AMERICA: RECESSION IMPACT

FIGURE 49 NORTH AMERICA: MACHINE VISION MARKET SNAPSHOT

TABLE 90 NORTH AMERICA: MACHINE VISION MARKET, BY COUNTRY,
2019–2022 (USD MILLION)

TABLE 91 NORTH AMERICA: MACHINE VISION MARKET, BY COUNTRY,

2023–2028 (USD MILLION)

TABLE 92 NORTH AMERICA: MACHINE VISION MARKET, BY INDUSTRY,
2019–2022 (USD MILLION)

TABLE 93 NORTH AMERICA: MACHINE VISION MARKET, BY INDUSTRY,
2023–2028 (USD MILLION)

11.2.2 US

11.2.2.1 Rising demand in pharmaceuticals and automotive industries

11.2.3 CANADA

11.2.3.1 Rising use in automotive, electronics, and healthcare industries to enhance efficiency, quality, and increase productivity

11.2.4 MEXICO

11.2.4.1 Rising focus on maintaining high-quality standards and operational efficiency

11.3 EUROPE

11.3.1 EUROPE: RECESSION IMPACT

FIGURE 50 EUROPE: MACHINE VISION MARKET SNAPSHOT

TABLE 94 EUROPE: MACHINE VISION MARKET, BY COUNTRY, 2019–2022 (USD MILLION)

TABLE 95 EUROPE: MACHINE VISION MARKET, BY COUNTRY, 2023–2028 (USD MILLION)

TABLE 96 EUROPE: MACHINE VISION MARKET, BY INDUSTRY, 2019–2022 (USD MILLION)

TABLE 97 EUROPE: MACHINE VISION MARKET, BY INDUSTRY, 2023–2028 (USD MILLION)

11.3.2 GERMANY

11.3.2.1 Growing use of machine vision systems to optimize operational efficiency and precision in industrial settings

11.3.3 UK

11.3.3.1 Increasing adoption of machine vision technology in automotive and aerospace industries

11.3.4 FRANCE

11.3.4.1 Expanding electric vehicle market and increasing demand for portable electronic products

11.3.4.2 Government-led initiatives for booting adoption of advanced manufacturing technologies

11.3.5 SPAIN

11.3.5.1 Booming consumer electronics and pharmaceuticals industries

11.3.6 REST OF EUROPE

11.4 ASIA PACIFIC

11.4.1 ASIA PACIFIC: RECESSION IMPACT

FIGURE 51 ASIA PACIFIC: MACHINE VISION MARKET SNAPSHOT**TABLE 98 ASIA PACIFIC: MACHINE VISION MARKET, BY COUNTRY, 2019–2022
(USD MILLION)****TABLE 99 ASIA PACIFIC: MACHINE VISION MARKET, BY COUNTRY, 2023–2028
(USD MILLION)****TABLE 100 ASIA PACIFIC: MACHINE VISION MARKET, BY INDUSTRY, 2019–2022
(USD MILLION)****TABLE 101 ASIA PACIFIC: MACHINE VISION MARKET, BY INDUSTRY, 2023–2028
(USD MILLION)****11.4.2 CHINA****11.4.2.1 Growing adoption of machine vision systems to increase productivity and enhance product quality****11.4.3 JAPAN****11.4.3.1 Rising adoption of machine vision systems by consumer electronics manufacturers****11.4.4 SOUTH KOREA****11.4.4.1 Growing adoption of machine vision systems in various industries to meet stringent quality requirements****11.4.5 INDIA****11.4.5.1 Government-led initiatives for boosting factory automation****11.4.6 REST OF ASIA PACIFIC****11.5 ROW****11.5.1 ROW: RECESSION IMPACT****FIGURE 52 MIDDLE EAST & AFRICA TO DOMINATE ROW MARKET DURING FORECAST PERIOD****TABLE 102 ROW: MACHINE VISION MARKET, BY REGION, 2019–2022 (USD MILLION)****TABLE 103 ROW: MACHINE VISION MARKET, BY REGION, 2023–2028 (USD MILLION)****TABLE 104 ROW: MACHINE VISION MARKET, BY INDUSTRY, 2019–2022 (USD MILLION)****TABLE 105 ROW: MACHINE VISION MARKET, BY INDUSTRY, 2023–2028 (USD MILLION)****11.5.2 SOUTH AMERICA****11.5.2.1 Increasing demand for automated quality inspection****11.5.3 GCC****11.5.3.1 Rising use of machine vision systems for automation, quality control, and process optimization in various industries****11.5.4 AFRICA & REST OF MIDDLE EAST**

11.5.4.1 Growing demand for machine vision systems to boost productivity and optimize operations

12 COMPETITIVE LANDSCAPE

12.1 OVERVIEW

12.2 KEY STRATEGIES ADOPTED BY MAJOR PLAYERS

TABLE 106 MACHINE VISION MARKET: OVERVIEW OF KEY STRATEGIES ADOPTED BY MAJOR PLAYERS

12.3 REVENUE ANALYSIS, 2019–2022

FIGURE 53 MACHINE VISION MARKET: REVENUE ANALYSIS, 2019–2022

12.4 MARKET SHARE ANALYSIS OF TOP FIVE PLAYERS, 2022

TABLE 107 MACHINE VISION MARKET: DEGREE OF COMPETITION

FIGURE 54 MACHINE VISION MARKET SHARE ANALYSIS, 2022

12.5 COMPANY EVALUATION MATRIX, 2022

12.5.1 STARS

12.5.2 EMERGING LEADERS

12.5.3 PERVASIVE PLAYERS

12.5.4 PARTICIPANTS

FIGURE 55 MACHINE VISION MARKET: COMPANY EVALUATION MATRIX, 2022

12.6 COMPANY FOOTPRINT

TABLE 108 PRODUCT: COMPANY FOOTPRINT

TABLE 109 INDUSTRY: COMPANY FOOTPRINT

TABLE 110 REGION: COMPANY FOOTPRINT

TABLE 111 OVERALL COMPANY FOOTPRINT

12.7 STARTUPS/SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) EVALUATION MATRIX, 2022

12.7.1 PROGRESSIVE COMPANIES

12.7.2 RESPONSIVE COMPANIES

12.7.3 DYNAMIC COMPANIES

12.7.4 STARTING BLOCKS

FIGURE 56 MACHINE VISION MARKET: STARTUPS/SMES EVALUATION MATRIX, 2022

12.8 LIST OF KEY STARTUPS/SMES

TABLE 112 MACHINE VISION MARKET: LIST OF KEY STARTUPS/SMES

12.9 COMPETITIVE BENCHMARKING

TABLE 113 MACHINE VISION MARKET: COMPETITIVE BENCHMARKING OF KEY STARTUPS/SMES

12.10 COMPETITIVE SCENARIOS AND TRENDS

12.10.1 PRODUCT LAUNCHES

TABLE 114 MACHINE VISION MARKET: PRODUCT LAUNCHES, 2021–2023

12.10.2 DEALS

TABLE 115 MACHINE VISION MARKET: DEALS, 2021–2023

12.10.3 OTHERS

TABLE 116 MACHINE VISION MARKET: OTHERS, 2021–2023

13 COMPANY PROFILES

13.1 KEY PLAYERS

(Business Overview, Products/Solutions/Services Offered, Recent Developments, MnM view (Key strengths/Right to win, Strategic choices made, Weakness/competitive threats)*)

13.1.1 COGNEX CORPORATION

TABLE 117 COGNEX CORPORATION: COMPANY OVERVIEW

FIGURE 57 COGNEX CORPORATION: COMPANY SNAPSHOT

TABLE 118 COGNEX CORPORATION: PRODUCT OFFERINGS

TABLE 119 COGNEX CORPORATION: PRODUCT LAUNCHES

13.1.2 BASLER AG

TABLE 120 BASLER AG: COMPANY OVERVIEW

FIGURE 58 BASLER AG: COMPANY SNAPSHOT

TABLE 121 BASLER AG: PRODUCT OFFERINGS

TABLE 122 BASLER AG: PRODUCT LAUNCHES

TABLE 123 BASLER AG: DEALS

13.1.3 KEYENCE CORPORATION

TABLE 124 KEYENCE CORPORATION: COMPANY OVERVIEW

FIGURE 59 KEYENCE CORPORATION: COMPANY SNAPSHOT

TABLE 125 KEYENCE CORPORATION: PRODUCT OFFERINGS

TABLE 126 KEYENCE CORPORATION: PRODUCT LAUNCHES

13.1.4 TELEDYNE TECHNOLOGIES

TABLE 127 TELEDYNE TECHNOLOGIES: COMPANY OVERVIEW

FIGURE 60 TELEDYNE TECHNOLOGIES: COMPANY SNAPSHOT

TABLE 128 TELEDYNE TECHNOLOGIES: PRODUCT OFFERINGS

TABLE 129 TELEDYNE TECHNOLOGIES: PRODUCT LAUNCHES

13.1.5 TKH GROUP

TABLE 130 TKH GROUP: COMPANY OVERVIEW

FIGURE 61 TKH GROUP: COMPANY SNAPSHOT

TABLE 131 TKH GROUP: PRODUCT OFFERINGS

TABLE 132 TKH GROUP: PRODUCT LAUNCHES

TABLE 133 TKH GROUP: DEALS**13.1.6 OMRON CORPORATION****TABLE 134 OMRON CORPORATION: COMPANY OVERVIEW****FIGURE 62 OMRON CORPORATION: COMPANY SNAPSHOT****TABLE 135 OMRON CORPORATION: PRODUCT OFFERINGS****TABLE 136 OMRON CORPORATION: PRODUCT LAUNCHES****TABLE 137 OMRON CORPORATION: DEALS****TABLE 138 OMRON CORPORATION: OTHERS****13.1.7 NATIONAL INSTRUMENTS CORPORATION****TABLE 139 NATIONAL INSTRUMENTS CORPORATION: COMPANY OVERVIEW****FIGURE 63 NATIONAL INSTRUMENTS CORPORATION: COMPANY SNAPSHOT****TABLE 140 NATIONAL INSTRUMENTS CORPORATION: PRODUCT OFFERINGS****TABLE 141 NATIONAL INSTRUMENTS CORPORATION: PRODUCT LAUNCHES****TABLE 142 NATIONAL INSTRUMENTS CORPORATION: DEALS****TABLE 143 NATIONAL INSTRUMENTS CORPORATION: OTHERS****13.1.8 SICK AG****TABLE 144 SICK AG: COMPANY OVERVIEW****FIGURE 64 SICK AG: COMPANY SNAPSHOT****TABLE 145 SICK AG: PRODUCT OFFERINGS****TABLE 146 SICK AG: PRODUCT LAUNCHES****TABLE 147 SICK AG: DEALS****13.1.9 SONY CORPORATION****TABLE 148 SONY CORPORATION: COMPANY OVERVIEW****FIGURE 65 SONY CORPORATION: COMPANY SNAPSHOT****TABLE 149 SONY CORPORATION: PRODUCT OFFERINGS****TABLE 150 SONY CORPORATION: DEALS****13.1.10 TEXAS INSTRUMENTS INCORPORATED****TABLE 151 TEXAS INSTRUMENTS INCORPORATED: COMPANY OVERVIEW****FIGURE 66 TEXAS INSTRUMENTS INCORPORATED: COMPANY SNAPSHOT****TABLE 152 TEXAS INSTRUMENTS INCORPORATED: PRODUCT OFFERINGS****TABLE 153 TEXAS INSTRUMENTS INCORPORATED: PRODUCT LAUNCHES****13.1.11 INTEL CORPORATION****TABLE 154 INTEL CORPORATION: COMPANY OVERVIEW****FIGURE 67 INTEL CORPORATION: COMPANY SNAPSHOT****TABLE 155 INTEL CORPORATION: PRODUCT OFFERINGS****TABLE 156 INTEL CORPORATION: PRODUCT LAUNCHES****TABLE 157 INTEL CORPORATION: DEALS****13.1.12 ATLAS COPCO****TABLE 158 ATLAS COPCO: COMPANY OVERVIEW**

FIGURE 68 ATLAS COPCO AB: COMPANY SNAPSHOT

TABLE 159 ATLAS COPCO: PRODUCT OFFERINGS

TABLE 160 ATLAS COPCO: PRODUCT LAUNCHES

TABLE 161 ATLAS COPCO: DEALS

TABLE 162 ATLAS COPCO: OTHERS

13.1.13 MICROSOFT

TABLE 163 MICROSOFT: COMPANY OVERVIEW

FIGURE 69 MICROSOFT: COMPANY SNAPSHOT

TABLE 164 MICROSOFT: PRODUCT OFFERINGS

TABLE 165 MICROSOFT: DEALS

13.2 OTHER PLAYERS

13.2.1 AMETEK, INC.

13.2.2 QUALITAS TECHNOLOGIES

13.2.3 BAUMER

13.2.4 ALGOLUX (TORC ROBOTICS)

13.2.5 TORDIVEL AS

13.2.6 INUITIVE

13.2.7 MVTEC SOFTWARE GMBH

13.2.8 JAI A/S

13.2.9 INDUSTRIAL VISION SYSTEMS

13.2.10 IVISYS

13.2.11 USS VISION LLC

13.2.12 OPTOTUNE

Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, MnM view (Key strengths/Right to win, Strategic choices made, Weakness/competitive threats) might not be captured in case of unlisted companies.

14 ADJACENT AND RELATED MARKETS

14.1 INTRODUCTION

14.2 LIMITATIONS

14.3 COLLABORATIVE ROBOT MARKET, BY COMPONENT

TABLE 166 COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT, 2018–2021 (USD MILLION)

TABLE 167 COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT, 2022–2028 (USD MILLION)

14.4 HARDWARE

TABLE 168 HARDWARE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT, 2018–2021 (USD MILLION)

TABLE 169 HARDWARE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT, 2022–2028 (USD MILLION)**14.4.1 ROBOTIC ARM****14.4.2 END EFFECTOR OR END OF ARM TOOL (EOAT)****14.4.2.1 Welding guns****TABLE 170 PLAYERS MANUFACTURING ROBOTIC WELDING GUNS****14.4.2.2 Grippers****14.4.2.2.1 Pneumatic****14.4.2.2.2 Electric****TABLE 171 PLAYERS MANUFACTURING ELECTRIC GRIPPERS****14.4.2.2.3 Dexterous robotic hand****14.4.2.2.4 Vacuum****14.4.2.2.5 Magnetic****TABLE 172 PLAYERS MANUFACTURING MAGNETIC GRIPPERS****14.4.2.3 Robotic screwdrivers****14.4.2.4 Sanding and deburring tools****14.4.2.5 Others****14.4.3 DRIVES****14.4.4 CONTROLLERS****14.4.5 SENSORS****14.4.6 POWER SUPPLY****14.4.7 MOTORS****14.4.8 OTHERS****14.5 SOFTWARE****15 APPENDIX****15.1 INSIGHTS FROM INDUSTRY EXPERTS****15.2 DISCUSSION GUIDE****15.3 KNOWLEDGESTORE: MARKETSANDMARKETS' SUBSCRIPTION PORTAL****15.4 CUSTOMIZATION OPTIONS****15.5 RELATED REPORTS****15.6 AUTHOR DETAILS**

I would like to order

Product name: Machine Vision Market Size, Share & Industry by Component (Hardware, Software), Deployment (General, Robotic Cells), Product (PC-based Machine Vision System, Smart Camera-based Machine Vision System), Application, End-user Industry and Region - Global Forecast to 2028

Product link: <https://marketpublishers.com/r/M2A157B42DAEN.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/M2A157B42DAEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:

Last name:

Email:

Company:

Address:

City:

Zip code:

Country:

Tel:

Fax:

Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below
and fax the completed form to +44 20 7900 3970